About the American Geriatrics Society

WHO WE ARE

Founded in 1942, the American Geriatrics Society (AGS) is a nationwide, not-for-profit society of geriatrics healthcare professionals dedicated to improving the health, independence, and quality of life of older people. Our nearly 6,000 members include geriatricians, geriatric nurses, social workers, family practitioners, physician assistants, pharmacists, and internists who are pioneers in advanced-illness care for older individuals, with a focus on championing interprofessional teams, eliciting personal care goals, and treating older people as whole persons.

The Society provides leadership to healthcare professionals, policymakers, and the public by implementing and advocating for programs in clinical care, research, professional and public education, and public policy that can support us all as we age.

OUR MISSION

To improve the health, independence, and quality of life of all older people.

OUR VISION FOR THE FUTURE

We are all able to contribute to our communities and maintain our health, safety, and independence as we age; and older people have access to high-quality, person-centered care informed by geriatrics principles.

STRATEGIES FOR ACHIEVING OUR VISION

- Expanding the geriatrics knowledge base through disseminating basic, clinical, and health services research focused on the health of older people.
- Increasing the number of healthcare professionals employing geriatrics principles when caring for culturally diverse older persons by supporting the integration of geriatrics concepts into health professional education.
- Recruiting healthcare professional trainees into geriatrics by focusing on the rewards and potential of a career caring for older people.
- Advocating for public policy that promotes the health and independence of older Americans, with the goal of improving health, quality of life, and healthcare systems serving us all as we age.
- Creating awareness about the ways geriatrics can support older people remaining active, independent, and engaged in our communities.

LEARN MORE

Visit *www.americangeriatrics.org* to learn more about the Society and its programs.

New Style Rule for JAGS Authors

As part of the journal's adoption of the AMA style for all papers, authors should now use the first person and active voice in all submissions. The guidelines for publication conform to those of the International Committee of Medical Journal Editors and the *AMA Manual of Style. A Guide for Authors and Editors, 10th Ed.* (http://www.amamanualofstyle.com/) An explication of statistical guidelines is presented in John C. Bailar III and Frederick Mostellor, "Guidelines for Statistical Reporting in Articles for Medical Journals," Annals of Internal Medicine (1998;108:266–273).

JAGS Recognized as Among Most Influential Journals in the World

In June 2009, the Journal of the American Geriatrics Society (JAGS) was officially recognized by the Special Library Association as among the top 100 most influential biomedical journals in the world in the past 100 years. It is the only geriatrics/gerontology journal to be selected for inclusion in this list. JAGS supports the Society's vision that all older adults will receive high-quality, patient-centered care.

JOURNAL OF THE AMERICAN GERIATRICS SOCIETY

Dear Annual Meeting Attendee:

The American Geriatrics Society Annual Scientific Meeting is the premier educational event in geriatrics, providing the latest information on clinical geriatrics, research on aging, and innovative models of care delivery. The 2019 Annual Meeting will address the professional and educational needs of geriatrics professionals from all disciplines through state-of-the-art educational sessions and research presentations.

This supplement of the *Journal of the American Geriatrics Society* is devoted to abstracts of the scientific presentations that are scheduled for the 2019 AGS Annual Scientific Meeting. We are hopeful that this supplement will be helpful to those of you who are planning to attend the meeting so as to maximize your attendance at educational, research, and clinical presentations of interest to you.

We are also pleased to provide these abstracts to subscribers of the Journal. We believe that they are an important way of keeping JAGS readers up-to-date on the latest advances in the field.

Sincerely,

Reena Karani, MD, MHPE   Laurie Jacobs, MD, AGSF
2019 Annual Meeting Program Chair   AGS President

AMERICAN GERIATRICS SOCIETY 2019 ANNUAL SCIENTIFIC MEETING

May 2 – 4, 2019

Oregon Convention Center
Portland, OR

**RESEARCH PRESENTATIONS
SCHEDULE AT A GLANCE**

THURSDAY, MAY 2, 2019

**8:15 AM – 9:15 AM
THE BIG SCREEN PAPER SESSION**

P1 – Electronic Frailty Index Predicts Increased Length of Stay, Discharge Destination, and Delirium Risk in Older Surgical Patients
Nicholas M. Pajewski, PhD

P2- 4AT Delirium Screen Status Correlates with Fall Rates
Kevin Shih, MD

P3 – Stratified Fall Risk Facilitates Personalized Care from a 60 Second Test
Katharine E. Forth, PhD

P4 - Predictors of Functional Decline among Older Intensive Care Unit (ICU) Survivors
Lauren E. Ferrante, MD, MHS

**9:30 AM – 10:15 AM
PLENARY PAPER SESSION**

P5 - Spinal Surgery for Degenerative Spine Disease - Opioid Prescription Filling Patterns in Geriatric Patients
Anthony V. Nguyen, BA

P6 - Clinical Outcomes of Intensifying Older Adults' Antihypertensives at Hospital Discharge
Timothy Santeler Anderson, MD, MAS, MA

P7 - Development of a Practical Two-Stage Frailty Assessment for Older Adults Undergoing Aortic Valve Replacement
Anthony Maltagliati, MS

**11:30 AM – 12:30 PM
HEALTH SERVICES & POLICY RESEARCH PAPER SESSION**

P8 - State Variation in Rates of Hospice Use Among Assisted Living Resident Decedents
Kali Thomas, PhD

P9 - U.S. House Call Practices in 2014: Mismatch of Providers, Practices, and Patients
Alyson R. Michener, MD

P10 - Validation of a Health System Measure to Capture Aggressive Hypertension Care
Lillian Min, MD, MSHS

P11- Continuity of Care and Health Care Cost among Community-Dwelling Older Adult Veterans Living with Dementia
Lianlian Lei, MA

**12:30 PM – 1:30 PM
POSTER SESSION A**

**1:30 PM – 2:30 PM
GERIATRIC EDUCATION PAPER SESSION**

P12 - Transforming Undergraduate Student Perceptions of Dementia through Collaborative Filmmaking: Inter-generational Films about Music and Memory®
Jennie M. Gubner, PhD

P13 - Improving Geriatric Primary Care through Interprofessional Teamwork and Practice Improvement Training
Gwendolen T. Buhr, MD

P14 - Evidence-Based Falls Prevention Training at Hunter Holmes McGuire Veterans Medical Center
Leland H. Waters, PhD

P15 - Training Dementia Resource Champions in Faith-based Communities: Feasibility and Lessons Learned
Shellie N. Williams, MD

2:45 PM – 3:45 PM
EPIDEMIOLOGY PAPER SESSION

P16 – Suicides Among Older Adults Aged 65 and Over in the United States, 2007-2017
Hanyu Ni, PhD

P17 – Deprescribing Hypoglycemic Agents Among Older Veterans with Overtreated Diabetes and Limited Life Expectancy in Veterans Affairs (VA) Nursing Homes
Carolyn T. Thorpe, PhD, MPH

P18 – Free Androgen Index and 20-Year Cognitive Decline in the Atherosclerosis Risk in Communities (ARIC) Study
Chloe K. Ferris, BS

P19 - Binge Drinking Among Older Adults – United States, 2015-2017
Benjamin H. Han, MD, MPH

5:00 PM – 6:00 PM
PRESIDENTIAL POSTER SESSION B

FRIDAY, MAY 3, 2019

8:15 AM – 9:15 AM
KEEPING OLDER ADULTS OUT OF THE HOSPITAL PAPER SESSION

P20 - Geriatrics Preventable Admissions Care Team (GERIPACT): The Effectiveness of a High Risk Intensive Ambulatory Geriatrics Program to Reduce Emergency Room Visits and Hospitalizations
Stephanie W. Chow, MD, MPH

P21 - Optimizing Value Based Care in a Medicare Shared Saving Plan Utilizing Geriatric Care Tools: GRACE Model and EPIC Tools
James W. Campbell, MD, MS

P22 - Connecting Provider to Home: Bridging Gaps in Care
Rosaneli Baeza Loza, BS

P23 - Readmissions Reduction on an Acute Care of the Elderly Unit
Maureen C. Dale, MD

10:30 AM – 11:30 AM
THE SCIENCE AND CLINICAL CARE OF OLDER ADULTS WITH COGNITIVE IMPAIRMENT PAPER SESSION
P24 - Empowering Elder Novel Interventions for Delirium Prevention
He (Helen) Sun, MD

P25 - Cognitive Impairment Screening for Older Emergency Department Patients Using Volunteers
Naveena Sunkara, BA

P26 - Patients and Caregivers Who Did Not Benefit from a Comprehensive Dementia Care Program: What Was Recommended?
Kassandra E. Zaila, BA

P27 - Data-Driven Cluster Analysis Identifies Unique Inflammatory and Metabolic Signatures Associated with Self-Rated Health, Cognitive Performance, and Function
Daniel C. Parker, MD

12:30 PM – 1:30 PM
POSTER SESSION C

1:30 PM – 2:30 PM
OLDER ADULTS WITH SERIOUS ILLNESS PAPER SESSION
P28 – Disparities in Rehabilitation Therapy Provided to Older Adults During Prolonged Hospitalization
Danh Q. Nguyen

P29 – Geriatric Trauma Collaboration: Feasibility, Sustainability and Improved Outcomes
Kristine Swartz, MD

P30 – Functional, Cognitive, and Psychological Measures as Predictors of 1-year Mortality in Patients Undergoing Major Surgery
Victoria L. Tang, MD, MAS

P31 - Aging-Associated Changes in Gut Microbiome Drive Sepsis Severity
James F. Colbert, MD

2:45 PM – 3:45 PM
POSTER SESSION D (Students & Residents)

SATURDAY, MAY 4, 2019

7:30 AM – 8:30 AM
THE HEART OF THE MATTER PAPER SESSION
P32 – Antithrombotic Prescribing after Acute Myocardial Infarction in Older Adults with Co-Morbid Atrial Fibrillation: The SILVER-AMI Study
Gregory M. Ouellet, MD, MHS

P33 – Heart Remodeling in Young and Middle-Aged Mice in Response to Heart Rate Reduction
Jorge E. Tovar Perez, MD

P34 – Early Termination of Cardiac Rehabilitation in Older Adults
Ryan P. Searcy, BS

P35 – Did They Make It? An EMS Response to Seniors Undergoing Cardiac Arrest
James J. Bernick, MD

10:30 AM – 11:30 AM
TO PRESCRIBE OR DEPRESCRIBE PAPER SESSION

P36 – Impact of Local Implementation Adaptation on Prescribing Change through the EQUIPPED Medication Safety Program
Melissa B. Stevens, MD

P37 – DePrescribing Is Achievable in Older Adults: A Performance Improvement (PI) Project
Hanbyul Choi, MD

P38 – Making Medications Work For You and Not Against You: VIONE (Vital, Important, Optional, Not indicated, Every medicine has a diagnosis) - An Innovative Medication Deprescribing Tool to Improve Patient Safety
Sara Swathy Sasha Battar, MD

P39 – Patient-Reported Facilitators and Barriers to Deprescribing Potentially Appropriate Medications
Tatiana Requijo, BS

1:00 PM – 2:00 PM
EVIDENCE-BASED NURSING HOME CARE PAPER SESSION
P40 – Urinary Tract Infection: A Culture of Culturing
Edgardo Alonso, MD Candidate

P41 – Guardianship and End-of-Life Care for Nursing Home Residents with Advanced Dementia
Andrew B. Cohen, MD, PhD

P42 – Timing of Provider Visits and Early Emergency Department Utilization in Patients Discharged to Skilled Nursing Facilities
Anupam Chandra, MD

P43 - Communication Disparities Among Long Term Care Team Members
Timothy W. Farrell, MD, AGSF

Paper Session
THE BIG SCREEN

Thursday, May 2
8:15 am – 9:15 am

P1

Electronic Frailty Index Predicts Increased Length of Stay, Discharge Destination, and Delirium Risk in Older Surgical Patients

N. M. Pajewski,[1,3] D. J. Forest,[4,3] E. S. Kirkendall,[3] J. D. Williamson,[2,3] K. Callahan.[2,3] *1. Biostatistics and Data Science, Wake Forest School of Medicine, Winston Salem, NC; 2. Gerontology and Geriatric Medicine, Wake Forest School of Medicine, Winston-Salem, NC; 3. Center for Health Care Innovation, Wake Forest School of Medicine, Winston-Salem, NC; 4. Anesthesiology, Wake Forest School of Medicine, Winston-Salem, NC.*

Background. Numerous studies have examined instruments for frailty assessment in the pre-operative setting, demonstrating a strong association between frailty and an increased risk of post-operative complications, readmissions, and mortality. However, the majority of these instruments require burdensome clinical data collection (i.e. comprehensive geriatric assessment, grip strength, or gait speed) that impedes implementation in busy clinical practices. We have previously developed an automated, electronic frailty index (eFI) based on information routinely captured in the Electronic Health Record (EHR). The purpose of this study was to explore frailty as a marker for post-operative complications that affect older adults' cognitive (delirium) and physical function, healthcare utilization, and subsequent independence.

Methods. We extracted data from the EHR for 6,085 patients 65 years or older undergoing elective surgery at our institution from 10/2017 to 6/2018. We examined the association of the eFI with inpatient length of stay (LOS), discharge destination, and the risk of post-operative delirium.

Results. The cohort was 50.8% female, 87.0% white, with a mean age of 73.5 (SD=6.3) years. The eFI could be calculated for 79.1% of patients, with 31.1% classified as frail (eFI>0.21). For surgeries with an inpatient admission, a 0.1 increase in the eFI was associated with a 0.45 day (95% CI: 0.25, 0.66 days) increase in median LOS, and 0.49 (95% CI: 0.42, 0.58) lower odds of being discharged home without a need for post-acute care, adjusting for age, sex, comorbidity, American Society of Anesthesiologists class, and impaired cognition. While delirium was infrequently documented within the EHR (97 events), a 0.1 increase in the eFI was associated with a 1.46 (95% CI: 1.05, 2.01) higher odds of post-operative delirium.

Conclusion. Our results indicate that a passive EHR-based marker for frailty can identify a subgroup of older adults at risk for delirium, prolonged inpatient LOS, and the need for post-acute care; this could inform pre-operative counseling, consent, and care coordination.

P2

4AT Delirium Screen Status Correlates with Fall Rates

K. Shih,[1,2] B. Askary,[2] G. E. Taffet,[1,2] K. Agarwal.[1,2] *1. Medicine-Geriatrics, Baylor College of Medicine, Houston, TX; 2. The Methodist Hospital Research Institute, Houston, TX.*

BACKGROUND

Up to 36% of hospitalized geriatric patients have delirium during hospital admissions. This contributes to poor patient outcomes such as increased falls and loss of independence. Nursing studies found education/screening with delirium detection tools, such as CAM, or implementing the 'HELP' protocol decreased fall rates significantly. Sensitivity of the CAM performed by bedside nurses varies, and the 4AT has been validated in several studies as a screening tool. A modified 4AT Screen for Delirium and Cognitive Impairment (m4AT) has been used at our institution since 2015 to screen all acute care patients age 70 or greater for delirium. In a sample of 498 patients at our institution, nurse screening with an m4AT was 99% sensitive and 89% specific for delirium. Our study examines association between bedside nurses' m4AT screening status and falls in hospitalized older patients.

METHODS

This was an observational study at a single tertiary care center. The sample population included all patients age 70 or greater discharged between Jan 2017 and Feb 2018 from acute med/surg units who were screened using the m4AT. Patients from psychiatry wards/ER/ICUs/PACUs, and unresponsive patients were excluded. Nurses documented the m4AT on patient admission and twice daily in acute care. All falls in acute care units, no matter level of harm from Patient Safety Network data, were included.

RESULTS

14090 patients were discharged during this time period. 3747 (26.6%) screened positive (m4AT+) and 10343 (73.4%) screened negative (m4AT-). Of the m4AT+ patients, 3.1% (116) fell vs 0.89% (90) of the m4AT-patients, p<0.001. Adjusted for length of stay, the rate was 3.09 falls/1000 IP days in the m4AT+ group compared to 1.47 falls/1000 IP days in the m4AT- group. The fall incident rate ratio between the two groups is 2.10 (95% CI: 1.61-2.75, p<0.001).

DISCUSSION

Our data shows a positive correlation between m4AT status and a higher fall rate in hospitalized older adults. The m4AT screen can be a pragmatic nursing tool to screen for delirium and increased fall risk. We are exploring the temporal relationship between the fall and m4AT+ in the data.

P3

Stratified fall risk facilitates personalized care from a 60 second test.

K. E. Forth,[2] K. Wirfel,[1] S. Adams,[1] N. Rianon,[1] S. Madansingh.[2] *1. UTHealth McGovern Medical School, Houston, TX; 2. Zibrio, Houston, TX.*

Background. Fall history is the current best predictor of falls[1] and is included in the Medicare welcome examination. Yet, this binary assessment of risk is limited in application because it must miss the first fall and requires reliable patient reporting. Clinicians may supplement assessments with functional tests and surveys, but these can be impractical and limited in prediction. Preliminary data (n=78) shows a 60 second eyes open Romberg (60sR) test on a low-cost force plate, which yields a simple composite stability score (1-10 Brios), identifies 3 fall risk strata (high, moderate, low). The objective of this study was to determine the validity of this method for predicting falls and identify strata-specific risk factors for simplifying and personalizing fall prevention care.

Methods. 410 participants were recruited from the community (CD), 8 senior living facilities (SLF), 2 physical therapy clinics (PT), 2 outpatient clinics (OP) and a hospital surgical ward (HOS) for a prospective study (n=209), Timed Get Up and Go (TUG) comparison (n=191) and Johns Hopkins Fall Risk Assessment Tool (JHFRAT) comparison study (n=10). The stability score was measured with a force plate (Zibrio SmartScale) during the 60sR test. 12 months fall history was recorded. SLF and CD were surveyed for prospective falls regularly up to 12 months. PT and OP performed a standard TUG test, and OP also a 30 sec. Sit to Stand test (SST). HOS patients were assessed with JHFRAT. Receiver operating curves, survival, log rank, and regression analyses were performed.

Results. Fall risk strata from the stability score provides good prediction of falls and greater sensitivity than fall history or TUG. The stability score correlates well with JHFRAT and SST. Fall probabilities progressively increased over time with increasing risk stratum (p<0.05). SLF high risk participants had lower probabilities of falling

than CD (p<0.05). Low risk participants were "protected" for approximately 90 days (p<0.05). The risk strata had different types of falls and significant risk factors associated (p<0.05).

Discussion. We demonstrate the validity of a stability score from a quick and easy fall risk test. Further, we identify risk factors to each fall risk stratum so clinicians can provide targeted care for personalized fall prevention care.

References

1. Ganz DA, Bao Y, Shekelle PG, Rubenstein LZ. Will my patient fall? *JAMA.* 2007;297(1):77-86.

P4
Predictors of Functional Decline among Older Intensive Care Unit (ICU) Survivors

L. Ferrante,[1] T. Murphy,[2] B. Vander Wyk,[2] L. Leo-Summers,[2] M. Pisani,[1] T. Gill.[2] *1. Medicine; Section of Pulmonary, Critical Care, and Sleep Medicine, Yale School of Medicine, New Haven, CT; 2. Medicine; Section of Geriatrics, Yale School of Medicine, New Haven, CT.*

Background: Critical illness often leads to functional decline among older adults, but clinicians currently have no way to identify which patients are at increased risk of this poor outcome. Our objective was to identify predictors of functional decline among older ICU survivors. **Methods:** Participants were drawn from the National Health and Aging Trends Study (NHATS), a cohort of Medicare beneficiaries age ≥65 who completed annual interviews from 2011-2015. We linked the dataset to CMS claims files to identify ICU admissions. Functional status before and after the ICU stay was determined from NHATS data using a previously validated measure of disability in activities of daily living and mobility (range 7[low]-28[high]). Post-ICU functional decline was defined as a ≥2-point increase in post-ICU disability. We evaluated 27 potential predictors using backwards selection (retention criterion *p*<0.20) to develop a multivariable logistic regression model (statistical significance *p*<0.05).

Results: The analytic sample included 376 participants who survived an ICU hospitalization. The mean age at initial interview was 79.9 years, 29.3% were of nonwhite race/ethnicity, and 166(44.1%) met criteria for post-ICU functional decline. Of 10 predictors retained in the final model (**Table**), increased age, exhaustion, low activity, slowness, probable dementia, possible dementia, and vision impairment were all associated with increased odds of functional decline, whereas greater pre-ICU disability was associated with decreased odds of functional decline. The model demonstrated good discrimination (C-statistic=72%) and calibration (Hosmer-Lemeshow *p*>0.05).

Conclusions: Using a nationally representative sample, we identified 8 predictors of functional decline among older ICU survivors. These predictors will inform development of a tool to identify patients at increased risk of post-ICU functional decline, with a goal of targeting them for additional interventions.

Table. Predictors of post-ICU functional decline among older survivors of critical illness (N=376)

Predictors	n (%) or mean ± SD	Odds ratio (95% CI)
Age (years)	79.9 ± 7.4	1.04 (1.00, 1.07)
Exhaustion	162 (43.1)	1.72 (1.06, 2.79)
Low physical activity	231 (61.4)	1.72 (1.06, 2.78)
Slowness	150 (39.9)	1.93 (1.12, 3.31)
Probable dementia	42 (11.2)	3.47 (1.53, 7.90)
Possible dementia	63 (16.8)	2.05 (1.09, 3.85)
Vision impairment	52 (13.8)	2.09 (1.03, 4.22)
Pre-ICU disability (range 7-28)	11.8 ± 5.4	0.86 (0.80, 0.91)
Prior history of stroke	30 (8.0)	0.46 (0.19, 1.10)
Mechanical ventilation in the ICU	28 (7.4)	2.02 (0.87, 4.69)

Plenary Paper
PLENARY

Thursday, May 2
9:30 am – 10:15 am

P5 Student Presentation, Encore Presentation
Spinal Surgery for Degenerative Spine Disease - Opioid Prescription Filling Patterns in Geriatric Patients

A. Nguyen,[1] E. Ross,[2] J. Westra,[3] N. Huang,[1] C. Nguyen,[1] R. Lall,[2] M. Raji,[4] Y. Kuo.[3] *1. School of Medicine, University of Texas Medical Branch, Galveston, TX; 2. Department of Surgery, University of Texas Medical Branch, Galveston, TX; 3. Preventative Medicine and Community Health, University of Texas Medical Branch, Galveston, TX; 4. Department of Internal Medicine, University of Texas Medical Branch, Galveston, TX.*

Introduction

The CDC estimates that 49,000 Americans died from opioid-related toxicity in 2017. A major contributor to this epidemic is long-term prescription of opioids for non-cancer pain, especially after a surgical procedure. One study showed that up to 7% of patients may develop new-onset chronic opioid use after elective surgery. Given the high prevalence of degenerative spine disease (DSD) in geriatric patients, this population may be at increased risk for chronic opioid use. Here we describe patterns and predictors of opioid utilization after spinal surgery for DSD in geriatric patients.

Methods

In this retrospective cohort analysis of a Medicare 5% database, we analyzed patients aged 66+ years with continuous coverage for one year prior to an index spinal operation for DSD-related diagnoses occurring between 2008 and 2014. All filled prescriptions for opioids were tracked post-operatively, and independent risk factors for continuing to fill prescriptions for opioids were determined using a Cox-proportional hazards regression. Patients were censored from the analysis if they died, experienced trauma, or lost Medicare coverage.

Results

A total of 14,408 patients met inclusion criteria: 2,013 patients underwent anterior discectomy and fusion (ACDF), 666 underwent posterior cervical fusion (PCF), 2,656 underwent lumbar microdiscectomy, 1,825 underwent lumbar laminectomy, and 7,248 underwent lumbar fusion. Of pre-operatively opioid naïve patients, 14.7% continued to fill prescriptions one-year post-operatively. Lumbar fusion, microdisectomy, and PCF were associated with prolonged opioid utilization. Female sex, age >80, Charlson score 3+, history of drug abuse, Medicaid eligibility, and pre-operative opioid use for 3 or 4 quarters were also associated with prolonged utilization.

Conclusion

A significant proportion of geriatric patients continue to fill prescriptions for opioids for at least a year after spinal surgery for DSD. Understanding the factors that are associated with chronic opioid utilization may aid in patient selection when considering spinal surgery for a geriatric patient with DSD.

P6
Clinical outcomes of intensifying older adults' antihypertensives at hospital discharge

T. S. Anderson,[1] B. Jing,[2] C. Wray,[1] S. Ngo,[2] K. Fung,[2] M. Silvestrini,[2] M. Steinman.[1,2] *1. Medicine, University of California San Francisco, San Francisco, CA; 2. San Francisco VA, San Francisco, CA.*

Background: Transient elevations of blood pressure (BP) are common in hospitalized older adults and often lead clinicians to discharge patients on intensified antihypertensives medication regimens. This practice may expose patients to overtreatment, particularly those whose BP was previously well-controlled, however the clinical outcomes are unknown.

Methods: We used national VA and Medicare data to examine veterans age >=65 years with hypertension who were hospitalized in a VA in 2011-2013 for pneumonia, urinary tract infection, or venous thromboembolism. Using propensity score matching based on 120 demographic and clinical variables, patients discharged on intensified antihypertensives were compared to those who were not. Cox proportional hazard regressions were used to assess co-primary outcomes of serious adverse event (SEA) readmission at 30 days and cardiovascular readmissions at 1 year. The secondary outcome of change in systolic BP was assessed within 1 year of discharge. Matching and analyses were repeated in the subgroup of patients with a pre-hospitalization systolic BP < 140 mmHg.

Results: The matched cohort included 4056 patients, evenly divided among those who did vs did not receive antihypertensive intensifications. Mean age was 77 years and 3% were female. At 30 days, patients receiving intensifications had a significantly higher risk of SEA readmissions [HR 1.41 (95% CI, 1.06 to 1.88)] and all-cause readmissions [HR 1.23 (1.07 to 1.42)]. At 1 year, there was no difference in cardiovascular readmissions [(HR 1.18 (0.99 to 1.40)] and no difference in change in systolic BP among those who did vs did not receive intensifications [difference-in-differences 0.6 mmHg (-2.4 to 3.7)]. Among the 2244 matched patients with systolic BP<140 prior to hospitalization, patients receiving intensifications had a significantly higher risk of SEA readmissions at 30 days and cardiovascular readmissions at 1 year (all P<0.05).

Conclusions: Among older adults hospitalized for non-cardiac conditions, those discharged on intensified antihypertensives had no difference in BP control at 1 year but had a significantly increased risk of readmission within 30 days. These findings indicate that despite its common practice, intensification of antihypertensive regimens during hospitalization poses greater risks to older adults than benefits.

P7 Student Presentation
Development of a Practical Two-Stage Frailty Assessment for Older Adults Undergoing Aortic Valve Replacement

A. Maltagliati,[1] S. M. Shi,[3] D. Kim.[2] *1. College of Medicine, University of Arizona, Tucson, AZ; 2. Hinda and Arthur Marcus Institute for Aging Research, Hebrew SeniorLife, Boston, MA; 3. Gerontology, Beth Israel Deaconness Medical Center, Boston, MA.*

Background

Frailty predicts mortality and functional decline in older adults undergoing cardiac surgical procedures. Yet a practical strategy to assess frailty in clinical practice remains unclear.

Methods

This single-center prospective cohort study enrolled 246 patients 70 years or older undergoing surgical aortic valve replacement (SAVR) and transcatheter aortic valve replacement (TAVR). Poor outcome was defined as mortality or decline in 22 daily activities and New York Heart Association class 3 or 4 six months post-procedure. We compared the discriminatory ability of five simple frailty measures (administration time less than three minutes): the Fatigue, Resistance, Ambulation, Illness, and Loss of weight (FRAIL) scale, Clinical Frailty Scale, grip strength, gait speed, and chair rise. A two-stage strategy to administer a comprehensive geriatric assessment-based frailty index (CGA-FI) in screen-positive patients was evaluated.

Results

The incidence of poor outcome was 8.8% (n=8/91) in SAVR cohort and 24.8% (n=34/137) in TAVR cohort. Chair rise test showed the highest discrimination in both SAVR (C statistic=0.76) and TAVR cohorts (C statistic=0.63). Using cut-offs that achieved 75% sensitivity (SAVR: ≥17 secs; TAVR: ≥23 secs), the risk of poor outcome for negative chair rise test, positive chair rise test with CGA-FI≤0.40, and positive chair rise test with CGA-FI>0.40 was 1.9% (n=1/54), 16.1% (n=5/31), 33.3% (n=2/6) after SAVR and 15.0% (n=9/60), 25.0% (n=8/32), 37.8% (n=17/45) after TAVR. Patients with positive chair rise test and CGA-FI>0.40 showed persistent functional impairment over 12 months (Figure).

Conclusions

Chair rise test with targeted CGA can identify patients at high risk for mortality and poor functional recovery after SAVR and TAVR.
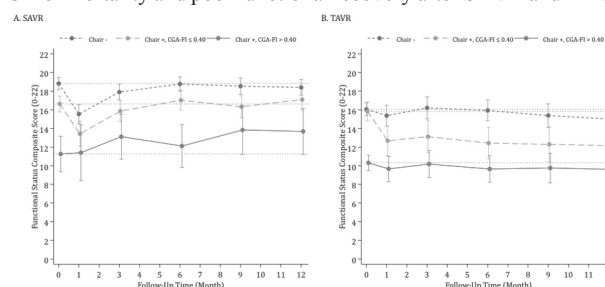
Paper Session
HEALTH SERVICES AND POLICY RESEARCH

Thursday, May 2
11:30 am – 12:30 pm

P8
State Variation in Rates of Hospice Use Among Assisted Living Resident Decedents

K. Thomas,[3,1] L. Smith,[2] P. C. Carder,[2] W. Zhang.[3] *1. Providence VA Medical Center, Providence, RI; 2. Portland State University, Portland, OR; 3. Brown University, Providence, RI.*

Background: Assisted living (AL) serves a growing and increasingly vulnerable population. States are responsible for regulating AL. Regulations vary as to the care that may be provided, staffing requirements, and the provision of outside services, such as hospice. Little is known about how this variability translates to differences in rates of hospice use among AL residents. Prior work has documented that almost 1/5 of Medicare hospice patients who died in the community resided in AL at the time of death. Also, it has been reported that the proportion of Medicare decedents dying in AL with hospice between 2009 and 2015 has increased. However, we do not know what proportion of the growing population of AL residents this represents nor how the rates vary across the country. The objective of this study is to describe inter-state variability in the rates of hospice use among AL residents in the last six months of life.

Methods: Using a novel methodology to identify Medicare beneficiaries residing in large ALs (25+ beds), we identified 72,526 AL decedents in 2014 from the Medicare Master Beneficiary Summary File in the continental US. With hospice claims, we determined if a decedent received hospice in the last 6-months of life. We adjusted the state rates of hospice use by age, sex, race, and dual eligibility status. We compare these rates to the adjusted rates of hospice use in the general Medicare population of decedents (n=1,818,822).

Results: Across the 48 states, 60% of AL decedents received hospice in the last 6 months of life. This varied by state, with an adjusted rate of 31% in NY to 77% in UT. Compared to the general population, AL decedents were more likely to die with hospice than the general population in all states except NY, with the greatest difference in the adjusted rates receiving hospice among UT, NJ, and KS.

Conclusions: Findings suggest AL decedents may have differing access to hospice care in the last 6 months of life, by state. In many states, this inter-state difference tracks with the pattern seen in the general population, but in others (eg, DE, FL) this difference in hospice utilization is specific to patients in AL. Regulations around third-party services, delivery of pain medications, level of care, and nurse staffing, which all may be driving the differences observed between states among AL residents, will be discussed.

P9

U.S. House Call Practices in 2014: Mismatch of Providers, Practices, and Patients

L. Pepper, A. Michener, B. Kinosian. *Geriatrics, University of Pennsylvania, Philadelphia, PA.*

BACKGROUND: Home based primary care (HBPC) by a mobile interdisciplinary team (IDT) is associated with better outcomes for frail, older adults and is gaining popularity in the U.S. We describe size and distribution of practices providing house calls to Medicare fee-for-service beneficiaries in 2014.

METHODS: We used 100% Medicare claims for 2013-14 for all beneficiaries who received at least one house call (HC) from a PCP in 2014 (n=707,245). We mapped provider NPIs into practice taxpayer identification numbers (TINs), accounting for an NPI participating in multiple TINs. We attributed 590,807 patients to TINs, based on receiving the plurality of their primary care from HC provider(s) in that TIN. Of these, 90.3% (n=533,208) were grouped into identifiable practices. We stratified practices by size according to number of house call patients served (<50, 50-149, 150-299, ≥300), excluding those serving <11 patients. We defined a HC program (HCP) as a practice serving ≥150 HC patients (large HCP, serving ≥300 patients), reflecting a size able to support a mobile IDT. We assessed patient complexity by Hierarchical Condition Category (HCC) score, qualification into Tier 5 of CPC+ (10% most complex Medicare beneficiaries), or fulfillment of Independence at Home (IAH) criteria (hospitalization and post acute care in prior 12 months, 2+ ADL dependencies, and 2+ chronic conditions).

RESULTS: Mean HCC score of attributed patients was 2.23; 74% met either Tier 5 or IAH criteria. Patients were served by 4,207 practices and received a mean of 6.43 HC visits/year. HCPs (n=719) served 65.2% of attributed HC patients. Large HCPs (n=314) represented 7.5% of practices but accounted for the care of 46.9% of HC patients. For all HCPs, median (interquartile range) program size was 269 patients (192.5-410). The majority (82.9%) of HC practices were among those serving <150 patients each. Six states did not have a HCP, including several with high population densities and large numbers of frail elders.

CONCLUSIONS: A majority of HC patients, a frail population, are served by programs with size large enough to support a mobile IDT. However, the vast majority of HC providers are in smaller practices, which serve a third of attributed patients. Efforts to grow HBPC may fruitfully focus on expanding smaller practices to a scale that can support a mobile IDT, rather than creating large HCPs.

P10

Validation of a Health System Measure to Capture Aggressive Hypertension Care

L. Min,[1,2] T. Hofer,[2] W. Cushman,[2] J. Sussman,[2] L. Gillon,[2] A. Larkin,[2] E. Kerr.[2] *1. Geriatric and Palliative Medicine, University of Michigan, Ann Arbor, MI; 2. Ann Arbor VA Medical Center, Ann Arbor, MI.*

Blood pressure (BP) is the current measure of hypertension treatment. However, BP alone does not reflect the intensity of treatment. We developed and validated an algorithm using both pharmacy and BP data in the national VA healthcare system Clinical Data Warehouse (CDW) to classify Veterans with Aggressive Hypertension Treatment (AHC) at primary care encounters, defined as continuous fills of 3+ classes of BP medications with systolic BP <120 mmHg. We also asked whether specific co-morbid conditions would be associated with AHC independent of hypertension treatment.

Methods: To ensure an adequate sample of Veterans with low BP and multiple BP medications filled continuously, we identified >70K older (age 65+) Veterans in the CDW with AHC on 2+ consecutive visits in 2009-11, and randomly-sampled 350 for detailed chart review. Trained chart abstractors considered provider notes as the

"gold standard", reviewing for information missing from the CDW: extra BP measurements and documented BP medication regimen. Then we collected evidence that our CDW-only AHC algorithm was uncertain due to reasons external to hypertension care: (1) an acute condition spuriously lowering BP (e.g., dehydration), (2) a condition requiring a BP target lower than <140 mmHg (e.g., diabetes), and (3) a treatment-tradeoff arising from the Veteran needing a BP medication for a non-hypertension condition (e.g., rate control for atrial fibrillation).

Results: Of 3681 visits for 321 patients with adequate records to review, a quarter of visits met criteria for AHC using the CDW-only algorithm (24.9%) and the gold-standard chart review (24.6%), with 96% agreement (kappa = 89%). Few (<2%) visits were erroneously identified as AHC (false positive) and 1.5% of visits had reasons external to hypertension care that could be interpreted as AHC, resulting in a total of 3.3% visits with a CDW-only AHC classification that was uncertain. When we considered comorbid conditions, patients with heart failure and/or valvular disease (5% of visits), prostatic hypertrophy (4.8% of visits), and arrhythmia (3.5% of visits) were the most uncertain.

Conclusion: Health system data can be used reliably to gauge AHC. Treatment of few co-morbid conditions result in possible misclassification rising above 5% of visits only for heart failure.

P11 Student Presentation

Continuity of Care and Health Care Cost among Community-Dwelling Older Adult Veterans Living with Dementia

L. Lei,[1] S. Cai,[1] Y. Conwell,[1] R. Fortinsky,[2] O. Intrator.[1] *1. University of Rochester, Rochester, NY; 2. University of Connecticut, Farmington, CT.*

Background: Primary care management of patients with dementia continues to challenge the health care systems. Continuity of care (COC) is considered as a core attribute of primary care. To date, only a few studies have examined the association between COC and health care cost, and none of them has addressed the potential endogeneity between COC and cost. This study aims to estimate the effect of COC on total Veteran Health Administration (VHA) and Medicare cost among community-dwelling older veterans with dementia.

Method: We used VHA and Medicare data in Fiscal Year (FY) 2014-2015. Community-dwelling veterans with dementia ≥66 years old who used VHA and were enrolled in traditional Medicare were included (N=115,028). COC was measured by the Bice-Boxerman COC (BBC) index measuring the dispersion of the patient's outpatient visits across primary care providers and dementia related specialists including neurologist, psychiatrist, psychologist, and social worker. The impact of COC in FY 2014 on total VHA and Medicare cost in FY 2015 was examined using both a log-linear model estimated by ordinary least squares (OLS) and an instrumental variable model estimated by two-stage least squares (2SLS). The models controlled for patient's demographics, socioeconomics, health status, years living with dementia, prior health care utilization, and market characteristics in FY 2014.

Results: On average, the BBC was 0.33 (SD=0.23) and total VHA and Medicare cost was $34,000 (SD: $44,000). A 0.1 higher BBC was associated with 2.6% lower total cost estimated by OLS and 9.6% lower estimated by 2SLS. Additionally, 2SLS estimates showed that a 0.1 higher BBC was associated with 33% lower nursing home cost, 55% lower acute inpatient care cost, and 29% lower emergency department cost; as well as with 30% higher medical long-term care (LTC) cost (e.g. home-based primary care), and 77% higher social LTC cost (e.g. home-maker/ home-health aide).

Conclusion: Higher COC was associated with lower total health care cost among community-dwelling older veterans living with dementia. Estimates of COC were more pronounced after accounting for endogeneity. The higher medical and social LTC cost and lower acute and nursing home care cost associated with better COC suggests that the mechanisms for observed lower total cost result from better COC.

Paper Session
GERIATRIC EDUCATION

Thursday, May 2
1:30 pm – 2:30 pm

P12

Transforming Undergraduate Student Perceptions of Dementia through Collaborative Filmmaking: Intergenerational Films about Music and Memory®

J. Gubner, T. A. Allison. *Division of Geriatrics, University of California, San Francisco, San Francisco, CA.*

Background

With nearly 6 million people living with dementia (PWD) in the U.S., there is a critical need to build an interprofessional dementia workforce. Although a small literature suggests that music and the arts can assist in changing nursing and medical students' attitudes about caring for PWD, less is known about how music and arts can be used to change perceptions of dementia in general education (GE) courses oriented towards both health-sciences and non-health sciences students. We analyzed student perceptions of dementia after participating in a GE service-learning undergraduate course involving PWD and the Music and Memory® program, which provides personalized playlists for PWD.

Methods

The undergraduate course curriculum brought students to Music and Memory® certified dementia care settings. Students met with PWD and their families, built iPod playlists for PWD, co-produced short films about the process, and wrote reflective essays. Using hybrid inductive/deductive thematic analysis, we examined the essays and course evaluations to assess attitudes about dementia and engaging with aging populations. Two researchers independently coded the data. Differences were reconciled by consensus.

Results

52 students across three classes completed the course. 31(60%) identified as pre-health sciences, and all produced short films and reflective essays. Three key themes emerged: 1) Nearly all students described transformative positive changes in their attitudes about dementia and engaging with PWD; 2) Students emphasized film's ability to convey personhood of PWD; 3) The short film format allowed multiple stories of music and dementia to emerge, enhancing classroom learning. Additionally, students pursuing health science degrees reported increased interest working with PWD in their future careers.

Conclusions

Collaborative filmmaking between undergraduate students, PWD and their families, when used in conjunction with service-learning and engagement with a music-based creative aging intervention, contributed to shifting perceptions about dementia and encouraged positive attitudes toward aging populations among students. These findings expand on the use of arts and music as innovative tools for developing creative and person-centered approaches to understanding dementia care at the undergraduate level.

P13

Improving Geriatric Primary Care through Interprofessional Teamwork and Practice Improvement Training

G. T. Buhr,[1] C. Dixon,[2] T. Konrad,[3] C. Luddy,[4] L. Matters,[4] M. Black,[9] M. Yanamadala,[1] L. Previll,[1] L. Shock,[5] J. Visco,[6] D. Wieland,[7] E. McConnell,[4] M. Heflin.[8] *1. Duke University, Durham, NC; 2. Duke Office of Clinical Research, Durham, NC; 3. University of North Carolina, Chapel Hill, NC; 4. Duke University School of Nursing, Durham, NC; 5. Evolent Health, Raleigh, NC; 6. Senior PharmAssist, Durham, NC; 7. Duke Center for the Study of Aging, Durham, NC; 8. Duke University, Durham, NC; 9. Community Resource Connections, Durham, NC.*

Background Primary care of older adults requires geriatric expertise, skills in interprofessional collaborative practice (IPCP), and quality improvement (QI).

Methods We engaged 7 practices over 2 years aiming to: 1) improve IPCP, 2) improve knowledge and skills in geriatrics, and 3) facilitate QI projects. Each practice established an interprofessional Geriatric Resource Team (GRT). GRTs participated in IPCP and QI methodology workshops, attended webinars on geriatrics, and received mentorship and resources, including online resources and virtual geriatric consultations. Evaluation included quantitative measures of 1) engagement in program activities, 2) perceptions of IP "teamness" (ACE-15), 3) self-efficacy, 4) outcomes of QI projects, and qualitative measures 5) open-ended written comments and 6) interviews.

Results Between one and eight representatives from each GRT participated. Overall, the practices improved on the ACE-15 with the largest improvement on the communication and trust items, an emphasis of the training. Almost all participants (87%) were satisfied, and improved with respect to their self-efficacy for geriatric knowledge (5.3 out of 6). GRTs valued spontaneous collegial interactions that occurred across teams. Varying degrees of QI project implementation and practice change occurred among the respective GRTs. Model projects included: implementation of team-based discussions for highly complex older adults and a practice-based method of capturing social determinants of health. Experiences of individual GRTs will be highlighted.

Conclusions We successfully engaged IP teams from primary care practices in training in IPCP and QI. Participants believed that the projects led to improvements in care for older adults and long-term changes in the practices. Challenges included finding time and resources to complete projects. Next steps include continuing to measure the longer term impact of the program on team-based practice and patient outcomes.

P14 Encore Presentation

Evidence-Based Falls Prevention Training at Hunter Holmes McGuire Veterans Medical Center

M. G. Owens,[1] C. Coogle,[1] A. Gentili,[2] S. Marrs,[1] P. Slattum,[3] P. Parsons,[4] L. Waters,[1] E. Ansello.[1] *1. Virginia Center on Aging, Virginia Commonwealth University, Richmond, VA; 2. School of Medicine, Virginia Commonwealth University, Richmond, VA; 3. School of Pharmacy, Virginia Commonwealth University, Richmond, VA; 4. School of Nursing, Virginia Commonwealth University, Richmond, VA.*

Falls in older adults should receive interprofessional focus in geriatrics curriculum development because they can be a sentinel event indicating the presence of various risk factors and a triggering event leading to a cascade of deterioration. The American and British Geriatrics Societies' clinical practice guideline and the U.S. Preventative Services Task Force recommendations formed the foundation of a seven week, 24-hour interprofessional training program to promote adoption of falls prevention evidence-based practices (EBPs). Twenty interprofessional trainees who worked at Hunter Holmes McGuire Veterans Medical Center participated. We assessed clinician

practice change by abstracting electronic medical records (EMRs) information of post-fall patients (N = 99) treated by EBP trainees. Data abstracted at three months prior to training (T1) were compared to the same data points three months post training (T2) and six months post training (T3). Clinicians significantly increased documentation of level of risk (42%, p < .0001), circumstances of fall events (28%, p < .01), causes of falls (32%, p = .02), assessment of risk factors (26%, p =.05), and planned interventions (26%, p=.05). Interprofessional teams articulated plans to improve their assessment procedures and begin implementation of more coordinated care through early, proactive interventions. While nurses tended to be champions for falls assessment and management in the nursing home, the home care providers described a clearer protocol and plan of action to respond to falls. Triangulation of qualitative and quantitative data revealed that pharmacists and occupational therapists were leaders in adopting EBPs.

P15 Encore Presentation
Training Dementia Resource Champions in Faith-based Communities: Feasibility and Lessons Learned

J. Graupner,[1] S. Dortch,[3] M. Long,[1] A. Salonis,[2] J. Molony,[1] K. Thompson,[1] S. Williams.[1] *1. Department of Medicine, Section of Geriatrics and Palliative Medicine, University of Chicago, Chicago, IL; 2. Chicago Hyde Park Village, Chicago, IL; 3. Off the Pews, Chicago, IL.*

Background:
The immense public health impact of Alzheimer's disease and related dementias (ADRD) continues to affect millions in the US; particularly vulnerable are African Americans (AA), who, when compared to non-Hispanic whites, are three times as likely to develop ADRD as a function of variations in health, lifestyle and socioeconomic risk factors. As Houses of Faith are often trusted centerpieces in AA life, there is a well-recognized potential for health interventions that focus on the organization of faith-based communities. Developed by the South Side Healthy Aging Resource Experts (SHARE) Network at University of Chicago, the Dementia Resource Champion (DRC) Program is a train-the-trainer style health initiative that aims to empower South Side Chicago churches' health ministries to become resource experts on ADRD and to create caregiver support groups to serve their communities.

Methods:
The DRC pilot program was a 5-week (5-session), train-the-trainer intervention aimed at establishing dementia resource champions within a church's health ministry. Lessons were based off of materials provided by the Alzheimer's Association and presented by geriatrics experts at the University of Chicago Medicine. Surveys were given both before and after the entirety of the program, and follow-up qualitative data was gathered at a 6-month focus group.

Results:
With buy-in from five local churches, a total of 13 individuals participated in the pilot program. Participants were either part of their church's health ministries, or had previous professional experience in the realm of health and social services. Participants' confidence in dementia knowledge increased significantly from pre-pilot to post-pilot surveys (Pre: Median= 2.0, SD= 1.01; Post: Median= 4.0, SD=0.76; p=.007). Since the end of the pilot program, two new caregiver support groups have begun to meet at respective churches. Barriers and lessons learned are discussed.

Conclusions:
The early success of the DRC pilot program showcases its feasibility and replicability as an innovative way to empower and train healthy ministry members at AA churches to become dementia resource champions.

Paper Session
EPIDEMIOLOGY

Thursday, May 2
2:45 pm – 3:45 pm

P16
Suicides among older adults aged 65 and over in the United States, 2007-2017

H. Ni. *Division of Vital Statistics, National Center for Health Statistics, Hyattsville, MD.*

Background: Since 2007, suicides have been increasing among older adults aged 65 and over in the United States. The rates of suicides for older adults differ by gender. However, the most recent trends and epidemiologic profile of suicides by gender for this population are unclear. **Methods:** Using the multiple cause of death data from the national vital statistics system, this report describes trends in suicides from 2007 to 2017 for overall and by gender among older adults aged 65 and over. Joinpoint regression model was used to assess the trends. The differences by race and ethnicity, place of the death, suicide methods, and comorbidity mentions on death certificates are also described by gender for this population in 2017 compared with 2007. **Results:** In 2017, total suicide rate for older adults aged 65 and over was 16.8 per 100,000, a significant increase of 17.5% from 2007 (14.3). Suicide rate for men was six times the rate for women (31.4 and 5.2, respectively). The average annual percent increase from 2007 to 2017 was 1.0% for men and 3.3% for women. For **men**, the rates increased with advancing age from 26.2 for those aged 65-74 to 35.8 for those aged 75-84 and 50.6 for those aged 85 and over. The rates were highest among non-Hispanic white (36.8) and lowest among non-Hispanic black men (8.8). The most common suicide method for men was firearm (77.5%), followed by suffocation (10.0%) and poisoning (7.4%). For **women**, however, the rates decreased with advancing age from 6.2 to 4.3 and 3.5 for the same age groups. The rates were highest among non-Hispanic white (6.1) and lowest among AIAN (1.2) and non-Hispanic black women (1.3). The most common suicide method for women was poisoning (39.9%), followed by firearm (34.1%) and suffocation (14.3%). For both men and women, the most common place where the deaths occurred was decedent's home (70.3%), followed by medical facilities (13.0%) and hospice or nursing home (1.1%), a pattern unchanged from 2007. Similar to 2007, for both men and women the most common comorbidities mentioned on death certificates include heart disease, cancer, and chronic lower respiratory diseases. **Conclusions:** Suicide rates among older adults aged 65 and over continued to increase in the United States. Patterns of suicides differed by gender. The findings from this analysis may help understand this tragedy among older adults and develop counseling strategies in clinical practice and public health settings.

P17
Deprescribing hypoglycemic agents among older Veterans with overtreated diabetes and limited life expectancy in Veterans Affairs (VA) nursing homes.

J. Hunnicutt,[1] X. Zhao,[1,3] M. Mor,[1,3] F. Sileanu,[1] S. Zhang,[1] S. Aspinall,[1,3] M. Ersek,[2] J. Hanlon,[1,3] J. Niznik,[1,3] S. Springer,[1,3] W. Gellad,[1,3] L. schleiden,[1,3] J. Thorpe,[1,4] C. Thorpe.[1,4] *1. VA Pittsburgh, Pittsburgh, PA; 2. VA Philadelphia, Philadelphia, PA; 3. U of Pittsburgh, Pittsburgh, PA; 4. U of North Carolina, Chapel Hill, NC.*

Background: Tight glycemic control may cause adverse drug events and has reduced benefit in older Veterans with limited life expectancy or advanced dementia (LLE/AD) living in VA nursing homes (NHs). However, the extent of potential diabetes overtreatment and incidence of deprescribing among overtreated Veterans are unknown.

Methods: We conducted a retrospective cohort study using fiscal year 2009-15 VA and Medicare data merged to Minimum Data Set and daily medication administration data. We identified Veterans with diabetes and LLE/AD who were aged ≥65 years, admitted to VA NHs for ≥7 days, and had glycated hemoglobin (HbA$_{1C}$) measured after admission (n=6,960). We defined Veterans as potentially overtreated if HbA$_{1C}$ was ≤7.5% and they were administered hypoglycemic agents. For overtreated residents with ≥7 days of available follow-up, we characterized baseline diabetes treatment regimens and incidence of deprescribing within 90 days of HbA$_{1C}$ measurement (i.e., discontinuing insulin or discontinuing/reducing dose of a non-insulin hypoglycemic agents for ≥7 days). Competing risk models were used to estimate overall incidence and correlates of deprescribing.

Results: Overall, 49% (n=3,421) of Veterans with HbA1c measured were potentially overtreated. Of these residents with ≥7 days of follow-up (n=3,154), 52% were 65-74 years old, 99% were male, and 75% were non-Hispanic white; many were on regimens including short-acting insulin (57%) or sulfonylureas (26%). The cumulative incidence of deprescribing was 45%, though this varied by baseline HbA$_{1C}$ (≤6.0% vs 7.0-7.5%, hazard ratio [HR]: 2.25, 95% confidence interval [CI]: 1.88-2.70) and treatment regimens (e.g., short-acting insulin/sulfonylurea vs. non-sulfonylurea oral agents, HR: 2.67, 95% CI: 1.93-3.69). Other factors including demographics, comorbidity burden, and diabetes-related complications were only weakly associated with deprescribing (HRs <1.3).

Conclusions: Just under half of potentially overtreated VA NH residents with LLE/AD had hypoglycemic agents deprescribed. Further efforts to deintensify potentially harmful medications may improve outcomes for Veterans with LLE/AD living in VA nursing homes.

P18 Student Presentation
Free Androgen Index and 20-Year Cognitive Decline in the Atherosclerosis Risk in Communities (ARIC) Study
C. Ferris,[1] D. Zhao,[2] O. Ogunmoroti,[2] O. Fashanu,[2] A. L. Schneider,[2] V. Subramanya,[2] C. Ballantyne,[3] E. Michos.[2] 1. Wake Forest School of Medicine, Winston-Salem, NC; 2. Johns Hopkins School of Medicine, Baltimore, MD; 3. Baylor College of Medicine, Houston, TX.

Background: Cognitive dysfunction is a significant burden in older adults. An androgenic sex hormone (SH) profile in women is associated with increased cardiovascular disease (CVD) risk. However, the contribution of sex hormones (SH) to cognitive decline is not well understood. We examined the relation between endogenous SH and 20-year cognitive decline.

Methods: We studied 5418 post-menopausal women and 4460 men from ARIC, free of dementia/stroke with SH measured at visit 4 (1996-1998). Testosterone (T) to SH Binding Globulin (SHBG) Ratio (the Free Androgen Index) was calculated. Cognitive function was assessed at visit 4 and at two follow-up visits (2011-2013, 2016-2017) using Delayed Word Recall, Digit Symbol Substitution, and Word Fluency. The outcome was a global cognitive Z-score summed from these three tests. We stratified by sex and used multivariable-adjusted linear mixed effects models to determine the longitudinal associations of cognitive outcomes by SH tertiles, using imputation to account for attrition.

Results: The mean (±SD) age was 63 (±5.6) years. Over a mean of 20-years, participants in each SH tertile exhibited cognitive decline (Table Part A). In women, there was relatively greater global cognitive decline for highest T:SHBG Ratio tertile, compared to the lowest, after adjustment for demographics and lifestyle factors (Model 1, Table Part B). Results were attenuated after further adjustment for CVD risk factors that may be intermediate variables (Model 2). In contrast, SH were not associated with cognitive decline in men.

Conclusions: Our results suggest that a more androgenic SH profile in post-menopausal women was associated with cognitive decline; whereas, in men, SH were not associated with cognitive function. These results may help identify women at greater risk for cognitive decline.

Table: Average change in 20-year global cognitive Z scores and the relative difference in cognitive change between **Testosterone: SHBG tertiles**, stratified by sex, ARIC visit 4 through 6

Testosterone: SHBG Ratio		Part A: 20-yr change in global cognitive Z scores by T:SHBG ratio tertiles			Part B: Relative difference in the 20-year change of global cognitive Z scores for higher T:SHBG tertiles compared to 1st tertile	
		Tertile 1	Tertile 2	Tertile 3	Difference (2nd-1st Tertile)	Difference (3rd-1st Tertile)
Women	Model 1	-1.05 (-1.19, -0.91)	-1.10 (-1.22, -0.98)	-1.17 (-1.27, -1.07)	-0.05 (-0.16, 0.06)	-0.13 (-0.25, -0.01)
	Model 2	-0.98 (-1.39, -0.58)	-1.03 (-1.42, -0.63)	-1.09 (-1.48, -0.69)	-0.05 (-0.16, 0.06)	-0.11 (-0.23, 0.02)
Men	Model 1	-1.02 (-1.12, -0.91)	-1.00 (-1.11, -0.89)	-1.00 (-1.09, -0.90)	0.02 (-0.08, 0.12)	0.02 (-0.07, 0.12)
	Model 2	-0.69 (-1.12, -0.27)	-0.68 (-1.10, -0.26)	-0.68 (-1.10, -0.26)	0.01 (-0.08, 0.11)	0.02 (-0.08, 0.11)

Model 1 (demographics, body size plus lifestyle factors): Age, age², race/center, APOE e4 genotype, education, BMI, smoking, drinking, physical activity, use of hormone therapy and interaction between all those variables with time.
Model 2 (+ potential CVD risk factor mediators): Model 1 plus systolic blood pressure, antihypertensive meds, Total and HDL-cholesterol, lipid lowering meds, diabetes, prevalent coronary heart disease, eGFR, and interaction between all those variables with time.

P19
Binge drinking among older adults – United States, 2015-2017
B. H. Han,[1] A. A. Moore,[2] J. Palamar.[1] 1. New York University, New York, NY; 2. UCSD, San Diego, CA.

Background: Excessive alcohol use, including binge drinking, is a risk factor for a range of health problems including injury. Binge drinking may also negatively affect existing chronic diseases and complicate their management. However, binge drinking among older adults is not well understood. This study estimates the national prevalence of binge drinking and adds to our understanding of correlates of binge drinking among older adults in the United States (US).

Methods: We examined aggregated data from 10,927 adults age ≥65 from the 2015 to 2017 National Survey on Drug Use and Health, an annual cross-sectional survey of a nationally representative sample of non-institutionalized individuals in the US. We estimated prevalence of past-month "current" binge drinking (≥5 drinks for men and ≥4 drinks for women in a day). We characterized past-month binge drinkers by demographics, substance use, psychoactive prescription drug use, and chronic disease. We used multivariable logistic regression to determine correlates of past-month binge drinking.

Results: We estimate that over a tenth (10.6%) of adults age >65 are current binge drinkers. Men (13.7%) are more likely to be current binge drinkers than women (8.0%, P<.001). Current binge drinking was reported by 11.4% of adults with a lifetime diagnosis of cirrhosis, 10.6% with hypertension, 8.8% with heart disease, and 8.7% with ≥2 chronic diseases. Binge drinking was reported by 29.2% of marijuana users, 21.5% of users of other illegal drugs, 12.6% of prescription opioid users, and 10.9% of benzodiazepine users. In adjusted models, adults with ≥2 chronic diseases (AOR 0.69, 95% 0.56-0.86) and women (AOR 0.60, 95% 0.49-0.72) were associated with lower odds of binge drinking. Higher income (AOR 1.56, 95% CI 1.10-2.22), nicotine dependence (AOR 2.04, 95% CI 1.55-2.68), marijuana use (AOR 2.60, 95% CI 1.88-3.58), other illegal drug use (AOR 1.70, 95% CI 1.19-2.42), and prescription opioid use (AOR 1.32, 95% CI 1.15-1.52) were associated with increased odds of binge drinking.

Conclusion: Over a tenth of older adults in the US are estimated to be current binge drinkers. We found a high prevalence among those with chronic conditions that can be exacerbated by binge drinking. The association of binge drinking with prescription opioid use has important health implications due to a greater risk of overdose with co-use. Results suggest the importance of screening binge drinking behaviors among older adults to minimize harms.

Paper Session
KEEPING OLDER ADULTS OUT OF THE HOSPITAL

Friday, May 3
8:15 am – 9:15 am

P20

Geriatrics Preventable Admissions Care Team (GERIPACT): The Effectiveness of a High Risk Intensive Ambulatory Geriatrics Program to Reduce Emergency Room Visits and Hospitalizations

S. W. Chow,[1] L. Munoz,[2] S. Lavayen,[2] B. MacKenzie,[2] J. Kobi,[2] A. Chun.[1] *1. Geriatrics and Palliative Medicine, Icahn School of Medicine, New York, NY; 2. Social Work, Mount Sinai Hospital, New York, NY.*

BACKGROUND: The Geriatrics Preventable Admissions Care Team (GERIPACT) at Mount Sinai is an inter-professional team of 2 clinicians, 1 social worker, and 1 care coordinator, dedicated to offering temporary intensive ambulatory care services to complex elderly patients at high-risk for incurring expensive health care system use (ie. frequent emergency room visits or hospitalizations). GERIPACT services include frequent office visits for medical and social work needs, frequent telephone contact to patient and caregivers, home visits, specialty visit accompaniment, and a 24/7 telephone hotline. Primary care providers identify and refer patients to GERIPACT, thereby receiving an added layer of support to the current level of care. GERIPACT intervention is short term, with target involvement of 60 days after which the patient returns to the usual care of the primary care provider. Use of this innovative model of care aims to serve primary care communities lacking in geriatrician and geriatric social work providers, with a main goal of serving the highest risk elderly population, and reducing health care system cost.

METHODS: We reviewed the healthcare utilization of GERIPACT enrollees 6 months prior-to-enrollment and compared with 6 months following graduation from GERIPACT intervention from July 2016 to February 2018.

RESULTS: 78 patients were evaluated, with 49 total ED visits prior to enrollment and 35 post-graduation, saving 14 ED visits for a ratio of 18 saved ED visits per 100 GERIPACT patients. There were 45 hospitalizations prior to enrollment with 29 hospitalizations post-graduation, saving 16 hospitalizations, or 20 hospitalizations per 100 GERIPACT patients. Hospital days were reduced by 237 days post-graduation.

CONCLUSIONS: An intensive ambulatory care clinic for high risk geriatrics patients may be shown to be an efficient model of care for targeting those elderly patients who potentially incur greater expenses to the health care system. This focused team may be deployed to primary care communities with complex elderly patients in need of geriatricians and geriatric social workers, and may reduce unnecessary emergency room visits and inpatient stays.

P21

Optimizing Value Based Care in a Medicare Shared Saving Plan Utilizing Geriatric Care Tools: GRACE model and EPIC tools

J. W. Campbell, N. Khazaal, C. Lerz, N. Chehade, P. Crider, P. Campbell. *Geriatrics, MetroHealth Medical Center, Cleveland, OH.*

Background: Geriatric care delivery strategies allowed our urban underserved health system to have one of the most successful Medicare Shared Saving Plan ACOs in the country at 18th out over 400. The GRACE model was modified for delivery of care to the high utilizers in the ACO.

Objective: To evaluate the effectiveness of Red Carpet Care, RCC at reducing cost. To evaluate the effectiveness of EPIC tools in optimizing care measured by the ACO quality measures and risk scoring.

Methods: 5% of the population were high utilizers based on cost or predictive analytics. Care was delivered by our RCC team. RCC did an initial home visit with an NP and a MSW. Patients were then reviewed at an interdisciplinary team meeting with representation from care management, social work, geriatrics, pharmacy, and a CNS in psychiatry. A care plan was developed for each patient. EPIC EHR was utilized to optimize the quality of care delivered to the ACO population. EPIC EHR functionality was also used to optimize the Hierarchical Categorical Condition coding (HCC). 105 patients with a full year of claims before enrollment in RCC and 12 months of claims after enrollment were studied. Fifty six percent of those studied were over 70, 55% were white, 41% were African American, and 59% were female.

Results: In year 2017, The ACO overall had a 10.5% reduction in cost for a shared saving allotment of $5,489,963. There was an 8.1% reduction in cost in 2016 and 1.7% in 2015. This ACO outperformed all other ACOs in Ohio. The cost for those patients in RCC decreased by $1,198,619. This was a 26% decrease in overall cost in one year. Admissions were reduced by 33.9%. ED visits increased by 20.6%.

ACO Quality: Preventative care score was 15.43/16. The at-risk quality measures score was 7.7/8. Care coordination measures score was 17 22. Patient experience score was 11.8/16. Overall quality score was 86.99% HCC codes increased in all subgroups over 2017:ESRD rose from 0.28 to 1.50, Disabled 0.66 to 0.92, Aged dual 0.79 to 1.17, Aged non dual 0.80 to 0.95.

Conclusions: RCC based on the GRACE model yielded dramatic overall cost reduction in elevated risk patients. EPIC enabled monthly and provider level data that contributed to achievement of excellent quality scores especially in preventative and at risk measures. EPIC also enabled HCC deficiency alerts and reporting which contributed to HCC score improvement.

P22

Connecting Provider to Home: Bridging Gaps in Care

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Background: When lack of knowledge of patient condition and functioning at home exists, non-adherence to treatment plans, unmet goals of care and avoidable utilization may result. Research has shown that community health workers (CHWs) can improve patient outcomes. Connecting Provider to Home (CP2H) deployed teams of a social worker and CHW to act as the eyes and ears of the doctor in the home, and was designed to close the information gap in primary care. Objectives were to reduce unnecessary utilization, increase provider/patient satisfaction, and improve communication between patient/caregiver and the care team.

Methods. Adults from 6 medical groups enrolled in the CP2H intervention, which consisted of teams establishing trust with patients, identifying needs, translating the medical plan of care into workable activities, providing insight to the medical care team. The quantitative outcomes were acute hospital and ER utilization. Descriptive statistics were used to describe patient characteristics and utilization. To measure pre and post utilization a "difference in difference" analysis using a matched control group was conducted. Control group data of patients receiving usual care was obtained. To measure patient satisfaction a 15-item survey was conducted. Semi-structured interviews with physicians and stakeholders in the medical groups explored satisfaction and experiences with the program.

Results. 416 patients enrolled with a mean age of 76 years, and 58% were female. CP2H participants demonstrated statistically significant reductions in hospitalizations and ER use when compared to 700 controls. Pre- post- hospitalizations were reduced by 216 and ER visits by 531 in the intervention group. The average per patient per year reduction in hospitalizations was 0.67. The average per patient reduction in ER use was 0.58. CP2H patients reported high levels of satisfaction with a 4.8 mean score (scale 1-5). Physicians and staff

believed the program improved clinical outcomes, provided insight about social barriers to self-care and added value to the medical group.

Conclusions. Social workers and CHWs can be successfully integrated into the care team to address patient needs and priorities. Their ability to observe the patient in the home environment allows them to assist the physician in adapting treatment plans to optimize patient care. Cost savings from reduced utilization was shown to be sufficient to make the program cost effective.

P23
Readmissions Reduction on an Acute Care of the Elderly Unit

M. Dale,[1] M. S. Mouw,[1] A. Moskowitz,[1] B. Yoo,[2] B. Blomberg,[1] S. Vereen,[3] L. Hanson.[1] *1. Geriatrics, UNC-Chapel Hill, Chapel Hill, NC; 2. Cardiology, Emory University, Atlanta, GA; 3. IHQI, University of North Carolina, Chapel Hill, NC.*

Background: Hospitals nationwide are focusing efforts on reducing 30-day readmissions. This is particularly important for older patients, for whom hospitalizations can lead to functional and cognitive decline. We designed a quality improvement intervention to reduce 30-day readmissions on an ACE unit.

Methods: Primary quality improvement interventions were use of a structured discharge summary with geriatric care content and performance of root cause analysis on readmitted patients. Geriatric fellows taught inpatient resident physicians to do geriatric assessments of cognition, function and advance care planning, and include results on a discharge summary template. The team pharmacist performed discharge medication reconciliation on each patient prior to discharge. The discharge summary also highlighted high priority follow-up interventions and provided contact information of the inpatient attending for transitions questions. In addition, a structured root cause analysis was completed for all 30-day readmissions, identifying contributing causes to readmission. Data sources included results of the root cause analysis and review of a reasonably random sample of discharge summaries to score the quality of cognitive assessment, functional assessment, and advanced care planning content.

Results: From November 2017 to April 2018, the ACE unit had 353 admissions. Over 30 internal medicine residents were trained in performing geriatric assessments and use of the discharge summary template. The improvement team performed 297 chart audits to determine discharge documentation quality, and performed root cause analysis on 45 readmissions. Discharge summary documentation quality improved in all domains, and 30-day readmissions trended down from 23.9% to 9.4%.

Conclusion: A geriatric-specific discharge process including systematic communication of functional status, cognitive function, advance care planning, and medication reconciliation was associated with reduction of 30-day readmissions. These details were transmitted to post-acute care providers to better inform post-acute care plans. The concomitant decrease in readmissions suggests that inclusion of these assessments was an effective strategy to improve post-acute care and reduce rapid return to hospital.

Paper Session
THE SCIENCE AND CLINICAL CARE OF OLDER ADULTS WITH COGNITIVE IMPAIRMENT

Friday, May 3
10:30 am – 11:30 am

P24
Empowering Elder Novel Interventions for delirium prevention

H. Sun, Y. Zweig, M. Perskin, C. Cunningham, R. Sullivan, N. Blachman. *Medicine, NYU School of Medicine, New York, NY.*

Background: Delirium is one of the foremost geriatric emergencies. Its incidence increases after age 65 years and leads to higher healthcare expenses, morbidity, and mortality. NYU utilizes BERT (Behavioral Emergency Response Team) to de-escalate behavioral emergencies in patients with delirium but it is expensive and traumatizing to patients. We report on a modified version of the Hospital Elder Life Program, entitled the EmpoweRing elder Novel Interventions (ERNI) program, which is a novel partnership among geriatrics, psychiatry, nursing and rehabilitation to proactively identify patients at high risk for delirium and utilize trained volunteers to provide non-pharmacologic interventions to prevent delirium and decrease the number of BERT calls in the hospital.

Methods: Patients age 65 years or older admitted to the medical ICU, ED observation, or one general medicine floor who were determined by the charge nurse to be at high risk for delirium, but not actively delirious, were chosen to participate in this project. Trained volunteers are utilized by nursing staff to spend time talking to these patients, offering cognitively stimulating activities such as puzzle searches, listening to music, re-orienting patients on a regular basis, and advocating for patients. Outcomes used for this study are length of stay, number of BERT calls, percent of episodes of delirium and nursing satisfaction. Data was collected 3 months before and after intervention was initiated.

Results: Preliminary data demonstrated a decrease in the percent of episodes of delirium and average length of stay but a slight increase in the number of BERT calls in the post-intervention period (Table 1). Nursing survey showed a 90% satisfaction rate with interventions performed by volunteers for delirium prevention.

Conclusions: Our data suggests that proactive non-pharmacologic interventions lead to higher nursing satisfaction and may decrease the incidence of delirium in geriatric patients in the hospital setting. Further analysis with longer intervention period and more measured outcomes would be helpful in determining the effect of non-pharmacologic interventions in delirium prevention.

Table 1

	% Delirium Episodes	No. of BERT	Avg. Length of Stay
Pre-Intervention	40.1	17	11.4
Post-Intervention	34.3	18	10.7

P25 Student Presentation
Cognitive Impairment Screening for Older Emergency Department Patients Using Volunteers

N. Sunkara,[1] M. Sanchez,[2] A. Hernandez,[2] C. Jamin,[3] C. Caspers,[3] C. Grudzen,[3] S. Borson,[4] J. Chodosh.[2,5] *1. New York Medical College, Valhalla, NY; 2. Medicine, NYU School of Medicine, New York, NY; 3. Emergency Medicine, NYU School of Medicine, New York, NY; 4. University of Washington, Seattle, WA; 5. VA New York Harbor Healthcare System, New York, NY.*

Background: Older adults visit Emergency Departments (ED) more often and have repeated visits, compared with younger individuals. Cognitive impairment may drive ED use and may be more prevalent in ED settings; yet it is often unrecognized, potentially resulting in suboptimal discharge planning. Cognitive screening is not routine ED care and staff are not typically trained in proper procedures.

Methods: Using a volunteer workforce of college students and recent graduates provides an opportunity for clinical training as cognitive screeners and increases opportunities for system change. Volunteers screened for cognitive impairment among English and Spanish speaking patients who were admitted to a large academic ED and were likely to be discharged to home. We targeted patients ≥ 75 years and requested screening with the MiniCog© or when unable, through a care partner using the Informant Questionnaire for Cognitive Decline (IQCODE). We examined demographic and clinical characteristics comparing those with positive (MiniCog < 3 or IQCODE > 3.4) versus negative screens for ED visits from March 1, 2018 to July 1, 2018.

Results: 5483 patients ≥ 75 years visited the ED over four months. Almost 50% (n=2697) were discharged home; 741 patients were approached and 56% (N=418) completed screening (338 completed MiniCog™, 80 completed IQCODE). Overall, 172 (41.15%) had positive screens (81% MiniCog™; 19% IQCODEs). Neither age nor chief complaint of the visit predicted screening results. ED staff were supportive of volunteers' presence and volunteers uniformly reported very positive experiences.

Conclusions: Cognitive impairment screening is feasible in the ED and many individuals screen positive. Use of a volunteer workforce may be a feasible interim step to implementing a sustainable program while increasing learners' exposure to positive geriatric care experiences. Using only age (≥75 years), as a screening criterion may be an efficient approach for judicious use of resources. Whether screening leads to a change in discharge instructions or disposition has yet to be studied.

P26 Student Presentation
Patients and Caregivers Who Did Not Benefit from a Comprehensive Dementia Care program: What Was Recommended?

K. Zaila, L. Evertson, K. Serrano, T. Romero, D. B. Reuben. *Department of Geriatric Medicine, David Geffen School of Medicine at UCLA, Los Angeles, CA.*

Background: Alzheimer's disease is the 6th leading cause of death in the US. Participation in the UCLA Alzheimer's and Dementia Care (ADC) program is associated with reduced behavioral symptoms, caregiver strain, and depression. To improve the intervention, we studied participants who did not benefit and identified the recommendations they received.

Methods: Of the first 1091 participants in the program, we focused on 134 who did not derive benefit from the program. Patient benefit was defined as having 1-year Neuropsychiatric Inventory-Q severity scale score of ≤ 6 (baseline tertile with fewest patient symptoms) or improving by at least 3 points, the minimal clinically important difference (MCID). Caregiver benefit was defined as having a 1-year Dementia Burden Caregiver (DBS-CG) score of ≤ 18.8 (baseline tertile with fewest caregiver symptoms) or improving by at least 5 points, the MCID. The initial ADC recommendations for these participants were classified into 5 categories: medical, advanced care planning, safety, caregiver education/training, and support and services. Descriptive statistics were conducted to determine if recommendations varied by stage of dementia determined by Mini-Metal State Examination scores and caregiver burden as measured by the DBS-CG.

Results: The mean age of patients enrolled in the program was 82.0 ± 8.8, 66% of enrollees were female, 27% were racial or ethnic minorities. Among those who did not respond, the most common recommendations were in-person support groups (147% or 1.47 per participant), caregiver training/education (144% or 1.44 per participant), POLST (85% of participants), non-pharmacological behavioral management (67%), other Advance Directives (63%). Recommendations did not differ across stages of dementia and DBS scores, except those with mild stage and low DBS-CG had the highest frequency of safety recommendations (28%) and lowest frequency in the support and services category (20%).

Conclusions: Recommendations for persons who did not benefit from UCLA ADC were most often for support and education and were similar regardless of dementia stage and DBS-CG score. Why these participants did not respond remains to be determined but patient or caregiver receptiveness, engagement, or ability to follow recommendations may be factors.

P27
Data-Driven Cluster Analysis Identifies Unique Inflammatory and Metabolic Signatures Associated with Self-Rated Health, Cognitive Performance, and Function.

D. C. Parker, W. E. Kraus, C. Pieper, H. J. Cohen, K. M. Huffman. *Medicine, Duke University, Durham, NC.*

BACKGROUND: Aging is characterized by immune and metabolic changes that are associated with adverse outcomes. We performed a data-driven cluster analysis with 14 inflammatory and metabolic biomarkers in a cohort of 966 adults aged 30 to over 80. We evaluated associations of cluster assignment with self-rated health, Montreal Cognitive Assessment (MOCA) score, and physical function.

METHODS: We measured TNF-α, TNFR-I, TNFR-II, IL-2, IL-6, VCAM-I, D-Dimer, G-CSF, RANTES, MMP-3, paraoxonase, adiponectin, acylcarnitines, and free amino acids. We evaluated K-means, hierarchical, and EM-based clustering algorithms. K-means with 3 clusters yielded the best solution by internal and stability measures. The association of cluster assignment with each outcome was evaluated using linear regression. Age, sex, race, and BMI were included as covariates. Function was evaluated using a PCA-derived composite score of five functional measures.

RESULTS: Cluster assignment was associated with self-rated health, MOCA, and functional performance. When compared to Cluster 1, participants in Clusters 2 and 3 had poorer self-rated health ($p < 0.001$) and MOCA scores (Cluster 2: $p < 0.05$; Cluster 3: $p < 0.001$); and, participants in Cluster 3 had worse functional performance ($p < 0.001$). As compared to Cluster 1, Cluster 2 was characterized by higher concentrations of IL-6, GCSF, RANTES, and uric acid and lower concentrations of adiponectin and glycine and Cluster 3 was characterized by higher concentrations of IL-6, TNF-α, TNFR-I, VCAM-1, D-Dimer, MMP-3, uric acid, RANTES, GCSF, and medium chain acylcarnitines.

CONCLUSIONS: Cluster analysis identified unique, independent biomarker signatures: one for lower self-rated health and cognition, and another for lower self-rated health, cognition, and worse functional performance. These biomarker signatures offer insight into underlying inflammatory and metabolic mechanisms of aging-related outcomes and may serve as targets for intervention.

Paper Session
OLDER ADULTS WITH SERIOUS ILLNESS

Friday, May 3
1:30 pm – 2:30 pm

P28 Student Presentation
Disparities in Rehabilitation Therapy Provided to Older Adults During Prolonged Hospitalization

D. Nguyen,[1] T. Reistetter,[2] A. Makam.[1,3] *1. UTSW, Dallas, TX; 2. UTMB, Galveston, TX; 3. UCSF, SF, CA.*

Background

While rehabilitation therapy is critical for preserving mobility, little is known about how much rehabilitation hospitalized older adults receive, and whether this differs by sociodemographic and clinical characteristics.

Methods

We conducted a retrospective cohort study of consecutive adults ≥65 years old hospitalized at a safety-net hospital in north Texas for ≥14 days between 2016-17. The primary outcome was rehabilitation

intensity (RI), defined as the total minutes of physical and occupational therapy per week. We used a multivariable generalized linear model to assess for differences in RI by sociodemographic and clinical characteristics (see footnote in Figure). We repeated the analysis for a subcohort of patients who received an AM-PAC inpatient mobility assessment, with the addition of mobility limitation as a covariate.

Results

Among 1,031 older adults, the median age was 72, 49% were female, 79% were non-White, 48% had any ADL impairment prior to admission, and the median length of stay was 20 days. The median RI was 61 min/week (IQR 16-127) and 84 min/week (IQR 34-144) for the entire cohort and subcohort (n=350), respectively. Black and Hispanic race/ethnicity, speaking non-English or Spanish language, DNR status, and prolonged mechanical ventilation were associated with lower RI (Fig 1A). Adjusting for mobility limitation did not meaningfully change the effect sizes, though 95% CIs were wider (Fig 1B).

Conclusion

Increasing RI for racial/ethnic and language minorities and clinically vulnerable older adults (DNR code status and mechanical ventilation) may improve functional outcomes and narrow the disparity gap.

Figure 1. Adjusted Differences in Rehabilitation Intensity
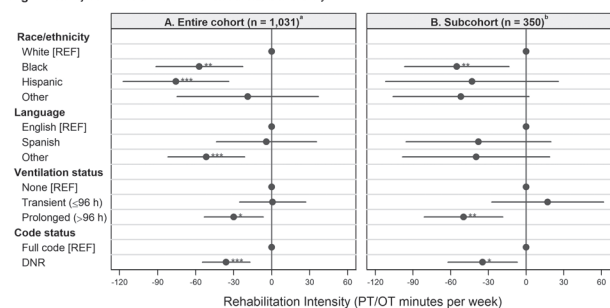
95% Confidence Interval

*p < 0.05, **p < 0.01, ***p < 0.001

[a]Point estimates and corresponding 95% CIs shown are average marginal effects computed from a multivariable generalized linear model adjusting for covariates shown above, as well as age, sex, primary payer, living arrangement (alone vs. not alone), prior ADL status (impaired vs. independent), home medical equipment use (none, cane/walker, wheelchair/hospital bed), admit source (institutional facility vs. community), hospital length of stay, ICU length of stay, cognitive status during hospitalization (impaired vs. intact), diagnosis type (medical vs. surgical), Major Diagnostic Category (neurologic, musculoskeletal, infectious, circulatory, respiratory, other), diagnosis resource intensity (DRG weight), and procedure type (none, minor, major non-elective, major elective).

[b]Same analysis as the entire cohort, with the addition of mobility limitation (0-100%) as a covariate, which was determined at the time of the initial physical therapy assessment per the AM-PAC basic mobility assessment tool.

P29

Geriatric Trauma Collaboration: Feasibility, Sustainability and Improved Outcomes

K. Swartz,[1] J. Donnelly,[2] P. Williams,[2] M. Cohen.[2] 1. Family and Community Medicine, Thomas Jefferson University Hospital, Philadelphia, PA; 2. Trauma Surgery, Thomas Jefferson University Hospital, Philadelphia, PA.

Background: Evidence shows that older adults have higher morbidity and mortality post-trauma than their younger counterparts. Proactive geriatric consultation has shown reductions in ICU admissions, mortality, and delirium, and improved recovery of function in the year following trauma. [1,2]

Patients >65y/o were evaluated by an interdisciplinary team (IDT) including geriatrics, nutrition, PT, OT, and pharmacy if on >5 chronic medications.

Methods:

Retrospective chart reviews are performed as part of the trauma certification process.

Collected data included: number of geriatric consults completed, length of stay, hospital based quality measures of DVT, decubitus ulcers, development of pneumonia, unplanned intubation, and UTI.

Geriatric consult orders were placed by the house-staff on admission using a trigger system. In 2014, we instituted an automatic geriatric consult on admission for all patients >65 y/o. We developed a geriatric trauma order set in 2015 which included the mandatory geriatric consult, an order for no benzodiazepines, and a four hour period of continuous sleep.

Results: The percentage of geriatric trauma patients having a geriatric consult increased from 59% to 83% from 2014 to 2018. Length of stay decreased from 8.08 days in 2012 to 7.3 days in 2017, and 6.4 days in the first half of 2018. This is in comparison to the general trauma population whose length of stay increased by two days during same time period. In addition, incidents of DVT decreased from 7 in 2012 to 2 in 2017, pneumonia from 28 in 2012 to 6 in 2017, unplanned intubation from 27 in 2012 to 11 in 2017, and UTI from 14 in 2012 to 4 in 2017.

Conclusions

We found that incorporating an automatic consult order in an order set for older adults admitted to the trauma service increased number of geriatric consults. As a result of our interventions we were able to reduce our geriatric trauma patients' LOS by 1.5 days and improve several hospital based quality metrics. Our current model has proven to be sustainable and has resulted in a positive collaborative relationship between our two departments.

Lenartowicz M, et al. An evaluation of a proactive geriatric trauma consultation service. Ann Surg. 2012;256:1098–101.

DeLa'O C, et al. The Geriatric Trauma Institute: reducing the increasing burden of senior trauma care. Am J Surg. 2014; 208(6):988-994.

P30

Functional, Cognitive, and Psychological Measures as Predictors of 1-year Mortality in Patients Undergoing Major Surgery

V. Tang,[1,2] K. Covinsky,[1] E. Finlayson,[1] B. Jing,[1] J. Boscardin,[1] S. Ngo.[1] 1. Geriatrics, UCSF, San Francisco, CA; 2. Geriatrics, VASFMC, San Francisco, CA.

BACKGROUND: A growing proportion of older adults are undergoing major surgery despite the higher risk of post-operative mortality. Geriatric measures, such as functional status and psychosocial factors, are commonly used in geriatric assessments. Despite poor functional status and depression having significant association with poor health outcomes, these geriatric measures are often not included in studies evaluating post-operative outcomes in older adults. Our goal was to determine the association of geriatric measures and 1-year mortality in older adults after major surgery.

METHODS: We analyzed longitudinal data from the nationally-representative Health and Retirement Study linked to Medicare claims (N=1260 participants), age ≥ 65 and who underwent a major surgery (i.e., abdominal aortic aneurysm [AAA] repair, coronary artery bypass graft [CABG], colectomy). Our outcome was mortality within 1 year of the major operation. Predictors included the following geriatric measures: dependence in activities of daily living (ADL), dependence in independent activities of daily living (IADL), mobility ability, and presence of depression. Additionally, we examined demographic and clinical predictors. Analysis was performed using multivariate cox proportional hazard models.

RESULTS: The mean participant age was 76±6 years, 56% were women, 10% underwent a AAA repair, 50% CABG, 40% colectomy; 19% died within 1 year of their major operation. After adjusting for age, comorbidity burden, surgical type, gender, race and education, the following geriatric measures were significantly associated with 1-year mortality: >1 ADL dependence (43% vs 17%, adjusted HR: 2.3, p=0.0007), >1 IADL dependence (40% vs 17%, adjusted HR: 2.2, p=0.0012), inability to walk several blocks (25% vs 14%, adjusted HR: 1.7, p=0.004), presence of dementia (21% vs 14%, adjusted HR: 1.92, p=0.0003), and presence of depression (27% vs 15%, adjusted HR: 1.6, p=0.01).

CONCLUSIONS: In this older adult cohort, about 20% of participants who underwent major surgery died within 1 year and function, cognition, and psychological well-being were significantly associated with mortality. Measures in function, cognition, and psychosocial well-being need to be incorporated into the pre-operative assessment to enhance surgical decision-making and patient counseling.

P31
Aging-associated changes in gut microbiome drive sepsis severity
J. Colbert, D. Frank, R. S. Schwartz, E. Schmidt. *Medicine, University of Colorado, Aurora, CO.*

BACKGROUND: Sepsis, a critical illness characterized by organ dysfunction due to infection, disproportionally impacts older adults. Patients aged 65 or greater face a 13-fold increased relative risk of sepsis incidence; furthermore, those aged adults who develop sepsis have a case-fatality rate roughly twice that of those < 65 years of age. As the proportion of older adults continues to increase in the United States, the burden of sepsis-associated morbidity, mortality, and cost will escalate without targeted interventions to address the unique susceptibility of the aging population.

METHODS: We used two models of experimental sepsis to induce sepsis in young (8-12 weeks) and aged (20-24 months) C57BL/6 mice. One model (cecal ligation and puncture, CLP) induces sepsis via leakage of the host cecal stool (microbiome) into the peritoneal space. A second model (fecal slurry injection) allows for direct introduction of different microbiota (isolated from the stool of young vs. aged mice) into the peritoneum. Sham surgery and saline injection mice served as contemporaneous controls. We measured sepsis severity at 24 hours by mortality, acute kidney injury, and circulating cytokine levels. Microbiome analysis was performed on fecal slurry using 16S bacterial DNA sequencing.

RESULTS: Aged mice demonstrate worsened mortality, septic kidney injury (measured by plasma blood urea nitrogen [BUN] and kidney homogenate PCR for Kidney Injury Molecule-1 [KIM-1]), and elevated plasma cytokines (IL-1b, IL-6, TNFa, IL-10) compared to young mice 24 hours after sepsis induced by CLP. Strikingly, the exaggerated sepsis severity phenotype of aged mice undergoing CLP can be completely recapitulated in young mice simply by injecting aged stool. Microbiota analysis demonstrated a shift towards known pathogenic gram positive (*staphylococcus, streptococcus*) and anaerobic *(bacteroides)* bacterial genera in aged slurry.

CONCLUSIONS: Our data suggest that exaggerated sepsis severity in aged mice is driven by increased virulence of the aged gut microbiome. These findings lay the framework for investigations focused on novel mechanisms and therapeutic strategies for the management of sepsis in the aging population. Future studies will focus on host-pathogen interactions between the aged microbiota and the host immune response.

Paper Session
THE HEART OF THE MATTER

Saturday, May 4
7:30 am – 8:30 am

P32
Antithrombotic prescribing after acute myocardial infarction in older adults with co-morbid atrial fibrillation: the SILVER-AMI Study
G. Ouellet,[1] A. Hajduk,[1] M. S. Tisminetzky,[2] M. Tinetti,[1] S. I. Chaudhry.[1] *1. Internal Medicine, Yale School of Medicine, New Haven, CT; 2. Geriatric Medicine, University of Massachusetts Medical School, Worcester, MA.*

Background:
Atrial fibrillation (AF) affects 20% of older acute myocardial infarction (AMI) survivors. Following both AF and AMI guidelines results in treating these patients with triple antithrombotic therapy (TAT), i.e., dual antiplatelet therapy to prevent AMI and anticoagulation to prevent stroke. Actual antithrombotic prescribing patterns in this population have not been well characterized, especially with concerns about the bleeding risks of TAT. As such, it is important to understand which demographic, cardiac, and geriatric vulnerability factors influence TAT prescribing.

Methods:
This study included 742 AMI survivors age ≥75 with AF enrolled in the SILVER-AMI (ComprehenSIVe Evaluation of Risk Factors Among Older Patients with Acute Myocardial Infarction) cohort study from 2013-16. Research staff at 94 U.S. hospitals collected data via patient interviews and chart abstraction. Correlates of TAT prescription were evaluated using logistic regression.

Results: The most commonly prescribed regimens at hospital discharge post-AMI were dual antiplatelet therapy (33%), aspirin plus anticoagulant (21%), and TAT (20%). Higher stroke risk (OR=1.27 [95% CI 1.00-1.61] per point increase in the CHA2DS2-VASC score), lower bleeding risk (OR=1.41 [95% CI 1.04-1.89] per point decrease in the modified HAS-BLED score), in-hospital percutaneous coronary intervention (PCI) (OR=9.19 [95% CI 4.16-20.28]), and AF diagnosis occurring prior to AMI (OR=1.85 [95% CI 1.11-3.07]) were independently associated with TAT prescription. Inability to complete the Timed Up and Go Test was associated with decreased odds of TAT prescription (OR=0.43 [95% CI 0.21-0.86]), yet cognitive impairment, multimorbidity, frailty, and prior falls, were not associated with TAT prescription.

Conclusions:
Stroke risk, bleeding risk, prior AF diagnosis, and receipt of PCI were the main correlates of TAT prescribing in older AMI survivors with AF, suggesting that thromboembolic and bleeding risks are considered in prescribing decisions. Geriatric vulnerabilities except severe mobility limitation were largely noncontributory. To ultimately improve antithrombotic prescribing, more work is needed to understand the relative benefits and harms of TAT in patients with geriatric vulnerabilities.

P33 Student Presentation
Heart remodeling in young and middle-aged mice in response to heart rate reduction
J. Tovar-Perez,[1] T. Pham,[1] A. Reddy,[2] A. P. Nair,[2] G. E. Taffet.[1] *1. Medicine-Geriatrics, Baylor College of Medicine, Houston, TX; 2. Medicine, Baylor College of Medicine, Houston, TX.*

Background: Smaller left ventricular (LV) dimension can lead to poor left ventricular filling and diastolic dysfunction. Chronic heart rate reduction could be used to induce a physiologic increase in LV cavity size. We tested ivabradine (IVA), a cardiac pacemaker current (If) inhibitor, to reduce heart rate in young and middle-aged mice.

Methods: Male 16 week-old (n=4) and 14 month-old (n=4) C57BL6/J mice were given IVA (0.6 mg/day) for 4 weeks. IVA was stopped and mice monitored for 6 more weeks. Two dimensional echocardiography and Dopplers were performed at baseline and every 2 weeks under 1% isoflurane. LV end-diastolic volume (LVEDV), stroke volume (SV) and cardiac output (CO) were obtained. Heart rate reduction was verified with telemetry implants. Diastole was modeled and compared to control Young mice (n=6). Diastolic parameters were obtained: K (chamber stiffness), Xo (preload) and C (damping constant).

Results: IVA equally decreased heart rate for Young and Middle-aged mice (-29% ± 4.5% vs -28% ± 4.9%). Both groups returned to baseline after stopping IVA. Young increased LVEDV more than middle-aged mice after 4 weeks of IVA (26% ± 5.3% vs 11% ± 4.1%, p=0.04). After stopping IVA, LVEDV stayed high in Young (20.8% ± 1.7% vs -1.5% ± 2.8% p=0.001). SV increased more in Young compared to Middle-aged (47% ± 13.1% vs 21% ± 12.7%). This increase in SV was sustained for 6 weeks after stopping IVA in Young (46.8% ± 11.3% vs -9% ± 5.3%, p=0.01). Young and Middle-aged mice almost maintained CO near baseline at 4 weeks of IVA. 6 weeks later, CO was higher in Young compared to middle-aged (47% ± 15.3% vs 5.8 ± 10.3%). Diastolic function was enhanced by IVA as K, Xo and C were similar between the Middle-aged mice and control young mice.

Conclusion: LVEDV increased more in Young than Middle-aged with IVA, and the increase persisted after heart rate returned to baseline. The LV cavity size increase was a compensation to maintain CO, suggestive of the athletic heart. Subsequent studies will determine if this leads to improved exercise performance. Middle-aged mice had

lower LVEDV and SV values after IVA, but IVA may have reversed age related increases in LV chamber stiffness. This suggests that IVA may have potential to enhance diastolic function in aging.

P34 Student Presentation
Early Termination of Cardiac Rehabilitation in Older Adults
R. Searcy,[1] J. Bostrom,[2] A. Walia,[3] J. Rzucidlo,[2] D. Banco,[2] M. Quien,[2] G. Sweeney,[2] A. Pierre,[2] J. Whiteson,[2] J. Dodson.[2]
1. UNC School of Medicine, Chapel Hill, NC; 2. Rusk Rehabilitation Center, NYU Langone Health, New York, NY; 3. Northeast Ohio Medical University, Rootstown, OH.

Background: Among older adults with cardiovascular disease (CVD), cardiac rehabilitation (CR) has multiple benefits including improved quality of life and reduced mortality. Despite the known benefits of CR, early termination (ET) by patients (attending <12/36 recommended sessions) may attenuate these benefits. Our aim was to determine the incidence of ET in our older adult patient population, as well as risk factors associated with this outcome.

Methods: We reviewed records from 792 consecutive older adult patients ($\geq$ 65 years old) enrolled in the NYU Langone Rusk CR program (2013-2017). Sessions attended, demographics, comorbidities, and primary referral diagnosis were abstracted. We analyzed the overall rate of ET (defined as attending <12 sessions). Categorical variables were described with percentages and continuous variables with mean values. Multivariable logistic regression was subsequently used to analyze predictors of ET, considering age, race, ethnicity, sex, body mass index, diabetes, chronic lung disease, coronary artery disease, heart failure, and stroke.

Results: In our total study population, mean age was 74 ± 7 years, mean BMI was 26 ± 5, 38% were female, and 18% were nonwhite. Most patients (65%) were referred to CR due to ischemic heart disease (chronic stable angina, post-myocardial infarction, CABG, or elective PCI), with an additional 23% referred for valvular heart disease, 9% for systolic heart failure, and 3% for congenital heart disease. Early termination occurred in 129 patients (16.3%). Patients who terminated early were significantly older (75.6 vs. 73.9, p=0.005) and less likely to have coronary artery disease (13.6% vs. 19.5%, p=0.03). After multivariable logistic regression, the independent risk factors for ET were age (adjusted OR 1.04, 95% CI 1.01-1.07) and Hispanic ethnicity (adjusted OR 2.32, 95% CI 1.01-5.33).

Conclusion: Nearly 1 in 6 older adults terminated CR within 1 month (<12/36 sessions), potentially limiting the benefits of CR within this subgroup. Among factors we analyzed, age and Hispanic ethnicity were risk factors for ET, but the overall strength of association was weak. Further research is necessary to identify novel risk factors for ET in order to better target prevention efforts.

P35
Did They Make It? An EMS Response to Seniors Undergoing Cardiac Arrest
J. Bernick,[1,3] D. Dalbey,[2] M. Lester.[3] *1. Family Medicine, Baylor College of Medicine, Baytown, TX; 2. Fire Department, City of Baytown, Baytown, TX; 3. Health Department, City of Baytown, Baytown, TX.*

Background: Advancing age is considered a risk factor for cardiac arrest and subsequent successful resuscitation. Seniors presenting with cardiovascular disease, multiple comorbidities, and functional decline, promote an impression of resuscitation futility. However, this study reviews the outcome of EMS evaluation, treatment, and hospital care for seniors after out of hospital cardiac arrest.

Methods: This investigation reviewed the records of a suburban EMS located in Harris County, Texas from January 2010 until September 2018. The field encounters of seniors at least 65 years experiencing a cardiac arrest received examination. During this period the EMS participated in CARES and Utstein reporting. Resuscitation

protocol utilized an engine company 4 person pit crew. An assessment of senior's response to EMS management and hospital outcome received comparison to younger individuals aged 21-64 years sustaining a cardiac arrest.

Results: During the review period the EMS evaluated 582 cardiac arrests including 341 seniors and 241 younger individuals. Prior to arrival of the EMS, bystanders initiated CPR in 104 seniors. EMS response time improved during the study interval covering call received to EMS at patient side with a goal of less than 10 minutes for successful return of spontaneous circulation. Subsequent EMS mesures including defibrillation, use of epinephrine, and automated compression accounted for return of spontaneous circulation in 57 (17%) seniors. After transport to the hospital and admission, 36 patients (63% of hospitalized seniors) achieved discharge within 30 days, and 11 patients (19% of hospitalized seniors) attained an acceptable cerebral performance score 1,2. In comparison, resuscitaion of younger adults resulted in circulatory return in 47 (20%). In addition, 28 (60% of inpatient) younger adults completed hospital stabilization and ensuing discharge within 30 days, and 19(40%) departed with a cerebral performance score 1,2.

Conclusion: Following successful resuscitation after cardiac arrest seniors are capable of hospital discharge with a satisfactoy cerebral perfomance score. Advancing age may be mitigated through timely EMS response, shockable rhythm, or early bystatnder CPR. Chronological age alone should not determine the extent of cardiac arrest resuscitation.

Paper Session
TO PRESCRIBE OR DEPRESCRIBE

Saturday, May 4
10:30 am – 11:30 am

P36
Impact of Local Implementation Adaptation on Prescribing Change through the EQUIPPED Medication Safety Program
M. B. Stevens,[1,2] A. Vandenberg,[1,2] U. Hwang,[1,3] S. N. Hastings,[1,4] J. Powers,[1,5] A. Markland,[1,6] W. Hung,[1,3] S. Espinoza,[1,7] A. Golden,[1,8] V. Sikka,[1,8] D. Cross,[1] G. McGwin,[1,6] C. Vaughan.[1,2] *1. Geriatric Research Education & Clinical Center, Department of Veterans Affairs, Washington, DC; 2. Emory Univ, Atlanta, GA; 3. Mount Sinai Hospital, New York, NY; 4. Duke Univ, Durham, NC; 5. Vanderbilt Univ, Nashville, TN; 6. Univ of Alabama Birmingham, Birmingham, AL; 7. Univ of Texas Health Science Center, San Antonio, TX; 8. Univ of Central Florida, Orlando, FL.*

Background: EQUiPPED is a multi-component quality improvement initiative aimed at reducing potentially inappropriate medications (PIMs) according to the AGS Beers Criteria prescribed to older adults in the Emergency Department (ED). Previous studies have shown significant and sustained reduction at 4 Veterans Affairs (VA) EDs. This study examines results across 10 VA EDs and associated local implementation adaptations. **Methods**: ED Sites implemented the 3 core EQUIPPED components: provider education, informatics-based clinical decision support, and individual feedback using academic detailing and peer benchmarking. Local site adaptations included: 1) site factors such as pre-existing ED order sets, ED provider makeup, and presence of an ED champion; 2) implementation differences including education dose, scope of roll out, feedback consistency, and timing of components; and 3) inclusion of optional components such as electronic alerts, reminder cards, and alternative medication recommendations. Prescribing outcomes were evaluated using Poisson regression. **Results**: Table 1 details prescribing results. The 8 sites that significantly reduced PIMs had longer follow-up and implemented additional optional components. **Conclusion**: Data

show EQUiPPED led to significant and sustained reduction in PIMs prescribing at 8 of 10 implementation sites. Local adaptations may account for the presence and magnitude of reduction.

% PIMs per site pre and post EQUiPPED

VA Site (Months post-implementation)	6 months Pre-EQUiPPED implementation % PIMs (SD)	Post-EQUiPPED implementation % PIMs (SD)	P value
Atlanta (65)	11.8 (1.8)	5.3 (1.5)	<0.0001
Birmingham (49)	8.9 (1.9)	4.6 (1.9)	<0.0001
Bronx (45)	7.4 (1.7)	5.4 (1.5)	0.0014
Durham (54)	8.3 (0.8)	4.5 (1.2)	<0.0001
Asheville (42)	7.9 (1.3)	6.2 (1.4)	<0.0001
Central Alabama (38)	11.0 (1.5)	8.3 (1.6)	0.002
TVHS-Nashville (37)	6.6 (1.0)	6.2 (1.2)	0.006
TVHS-Murfreesboro (37)	11.1 (0.8)	9.0 (1.6)	0.0007
Orlando (11)	8.1 (1.4)	7.8 (0.9)	0.7
San Antonio (13)	7.8 (1.3)	8.2 (1.9)	0.2

P37

DePrescribing Is Achievable in Older Adults: A Performance Improvement (PI) Project

H. Choi, N. Hossain, F. Lakhi, U. Munasinghe, s. Onuoha, D. lourdusamy, P. Murakonda, A. Lebelt, M. Kanagala, R. Russell, T. S. Dharmarajan. *Geriatric Medicine, Montefiore Medical Center Wakefield, Bronx, NY.*

Background

Polypharmacy is common in the old. Most older adults, however, are willing to decrease their medication number upon recommendation. Deprescribing (DeP) refers to the programmed reduction in drug number or dose in order to reduce adverse drug events. Although widely recognized, challenges exist with successful DeP.

Methods

From August to November 2018, as a PI project, fellows in geriatric medicine participated in DeP, with 1 encounter daily during weekdays at 2 long term care facilities (LTC) or outpatient geriatrics clinic (OP) in Bronx. All DeP attempts required approval by faculty geriatricians for safety, after discussion and verbal consent with patient/caregiver.

Results

293 encounters in 222 subjects; average age 78.8 years (LTC: 79.0, OP: 78.0); average 7.1 comorbidities (LTC: 7.5, OP: 6.1). DeP successful in 91.1% of encounters (LTC: 98.7%, OP: 66.7%). On average, 1.4 medications were DeP per encounter (LTC: 1.5, OP: 1.0).

Conclusions

● The study confirms that physician efforts can achieve DeP of at least 1 medication per encounter, in both LTC and OP settings

● Analgesics, vitamins/minerals, lipid-lowering agents, antihistamines and PPIs/H2 blockers had highest success

● New patients and those satisfied with current regimens were more reluctant to DeP

Reference

E Reeve et al. Assessment of attitudes toward deprescribing in older medicare beneficiaries in the United States. JAMA Intern Med. Oct 15, 2018 (ahead of print).

Drug Classes	Total Encounters (N=293)		LTC (N=224)		OP (N=69)		Drug Classes	Total Encounters (N=293)		LTC (N=-224)		OP (N=69)	
	N1	DeP1 (%)	N2	DeP2 (%)	N3	DeP3 (%)		N1	DeP1 (%)	N2	DeP2 (%)	N3	DeP3 (%)
Anxiolytics/Sedatives	31	19.4	28	17.9	3	33.3	Laxatives/Stool softners	194	8.8	179	7.8	15	20.0
Anti-depressants	97	0.0	88	0.0	9	0.0	PPIs/H2-blockers	80	33.8	68	33.8	12	33.3
Anti-dementia	35	5.7	33	6.1	2	0.0	Oral hypoglycemics	49	14.3	35	11.4	14	21.4
Anti-psychotics	54	7.4	52	7.7	2	0.0	Insulin	36	11.1	31	12.9	5	0.0
Analgesics	185	37.8	169	39.6	16	18.8	Thyroid hormone	37	5.4	29	3.4	8	12.5
Anti-hypertensives	107	17.8	52	13.5	55	21.8	Anti-histamines	12	50.0	10	60.0	2	0.0
Diuretics	72	4.2	45	2.2	27	7.4	Ophthalmics	81	4.9	65	6.2	16	0.0
Lipid-lowering	157	28.0	105	35.2	52	13.5	Asthma/COPD	57	19.3	51	17.6	6	33.3
Vitamins / Minerals / Iron supplements	247	27.5	199	29.6	48	18.8	5α reductase inhibitors/α1-blockers	47	8.5	44	9.1	3	0.0
Anticoagulants	37	5.4	33	3.0	4	25.0							
Anti-platelets	131	16.8	95	16.8	36	16.7	Other classes	203	24.1	161	24.8	42	21.4

N1:# Total encounters pre-DeP. DeP1: DeP success rate in total. N2:# LTC encounters pre-DeP. DeP2: DeP success rate in LTC. N3:# OP encounters pre-DeP. DeP3: DeP success rate in OP.

P38

Making Medications Work For You and Not Against You: VIONE (Vital, Important, Optional, Not indicated, Every medicine has a diagnosis) - An Innovative Medication Deprescribing Tool to Improve Patient Safety

S. S. Battar,[1,2] K. W. Dickerson,[3] c. Timothy,[3] c. Sedgwick.[4]
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2. Geriatrics, University of Arkansas Medical School, Little Rock, AR; 3. Pharmacy, Central Arkansas Veterans Healthcare System, Little Rock, AR; 4. Pharmacy Informatics, VA St.Louis Health Care System, Kansas City, MO.

Simultaneous consumption of multiple medications (polypharmacy) is among the top 10 causes of death in the United States, and accounts for 10% or more of hospital admissions.

Design: VIONE is an electronic tracking system embedded into clinical profiles, categorizes medications as follows:

Vital, life-saving medications — Continue, e.g. Diabetes

Important, for quality of life — Continue and consolidate, e.g. pain

Optional, no major difference if taken or not— Consider deprescribing

Not indicated/treatment complete — Stop or taper as needed

Every medication has a diagnosis/indication of use— if none listed- justify, consider deprescribing

Results: Between February 2016 to October 2018 (33 months), 15,230 medications were deprescribed among 8,766 veterans reviewed, with an average decrease of 1.7 medications per veteran. There were no reported serious adverse outcomes. The cumulative annualized cost avoidance to date is $ 2,673,224 million at CAVHS. The top 3 medications classes deprescribed were Proton Pump Inhibitors/H2 blockers, Blood Pressure Medications, and Over the Counter (OTC). The deprescribing reasons used most often were Optional at 38.3 %, not indicated at 19 %, patient reported no-longer taking 18.3%, alternate medication prescribed 15.7%, no diagnosis 4.6%, and dose decrease 4 %.

11 VA Medical Centers have launched VIONE, over 40 facilities have imported VIONE toolkit.

VIONE won the Under Secretary for Health VHA Shark Tank Competition. VA Pulse https://www.vapulse.net/groups/vione-an-innovative-deprescribing-approach-to-medication-management

VIONE improves patient safety, reduces risks, engages employees and patients, and decreases costs. Future focus includes targeting vulnerable patient populations experiencing end of life care, dementia, falls, delirium, repeated Emergency Room visits/hospitalizations etc. We are collaborating various national field champions with similar interests in reduction of polypharmacy, clinical waste and improvement of patient safety.

P39 Student Presentation
Patient-Reported Facilitators and Barriers to Deprescribing Potentially Appropriate Medications

T. Requijo,[1] B. Siceloff,[2] M. Shen,[2] S. Hilmer,[3] M. Lachs,[2] M. Safford,[2] P. Goyal.[2] *1. Weill Cornell Medical College, New York, NY; 2. Department of Medicine, Weill Cornell Medicine, New York, NY; 3. Departments of Clinical Pharmacology and Aged Care, Royal North Shore Hospital, St Leonards, NSW, Australia.*

Background: Deprescribing interventions, to date, have had a limited scope, in part due to a focus on potentially inappropriate medications (PIMs), which comprise a small proportion of medications taken by older adults with polypharmacy. Identifying facilitators and barriers to deprescribing a broader range of medications, including potentially appropriate medications (PAMs), is warranted to advance deprescribing efforts. While facilitators and barriers to deprescribing PIMs have been identified, facilitators and barriers to deprescribing PAMs have yet to be examined.

Methods: To identify facilitators and barriers to deprescribing beta-blockers in heart failure with preserved ejection fraction (HFpEF), an archetype for PAMs, we conducted 10 one-on-one, semi-structured interviews with older adults (age ≥55 years) hospitalized for HFpEF. We performed deductive thematic analysis.

Results: Patients (median age 81 years) took a median of 12 medications. Several factors served as both facilitators (blue) and barriers (red) to deprescribing, and often co-occurred in the same patient (purple) (Figure 1). Two themes unique to deprescribing PAMs emerged: 1) uncertainty about the risks and benefits of deprescribing (*"It's a decision that is very hard. Do I take [medication], and feel worse? Or not take it, and make my condition worse?"*); and 2) conflicting attitudes toward deprescribing (*"I don't want [medications]... but I have to take it"*). These themes were the most proximal influencers of deprescribing PAMs.

Conclusion: Our study is the first to describe patient-reported facilitators and barriers specific to deprescribing PAMs, yielding a novel conceptual framework to guide future work on deprescribing PAMs.
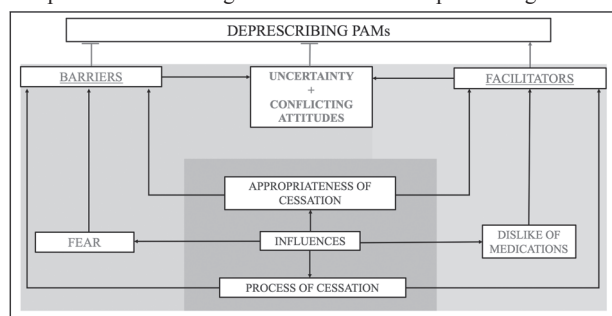
Paper Session
EVIDENCE-BASED NURSING HOME CARE

Saturday, May 4
1:00 pm – 2:00 pm

P40 Student Presentation, Encore Presentation
Urinary Tract Infection: A Culture of Culturing

M. Olson,[1] E. Alonso,[1] J. Rosen,[2] M. Yukawa.[2,1] *1. School of Medicine, University of California, San Francisco, San Francisco, CA; 2. Veterans Affairs Medical Center, San Francisco, CA.*

Background: Veterans Affairs (VA) Nursing Homes, called Community Living Centers (CLC), use Centers for Medicare (CMS) Quality Measures to rate care. Since October 2016, quarterly UTI rates at the San Francisco VA CLC were above VA regional and national rates. Chart review for January – March 2017 showed 50% of UTI cases received antibiotics despite a lack of symptoms consistent with CMS criteria for UTI. This project aimed to decrease unwarranted UTI work-up and treatment.

Methods: The investigation used a Lean Process Improvement framework. Interviews with CLC nurses, physicians, pharmacists, and Infection Control, conducted September-December 2017, revealed a proclivity to order urine cultures for symptoms not specific to UTI. The interdisciplinary team "Deep Dive" identified the problem as a "culture of culturing" asymptomatic bacteriuria, leading to unnecessary antibiotic treatment. The team adopted evidence-based symptom criteria for urine culturing (CDC 2018 UTI guidelines) and antibiotic prescription (McGeer Criteria for UTI in Nursing Homes). A new protocol standardized symptom criteria for suspected UTI. Nurses attended education sessions and received pocket-cards with CDC guidelines for urine culturing practices. Providers attended education sessions or completed an online module that explained the McGeer criteria for antibiotic prescribing, and reinforced the training with pocket-cards. Physicians also received access to an online McGeer-based decision algorithm to guide appropriate antibiotic use.

Results: SFVA CLC UTI rates for the quarter July – Sept 2018 were 66% lower than that quarter in 2017 (2/82=2.44% vs. 6/83=7.23 % respectively). This was the first quarter in three years that the SFVA CLC rate fell below both national and regional VA averages (2.44 v. 2.49 v. 3.04%). A detail audit in April – June, after trainings, found that 80% of urine cultures (4/5) met symptom criteria and 100% of treatments were appropriate.

Conclusions: Adopting and creating a process to use evidence-based UTI symptom criteria is imperative for appropriate workup and treatment. Employing the CDC 2018 and McGeer criteria to guide the decision to culture and prescribe, respectively, effectively lowered unwarranted urine cultures, increased appropriate diagnosis of UTI, and reduced unnecessary antibiotic use at the CLC.

P41
Guardianship and End-of-Life Care for Nursing Home Residents with Advanced Dementia

A. B. Cohen,[1,2] J. R. O'Leary,[1] L. Han,[1] T. R. Fried.[2,1] *1. Geriatrics, Yale University, New Haven, CT; 2. VA Connecticut Healthcare System, West Haven, CT.*

Background: A growing number of adults with dementia are represented by court-appointed surrogates, known as professional guardians. Anecdotal evidence suggests that professional guardians avoid difficult decisions about end-of-life care or choose aggressive treatment by default. This phenomenon, however, has not been studied systematically.

Methods: We performed a retrospective cohort study involving veterans who died from 2011-13. We obtained administrative data from the Department of Veterans Affairs (VA) and the Centers for Medicare and Medicaid Services and used Minimum Data Set assessments to identify decedent veterans who were nursing home residents and had advanced dementia. We applied methods developed in prior work to determine which veterans had professional guardians. This involved searching fields in VA administrative data for the words "guardian" and "conservator," then conducting chart reviews. Decedent patients with professional guardians were matched in a 1:4 ratio to decedent patients without professional guardians on the basis of age, gender, race, and type of nursing facility (VA-based vs. non-VA). We used multivariable logistic regression to examine the relationship between type of decision-maker and our primary outcome, which was ICU admission in the last 30 days of life. Secondary outcomes included mechanical ventilation in the last 30 days of life and feeding tube placement in the last 90 days of life.

Results: Among 149 decedent patients with professional guardians and 596 matched decedent patients without professional guardians, the mean age was 82.9 (SD 7.2) years, 97% were men, and 19% were non-White. ICU admission occurred for 17.5% of patients with

professional guardians and 13% of the control group (adjusted OR 1.3; 95% CI 0.78, 2.1). Mechanical ventilation occurred for 8.1% and 4.9%, respectively (adjusted OR 1.7; 95% CI 0.8, 3.4), while feeding tube placement occurred for 6.7% and 7.1% (adjusted OR 0.9; 95% CI 0.4, 1.8). None of these differences was statistically significant.

Conclusions: Several forms of high-intensity end-of-life care were more common among patients with professional guardians, but these differences were not statistically significant, in part because high-intensity care was more common in the control group than we expected. Work is needed to determine the factors that contribute to aggressive care in all patients with advanced dementia.

P42 Encore Presentation
Timing of Provider Visits and Early Emergency Department Utilization in Patients Discharged to Skilled Nursing Facilities
A. Chandra,[1] P. Takahashi,[1] P. Rahman,[2] A. Sneve.[2] *1. Internal Medicine, Mayo Clinic, Rochester, MN; 2. Mayo Clinic, Rochester, MN.*

Background: Patients discharged to skilled nursing facilities (SNF) for post-acute care following hospitalization are at increased risk emergency department(ED) visits. Early visits by providers, physician or advanced practice nurses, at SNF admission may favorably impact these outcomes by improving transition management and by timely management of acute clinical concerns. We conducted this study to compare ED utilization within 7 and 14 days of SNF admission among patients discharged for post-acute care to a facility where the care process model included early (typically the first day) provider visits to facilities where provider visits occurred per government regulations usually within 30 days of SNF admission.

Methods: This is a cohort study of patients discharged from Mayo Clinic, Rochester, MN hospitals to 10 area SNFs served by the Division of Employee and Community Health (ECH) between January 1, 2009 and June 30, 2014. The primary outcomes, 7 and 14-day ED visits following SNF admission, were obtained from the electronic medical record and administrative data. Patient demographics, comorbidities and provider care process at the facilities were obtained from the same sources. We compared the rates of 7 and 14 day ED visits in patients discharged to the facility with early provider visits to those discharged to facilities where provider visits occurred per regulations usually within 30 days.

Results: 8616 discharges occurred from our institutional hospitals to 10 SNFs served by ECH during the study period. Among these, ED visits occurred in 682(7.9%) within 7 days and in 1056(12.6%) within 14 days. In comparing the two groups both 7-day and 14-day ED utilization rates were higher (8.9% and 13.7% respectively) in those with usual care compared to those discharged to the facility with early provider visits (6 % and 9.5% respectively, p <0.01). These differences persisted after adjustment for age and comorbidity (OR 0.73 95% CI 0.60-0.87; 0.73 95% CI 0.63-0.85 respectively)

Conclusion: Patients discharged to the SNF with early provider visits had lower ED utilization at 7 and 14 days compared to those with usual care. Further studies are needed to confirm these findings in other institutions and geographic areas.

P43
Communication Disparities Among Long Term Care Team Members
T. W. Farrell,[1,5] G. L. Towsley,[2] J. Eaton,[2] J. Butler,[1] R. Hemmert,[2] J. Telonidis,[2] B. Crickmore,[2] K. P. Supiano,[2] S. Chase-Cantarini,[2] R. D. Wilson,[2] A. May,[4] J. Shipman,[3] L. S. Edelman.[2] *1. Division of Geriatrics, University of Utah School of Medicine, Salt Lake City, UT; 2. University of Utah College of Nursing, Salt Lake City, UT; 3. University of Utah Eccles Health Sciences Library, Salt Lake City, UT; 4. University of Utah College of Pharmacy, Salt Lake City, UT; 5. VA SLC Geriatric Research, Education, and Clin0ical Center, Salt Lake City, UT.*

Background: Ineffective communication in long term care (LTC) settings may place residents at risk of harms including unnecessary emergency department visits and hospital readmissions. Optimal communication in LTC settings requires high-functioning teams that value the contributions of all members. Certified nursing assistants (CNAs) interact with LTC residents frequently, but the extent to which CNAs feel valued by other team members when reporting concerns about LTC residents is unknown. We deployed a communication survey among LTC care team members, including CNAs, to determine whether opportunities exist to improve communication in this setting.

Methods: We administered the communication survey to 650 team members from 20 Utah LTC facilities between December 2017 and June 2018. Respondents used a 4-point scale (1= not valued, 2 = somewhat valued, 3 = mostly valued, 4 = highly valued) to indicate the extent to which their input is valued by other team members when communicating their concerns about LTC residents. We used a one-way ANOVA with a Bonferroni correction to compare 10 different LTC job groups, including a CNA group.

Results: When compared to nurses, CNAs felt less valued (CNA mean = 2.14, nurse mean = 3.24; p < 0.001) when reporting their concerns about LTC residents to physicians, and also less valued (CNA mean = 1.66, nurse mean = 2.71; p < 0.001) when reporting these concerns to pharmacists. When compared to management, CNAs felt less valued (CNA mean = 2.82, management mean = 3.64; p < 0.01) when reporting to physical therapists. Conversely, CNAs did not feel significantly less valued than any other team members when reporting to administrators, nurses, occupational therapists, speech therapists, and social workers.

Conclusions: CNAs perceived that their input about LTC residents is undervalued by some team members. Additional research is needed to understand the reasons for this perception and to design educational interventions to improve communication among CNAs and these team members in LTC settings.

POSTER SESSION A

Thursday, May 2
12:30 pm – 1:30 pm

A1
BALANCING THE DOPAMINE SYSTEM: A CASE OF PARKINSON DISEASE DEMENTIA WITH BPSD AND DELIRIUM
K. Venkatachalam, T. R. Holden. *Geriatrics, Washington University / Barnes Jewish Hospital, St. Louis, MO.*

Introduction:
Parkinson's disease(PD) is commonly associated with progressive cognitive impairment leading to dementia with associated behavioral & psychological symptoms of dementia (BPSD) that can include psychosis.
Case:
76-year-old home dwelling gentleman with h/o PD dementia and associated BPSD controlled with quetiapine 12.5 mg Q AM and 25mg

Q PM. Motor symptoms were well managed with levodopa /carbidopa (LD/CD) 25/100, 2 tab TID. He developed acute agitation following a dental procedure. This led to a month long period of 2 hospitalizations, a skilled nursing facility admission where his medications were significantly altered (quetiapine increased to 25mg Q AM, mid-day 12.5mg and 150mg Q PM). He was trasferred to our rehab facility where his agitation & psychosis (diagnosed as BPSD with dementia) and a further increase in quetiapine dose to 100mg AM, 50mg mid-day & 150mg Q PM was made. Risperidone 1mg BID was added for persistent aggressive behavior and our geriatrics team was consulted. He was somnolent, poorly responsive to stimulus & extremely rigid. Given his multiple risk factors (dementia, recurrent hospitalizations with frequent transitions of care & rapid dosing changes of medications), fluctuating mental status with episodic inattention we made a diagnosis of delirium. Physical exam revealed profound cogwheel rigidity in his extremities with obtundation felt to be due to the anti-dopaminergic effects of risperidone. We recommended discontinuation of risperidone, instigated non-pharmacologic measures to manage delirium while tapering quetiapine to the lowest effective dose to manage BPSD. Within 24 hours rigidity and mentation significantly improved to the point that he was able to feed himself. Quetiapine was lowered to to 50mg Q AM, 50mg mid-day and 100mg Q PM. This response was sustained over the ensuing stay at rehabilitation and he was able to participate in PT & OT.

Discussion:

This case illustrates the importance of recognizing delirium (on top of dementia with BPSD) & address reversible precipitating factors. It is important to reinforce non-pharmacologic measures to treat delirium. There is a role for antipsychotics (AP) in delirium but its use should be limited when safety is a concern. It is relatively contraindicated in the setting of PD and low-dose quetiapine or clozapine are preferred. Our goal was to manage his behavioral symptoms and to avoid motor symptoms of PD.

A2
Hoofbeats: Horses vs Zebras

A. Ajisebutu,[1] D. Maygren,[1] N. Murdock,[1,2] J. Ceimo,[1] W. J. Nieri.[1] *1. Geriatrics, Univ. of AZ College of Medicine, Phoenix, AZ; 2. Pharmacy, Midwestern University, Glendale, AZ.*

Introduction: Subacute neuropsych symptoms (impaired cognition, incoherent speech, myoclonus, tremors, hallucinations, focal deficits) pose diagnostic challenges with a broad differential, including dementia, psych illness, seizures (sz), vascular disease, encephalitis, and ADEs. An unclear PMH worsens the dilemma.

Clinical Scenario: 71-year-old widow with PMH of HBP, CAD, and depression came to live with her daughter. On Namenda for dementia, the daughter felt Mom was fine. A year later she had episodes of HA and nausea, leading to periods of confusion, aggression, garbled speech, visual changes, and sz activity. Over 5 months she was repeatedly hospitalized; multiple CT/CTAs head and MRIs were normal. She improved with antiepileptic/psychotropic mixes, only to relapse. An episode of PAF with focal twitching led to Rx with Eliquis. Cardiac ECHO was WNL. A new MRI showed restricted L occipital diffusion. CSF was WNL and not cultured. There were sharp L parietal-temporal discharges on EEG. Keppra was stopped; IV Vimpat, Depakote, and Acyclovir started. Contrast MRI showed L diffusion restriction Another EEG showed epilepsia partialis continua (EPC).

Pan-viral titers and paraneoplastic antibodies were negative; extensive labs including ESR were WNL. RPR was non-reactive; CRP was 94. Acyclovir was stopped, Seroquel added. Improved, still confused, she went to SNF. She worsened again and was admitted to psych. We considered anti-NMDA encephalitis and stopped Namenda. There were continuous epileptiform discharges on EEG. Neuro consultant favored autoimmune encephalitis (AE). IV steroids were begun; she worsened. IVIG was given with less sz activity on EEG. Autoimmune studies were negative. She was sent to a specialty Neuro hospital where high signal intensities in multiple areas on MRI brain and LP with characteristic 14-3-3 protein were diagnostic of Creutzfeldt-Jakob Disease (CJD). She died shortly thereafter.

Discussion: Variable S/S, changing imaging, and no improvement with various therapies should suggest an atypical form of dementia. EPC, an early CJD finding, was a clue. Negative testing and no response to treatment made AE a less likely diagnosis. When the pieces don't fit, reassess and remember: common things are common, except when the diagnosis is rare.

A3
Where Depression Meets Aggression: SSRI Use in Parkinson's Disease

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Introduction

Depression is common in Parkinson's Disease (PD) occurring in up to 35% of patients. Response to SSRIs requires close monitoring as some patients may have adverse reactions resulting from genetic variation altering metabolism. Aggression resulting from SSRI use is well documented in the literature and recent articles highlight interaction between CYP450 and SSRIs. This case highlights a case of extreme agitation, paranoia and hallucinations in a patient with underlying PD resulting from SSRI use.

Case presentation

Geriatrics was consulted to treat aggressive behaviors, hallucinations and paranoia in a 66-year-old community-dwelling and cognitively intact man with PD in acute rehabilitation. Recent history was notable for several hospitalizations for thoracic spine osteomyelitis and MSSA bacteremia. He had been under a neurologist's care for PD for 5 years and was managed with Carbidopa-Levodopa, Pramipexole and Selegiline. At baseline he had some nocturnal hallucinations which were not yet disruptive or burdensome. His hospital course was complicated by sun downing, mild delusions and intermittent non-disruptive hallucinations. He did not have aggression or care-limiting paranoia. Given concern for possible depression, escitalopram was initiated. One week later he developed acute agitation, delusions, paranoia and aggression which were a distinct change from his baseline.

His symptoms were initially attributed to increased dopaminergic activity. Pramipexol was discontinued based on his neurologist recommendation. He continued to be severely agitated and paranoid. He had minimal improvement with quetiapine. Persistent behavioral symptoms raised concern for an adverse reaction to the new SSRI, resulting in its discontinuation. His mentation improved the next day and continued to improve. His behavior returned to baseline prior to discharge back to the community.

Conclusion

SSRIs are effective in treating depression, but clinicians must remain vigilant for adverse effects especially in the setting of PD. While hallucinations may be expected with dopamine modulation within the course of PD treatment, it is important to remember that new or worsened behaviors may also result from exposure to new medications. Aggressive behaviors and paranoia may preclude use in persons with genetic variations such as CYP450 that result in altered metabolism.

A4

Incidence of acute intracranial bleeding after a fall in post-acute care

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Background: Fall with head injury can result in significant morbidity and mortality. Despite this, there are no guidelines to help clinicians decide which patients require a non-contrast CT (NCCT) after a fall to identify intracranial hemorrhage (ICH) in a post-acute care (PAC) setting. This can result in both under and overutilization of NCCT in patients who fall. The current VA policy is to perform a NCCT for all patients with an unwitnessed fall. It is unclear if this policy is clinically or cost effective.

Methods: We reviewed all falls in the VA Ann Arbor Community Living Center (PAC unit) from 10/1/2011–2/26/2017 using the Electronic Patient Incident Reporting and electronic medical record. A total of 448 reports of falls were reported with 268 head CTs completed. We conducted a chart review to determine the underlying patient characteristics and the conditions of a fall for every patient that had an acute ICB.

Results: Over five years, there were 6 CTs reports (2.2%) with evidence of an acute ICH, which corresponded to 6 unique patients. At the time of their fall, 4 of 6 patients were on anticoagulants (excluding aspirin) and 4 of 6 were hospice eligible. 4 of the 6 patients likely would have received a NCCT based on clinical findings alone, which included acute mental status change, a head laceration, active anticoagulation, a supratherapuetic INR, recent subdural hematoma, or a combination thereof. Only one CT showed a bleed greater than 1cm. Most reports used descriptor such as "tiny," "small focus" and "indeterminate." No patient had neurologic deficits from the bleed, required surgical intervention, and all head CTs were stable on repeat imaging. Anticoagulation strategy was changed for 4 of the 6 patients.

Conclusions: Most falls do not result in acute ICH. Our case series review suggests that patients without acute mental status changes, visible head injury, or anticoagulant therapy may not benefit from NCCT. Furthermore, it is unclear if identification of an ICH changed the clinical course beyond changing the anticoagulation strategy. It may be reasonable to limit NCCT to only those on active anticoagulation. Finally, addressing goals of care and anticoagulation strategy early in a PAC admission may help to limit unnecessary imaging at the end of life.

A5

The invisible cane

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Background

Balance comprises an intricate interplay between external stimuli perceived through sensory systems working to produce a compensatory response to counter a disturbance and maintain equilibrium. Proprioception contributes to control of body posture. Individuals with impaired sensory or motor system compensate by adapting both the impaired and normal functioning components to maintain balance. Studies have shown that hand contact with external objects may reduce imbalance. Our study looks into how balance can be affected by holding a simple object

Method

Bertec balance Advantage system: used to assess balance

We used an 8oz bottle filled with sand "invisible cane" to induce kinesthetic awareness of the hands through tactile stimulation.

Selected from patients referred to physical therapy for balance. Exclusion criteria: acute BPPV, spinal stenosis, moderate/severe dementia, CVA, legally blind, myasthenia gravis, Parkinson's, progressive neurologic conditions and severe arthritis.

Once consented, balance was evaluated on the Bertec system using 6 conditions of the sensory organization test (SOT), without and then with the device in the dominant hand.

C1: Eyes open, stationary force plate

C2: Eyes closed, stationary force plate

C3: Eyes open, screen moving

C4: Eyes open, force plate moving

C5: Eyes closed, force plate

C6: Eyes open, force plate and screen moving

Results show a composite score improvement from 64 (average for patient's demographics) to 78.1 (22% improvement)

Conclusion

A handheld device does have the ability to affect balance, a potential area of further research to improve balance and perhaps reduce falls

A6

Bone Pain from "Metastatic" Sarcoidosis: A Complex Case of Chronic Pain

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Introduction: Chronic arthritis resulting from sarcoidosis is uncommon and found in less than two percent of patients with sarcoidosis. While it typically occurs in the hands, feet, and ankles, there are a few cases of biopsy-proven pelvic and sacral sarcoidosis described in the case literature. General management of chronic arthritis in patients with sarcoidosis is typically with anti-inflammatory medications and disease-modifying antirheumatic drugs. There is little guidance on pain management in patients with chronic pain refractory to these therapies.

Clinical Scenario: A 69-year-old Caucasian male nursing home resident with "metastatic" sarcoidosis resulting in pulmonary disease, chronic systolic heart failure, chronic kidney disease, and biopsy-proven painful bone lesions of the hips and pelvis with a history of opioid use disorder, mild cognitive impairment, anxiety, and insomnia presented with chronic pain in the setting of delirium, falls, and progressive decline. Given his presentation, pain management in this patient required a multidisciplinary approach. Our geriatrics team consulted with rheumatology, psychiatry, and pain management. The patient's sarcoidosis was managed with hydroxychloroquine. A pain management regimen consisting of physical therapy, acetaminophen, low-dose opioids, lidocaine patches, topical diclofenac, duloxetine, and low-dose gabapentin was developed to maximize pain control while balancing the risks of worsening delirium and future falls. Additionally, due to the advanced and progressive nature of the patient's sarcoidosis and associated complications, multiple discussions were held with the patient's family to address goals of care.

Discussion: We highlight a geriatric nursing home resident with mild cognitive impairment and multiple medical comorbidities including systemic sarcoidosis and refractory pain, where pain control was achieved using interdisciplinary team approach, minimizing opioids and maximizing patient comfort pursuant to family goals. The approach as outlined in our case can decrease the risk of delirium and falls that are associated with high-dose opioids.

A7

Dangerous Dentures: An Unexpected Consequence and Cascade of Interventions

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Background: Many older adults are edentulous and about fifty percent of Americans over the age of 65 wear full or partial dentures. Usually these are well tolerated and allow easier consumption of food of all textures, which is important for quality of life and good nutrition. However, sometimes dentures can accidentally be swallowed. Typically, they can be removed endoscopically or pass through the GI tract without incident. However, in this case, they caused serious and unforeseen complications.

Case: An obese 74 year old man who was previously independent presented to the emergency room after accidentally swallowing his removable partial denture while asleep. He suddenly awoke with sharp pain in his throat and difficulty swallowing. His denture was localized to the proximal esophagus on imaging. Both gastroenterology and otolaryngology made unsuccessful attempts to remove the denture endoscopically, so he was taken for open neck exploration and esophagotomy. His post-operative course was complicated by mediastinitis and splenic abscess treated with extended intravenous antibiotics. Once he was cleared for PO intake, he developed Ogilvie syndrome and could not tolerate tube feeds or flushes, so became hypernatremic and eventually required TPN. He subsequently developed refeeding syndrome. In the setting of extended hospitalization and these multiple complications, he developed delirium. His mental status slowly improved with treatment of infection and normalization of his electrolytes. However, he was not back to his prior baseline before discharge to LTACH.

Discussion: In this previously functional man, his accidentally-swallowed partial denture, meant to improve his quality of life, instead brought many complications and interventions. His prolonged hospitalization led to delirium and functional decline that will likely require an extensive period of recovery, with the possibility that he will not regain his prior level of function. To this end, patients should be cautioned to always remove their partial dentures before sleep to avoid unanticipated complications.

A8

Where did your dental implant go?

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Case Description: Mr. G is a 93 year-old community dwelling and functionally independent male who presented to our Geriatric Medicine clinic shortly after having a dental implant procedure. His dentist advised him to obtain a referral to an otorhinolaryngologist (ENT) as one of the implants was displaced during the procedure. The patient was asymptomatic from sinusitis, nasal congestion, or epistaxis and denied facial or oral cavity pain. He was referred to our in-house dental clinic for evaluation where an orthopantogram showed a dental implant displaced into his right maxillary sinus. After a joint discussion with the patient, a dentist, and ENT, the decision was made to leave the implant in place as the patient was asymptomatic and wished to avoid additional procedures.

Discussion: The maxillary sinus, a pyramid-shaped cavity located just superior to the posterior maxilla, drains via the maxillary ostium into the nasal turbinates. With loss of maxillary teeth, alveolar bone is resorbed and the sinus expands. This results in decreased bone height above the maxillary teeth, which combined with other factors can lead to perforation of the maxillary bone. Uncommonly, an implant may then migrate through the maxilla and into the maxillary sinus. Once displaced into the maxillary sinus, a dental implant may lead to inflammation and mucosal thickening, inhibition of mucociliary clearance, and/or obstruction of the maxillary ostium. As a result, a patient may then develop maxillary congestion or sinusitis, which are the most common complications of a migrated dental implant. Due to the risk of sinusitis, it is generally recommended that migrated dental implants be removed through either invasive or non-invasive means.

Conclusion: Given the overall health of our patient and the fact that most procedures to remove retained dental implants are relatively non-invasive, we believe that it was reasonable to refer our patient for extraction of the retained implant in order to prevent future occurrences of sinusitis. However, due to the rarity of dental implant migration, the risk of developing sinusitis is unknown; this potential risk must be balanced with the potential harms of additional dental procedures to remove a displaced implant. Our patient was asymptomatic at time of presentation and elected to forgo additional procedures to remove the implant, emphasizing the important role of patient preference in medical decision making.

A9

Hyperpolypharmacy and Prescribing Cascade Recipe for Delirium and Increasing the Length of Hospital Stay

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Introduction:

Hyperpolypharmacy is common in older adults with multiple comorbidities, Prescribing cascade can further complicate care when one drug used to treat a condition resulting in other symptoms leading to prescribing another drug to treat the side effect. Our case aims to highlight the importance of medication review and deprescribing for better patient outcomes.

CASE:

Mr. RS is a 66 years old man with complex past medical history significant for vascular dementia, multiple myeloma, benign prostatic hyperplasia(BPH), stroke, coronary artery disease, atrial fibrillation on anticoagulant and diabetes mellitus, admitted with altered mental status. Work up suggested potential seizure disorder that he was started on carbamazepine. He also developed dysuria and was started on Phenazopyridine. Hospital course was further complicated by delirium. Geriatrics Inpatient consult service was consulted for delirium. We noted that he has dementia with behavior disturbances and chronic pain, most notably he has hyperpolypharmacy of 20 medications and new acquired urinary retention exacerbated his agitation. Upon medication reconciliation and review, we recommended discontinuing Phenazopyridine which can cause urinary retention, changing Carbamazepine with anticholinergic effect exacerbating urinary retention and agitation. In addition, simplify bowel regimen from 3 agents to one polyethylene glycol and treat his benign prostatic hyperplasia. After our intervention, Mr. RS has no further urinary retention and agitation. He was able to discharge to rehabilitation.

Discussion:

The clinician needs cautious awareness of prescribing cascade as it can cause more complication such as delirium and urinary retention in our case. This will cause prolonged hospital stay and further impaired cognitive function. It is important to reconcile and review medication, attempt to simplify and deprescribe as appropriate for ideal patient outcomes.

A10

Bats, Rabies and a Skilled Nursing Facility: A Potentially Lethal Combination

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Background: Over the past several decades long term care (LTC) facilities have developed infection control practices to prevent disease outbreaks. These include hand hygiene, isolation, immunizations, and indwelling catheter care. When standard guidelines are not available for LTC settings, community standards are often applied. In our skilled nursing facility (SNF), a bat was found perched on the ceiling of a recreational room. After review of the literature, no reports were found detailing an infection control guideline for potential bat exposure in an LTC facility. Given the lack of such guidelines, this report aims to describe a standardized protocol for exposure to bats in an LTC facility.

Methods: To determine the bat's point of entry and whether residents or staff were exposed, security footage was reviewed. Pest control staff, who captured the bat, were interviewed. A systematic literature review was conducted using the following databases: PubMED, MEDLINE, Cochrane library and web-based search engines. Keywords included "bats," "post acute," "skilled nursing facility," and "assisted living," amongst others. A comprehensive list is included in Appendix A.

Results: First contact with the bat was made by pest control who captured the bat. Security footage confirmed that the bat entered the SNF through the garage and flew into an unoccupied recreational room. It did not enter any occupied spaces or patient care areas. An infectious disease specialist was consulted and LTC leadership eventually concluded that no residents or staff were bitten or exposed to bodily fluid and the bat was subsequently released without any testing.

Conclusion: In the absence of relevant LTC literature, we reviewed guidelines for bat exposure in the community. In the absence of security footage detailing the bat's path, the degree of exposure to LTC residents would have been unclear. In a densely occupied LTC facility with cognitively impaired patients, we would have to assume widespread exposure and perform mass post exposure prophylaxis, including a series of rabies vaccine and immunoglobulin. Testing of the bat would also be mandatory. The aim of this report is to identify the challenges of potential rabies exposure in LTC facilities and describe a standardized protocol.

A11

A case of accidental ingestion of a denture masquerading as Bronchitis

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Backgrounds:

Our case illustrates that one has to have a high index of suspicion of foreign body ingestion in cognitively impaired patients who present with upper respiratory symptoms.

Case:

WR is a 72 year old gentleman who is a resident of a long term care facility who has vascular dementia, CVA's in past with residual right sided hemiplegia with spasticity, anemia, CAD and mild CKD. His chronic meds include Plavix, ASA, Atorvastatin, Depakote, Omeprazole, Tizanidine and MVI.

On June 9th the patient was noted to be coughing and not his usual self. There was no fever. Infectious work up ordered. UA and Cx showed infection and grew Proteus. The WBC was marginally high. CXR was negative. He was started on IV Cefepime but continued to

worsen clinically. He became progressively more lethargic and continued to have a moist cough. WBC slowly trended up from 13 to 21 K despite broadening AB. His oral intake plummeted. He now began to cough up blood. The working diagnosis was bronchitis as well as a UTI but he was not improving. Because of history of smoking a CT chest and sinuses was ordered that was finally done as an outpatient on June 24th. The CT chest was unyielding but the CT sinuses caught a metal object in the throat and he was immediately sent from Imaging to the ED of the local hospital. An indirect laryngoscopy at bedside revealed that he had swallowed the metal plate of his denture causing local irritation and hemoptysis. The patient immediately improved in terms of his cough, hemoptysis and congestion symptoms as the denture was removed.

Conclusion:

A high index of suspicion is needed for accidental denture ingestion in patients with dementia even in supervised settings

A12

The various faces of Thiamine deficiency in a Skilled Nursing Facility (SNF)

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Thiamine deficiency causes a spectrum of disease from wet Beriberi, the first nutritionally linked disorder in history to Korsakoff - Wernicke's syndrome. Deficiency is common in patients with alcoholism, dialysis, high diuretic use or chronic diarrhea. Here are some cases of Thiamine deficiency in our post –acute care service.

JB:

85 year old man with a history of stroke, HTN, atrial fibrillation and depression who presented to hospital for 2 weeks of confusion. No history of alcohol use. Neuro-imaging and UA was negative. Thiamine was undetectable. Modest improvement in cognition continued when transitioned to SNF.

RC:

88 year old female admitted to SNF after a short stay at hospital for fall, confusion and UTI. There was reported cognitive decline consistent with Alzheimer's. Thiamine level was < 6. There was no alcohol use but diet was poor. Her cognition did not improve despite repletion.

RM:

75 year old male with HFpEF, atrial fibrillation, hypertension and gout who presented to hospital for acute onset behavioral changes and confusion. Subsequently found to be thiamine deficient with a level of <2. There was suspected alcohol abuse. Transferred to SNF where his SLUMS improved from single digits to 23/30 over next 3 weeks with repletion.

AB:

60 year old woman admitted to SNF after 2 successive acute stays -first for uncontrolled DM then to Trauma service for a fall and

long lie syndrome resulting in rib and a Colle's fracture. Upon transition to our SNF she had notable cognitive deficits. Thiamine level was 8. Replenishment improved her cognition modestly but LE neuropathy persisted.

LK:

67-year-old gentleman with atrial fibrillation, CKD, DM II, COPD, HFpEF was admitted with Pasturella multicoda bacteremia from a chronic foot ulcer. Had mild confusion initially that worsened suddenly while hospitalized. Brain attack was called. CT head negative. Thiamine was 2. Marked and prompt improvement upon repletion.

AB:

83 year old male with DMII, CKD stage IV, mild cognitive decline was admitted to hospital after a fall and compartment syndrome. Underwent a long stay with fasciotomies. Transitioned to our SNF with slow improvement. Thiamine level 11. Repleted with marginal improvement.

Conclusions:

Our small array of patients transitioning to SNF in last 2 years shows that thiamine deficiency is common despite living in age of excess and enrichment of packaged food in USA. It's not always associated with alcohol and does not always lead to a reversible dementia.

A13

Don't Rule It Out: ECT Therapy for Refractory Schizophrenia in Geriatric Patients

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Introduction: Geriatricians are trained to take a holistic approach to patient care, avoiding unnecessary or unwanted medications, tests, and procedures in order to improve patients' quality of life. At the same time, it is important to know when to seek additional treatment options to halt a trajectory of worsening morbidity and mortality.

Case: Mr. T was a 72-year-old male with a history of paranoid schizophrenia who lived alone and who had anxiety around his job security. He was hospitalized for progressive auditory hallucinations and paranoia that prompted him not to eat or drink. He had a prolonged hospitalization with intermittent acute kidney injury and hypernatremia thought to be due to poor oral intake, requiring frequent intravenous fluids and blood draws. His psychiatric medications were titrated without improvement of his paranoid delusions or increased oral intake. Mr. T's noticeable weight loss, malnutrition, a documented fall, ongoing orthostasis, and deconditioning were worrisome signs of clinical deterioration. After a careful benefit/burden analysis, Electroconvulsive Therapy (ECT) was initiated. After 10 ECT sessions, Mr. T's delusions were blunted, and his eating began to improve.

Discussion: While the exact mechanism of action is unknown, ECT is thought to increase the release of neurotransmitters, release hormones from the hypothalamus and pituitary gland, induce neurogenesis, and change thinking patterns. ECT response rates range from 70-90%. ECT is a low risk procedure commonly used in major depressive disorder, bipolar disorder, refractory schizophrenia and schizoaffective disorder, and in situations where rapid treatment response is warranted. Although not generally used in geriatric patients, ECT can be a useful treatment option in refractory psychiatric cases where medications alone are not helping.

Conclusion: Elderly patients with premorbid psychiatric conditions can experience a rapid decline with acute psychosis and develop geriatric syndromes at a faster rate. These patients deserve consideration of all treatment options, especially when time to response is a critical factor due to homeostenosis and the cascade of adverse events after a sentinel health event. Despite the stigmatization of ECT in literature and movies, it is a safe, effective treatment option for geriatric patients.

A14

Prolonged Opioid Use Following Geriatric Hip Fracture Surgery

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Background: To our knowledge, no study has studied the prevalence of prolonged opioid use in geriatric hip fracture patients. The purpose of this study is to determine the rate of and risk factors for opioid use 6 months after surgery.

Methods: We performed a retrospective review of 322 geriatric hip fracture (>65yo) patients between January 2016 and June 2017. Post-discharge opioid prescriptions were obtained via the statewide outpatient Controlled Substance Utilization Review and Evaluation System (CURES). Patients who had an opioid prescription within 3 months of surgery were classified as opioid users (OU). Patients with no history of opioid prescription were defined as opioid naïve (ON). Postoperative opioid prescriptions were recorded at 1, 2, 3, and 6 months. Patient demographics, injury pattern, treatment, and other medication history were recorded. Logistic regression was performed to determine risk factors.

Results: 36% (116) of patients were at the time of fracture. Overall, 23.0% (74) were prescribed opioids six months after surgery, of which 40.5% (30) were ON. 25.1% (44 of 116) of OU continued opioids at six months, where as 15.5% (30 of 206) of ON patient continued opioids at six months (Table 1). Patients with prior opioid use or antidepressant use on admission were more likely to continue opioids at six months (p < 0.05). In the ON group, only active use of an antidepressant was significant a predictor of use at 6 months (p < 0.05). Age, sex, fracture pattern, implant, prior benzodiazepine use, smoking, and alcohol status were not significant risk factors for prolonged opioid use.

Conclusion: Opioid use in geriatric hip fracture patients is high both preoperatively and postoperatively. Prior opioid use and antidepressants are risk factors for opioid use at six months regardless of fracture or surgery type. A high proportion of ON patients (15.5%) continue opioids at six months. This high rate of prolonged opioid use is concerning and warrants further evaluation.

A15

Access to care for older adults: An insurmountable flight of stairs?

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A seventy-four-year-old retired computer programmer stood atop a flight of stairs in front of his apartment building, holding an appointment card for a primary care office visit. He'd had six falls at home over the past three months, and he feared falling again. After deciding his fall risk on the stairs was too great, he went back inside and cancelled his primary care appointment, just as he'd cancelled his mental health appointment the week prior.

On working closely with this patient to overcome his barriers in access to care, the authors have found that affordable transportation assistance up and down stairs for older adults is currently lacking. Many local transportation programs for older adults offer "curbside pickup," requiring individuals to navigate independently to the sidewalk. Ambulance crew members are able to transport individuals up and down stairs, but Medicare does not cover ambulance rides for routine medical appointments. Ambulance costs can be prohibitive at over $1000 dollars per one-way trip. Assistance up and down stairs by emergency medical technicians (EMTs) in the absence of ambulances is sometimes available, though these fees are also in the hundreds of dollars.

Living in a home environment with stairs and no elevator has been found to predict homebound status for older adults.[1] Two million older adults in the United States are homebound or nearly homebound.[2] Though home visits for primary care present an enticing alternative to office visits for these patients, home based primary care programs are not

yet extensive enough to meet the needs of these two million older adults in the community. Options for assistance with stair navigation could allow nearly homebound patients to access needed routine medical care.

Older adults who are unable to navigate stairs can miss desired medical appointments. To allow adequate access to medical care for older individuals, affordable transportation assistance up and down stairs should be available.

1. Cohen-Mansfield J, Shmotkin D, Hazan H. Homebound Older Persons: Prevalence, characteristics, and longitudinal predictors. Arch Gerontol and Geriatr 2012. Doi: 10.1016/j.archger.2011.02.016.

2. Ornstein KA, Leff B, Covinsky K, et al. The Epidemiology of the Homebound in the United States. JAMA Intern Med 2015. Doi: 10.1001/jamainternmed.2015.1849.

A16
Morel-Lavallee Lesion in a Geriatric Patient: Case Report and Literature Review

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Abstract
The Morel-Lavallée lesion (MLL) is a rare post-traumatic degloving tissue injury in which the subcutaneous tissue is torn from the underlying fascia because of blunt trauma, leading to a sub-fascia space filled with serosanguinous fluid, blood and necrotic fat. The injuries are usually associated with fracture, mostly in younger populations. We here describe a case of an 87-year-old female with MLL sustained after a fall.

Case Report
An 87-year-old female had right hip pain and with swelling over the posterolateral thigh after a fall. Physical exam showed tenderness, swelling and bruising of the right posterior lateral thigh. CT scan of right leg showed 9.3 x 3.2 x 11.7 cm hematoma and soft tissue swelling about the right hip and anterior thigh. MRI was not done because of right hip hardware implant. The patient was initially managed conservatively with compression bandaging, but bruising and swelling worsened, with a 2-gram drop in hemoglobin. The patient was transfused and taken to Surgery for open decompression and evacuation of 300 cc hematoma and placement of JP drain. She experienced complete resolution after one week, and the drain was removed.

Discussion
MLL commonly present in soft tissue over bony prominence: hip, knee, elbow, and scapular. In the acute stage, the MLL may present within hours, days or even weeks post-injury. If the lesion is missed, it can progress to subacute hematoma, infected collection of fat, blood breakdown products, skin necrosis, sepsis, mobility disability, and sometimes death. Although the preferred imaging modality is the MRI, CT was done for our patient because of metal implant. Our patient was initially managed conservatively with compression bandaging, but later required incision and debridement because of increasing size and proximity to a previous incision site.

Conclusion MLLs are frequently misdiagnosed, with potential sepsis and death. Clinician must consider MLLs in all patients presenting with swelling/bruising at bony prominences after a fall, especially in elderly patients, more prone to MLLs because of high rate of fall/fractures, skin laxity and post-traumatic bleeding. Early recognition and intervention for MMLs can reduce disabling complications and mortality.

A17
Aging but not Forgotten: Geriatric Syndromes in an Older HIV Patient

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Background:
Geriatric syndromes can be seen in individuals of all ages. Patients living with HIV (human immunodeficiency virus) have been shown to have evidence of clinical aging at biological ages younger than the typical 'geriatric' (65 and older) population. Now that HIV has become a chronic condition and those living with HIV are aging, nearly 50% of individuals with HIV are >50 years of age. These individuals are at higher risk of suffering from geriatric comorbidities as seen in the case below.

Case Presentation:
A 61-year-old male with HIV, diabetes mellitus type II, and hypothyroidism was identified as a potential candidate for participation in an HIV and aging consultation. On presentation to his appointment, he was thin and walked with a cane and slightly stooped posture. Over the past few months he had experienced a fall, his hemoglobin A1C increased from 9.1 to 12.2, his TSH from 16.7 to 67.3, and his HIV-1 RNA from 10 to 7,820 copies/mL. He was unable to complete get-up-and-go due to inability to rise from a chair without use of his arms. In addition, the patient had congenital sensorineural hearing loss treated with cochlear implants, however he did not routinely bring these to his appointments, further creating barriers in his care. During a medication review in a second appointment, back pain subsequent to fall was identified as a major barrier to medication adherence. He had minimal social support, as evidenced by inability to shower as he could not find assistance to hang a shower curtain. We ascertained additional home and social support to help the patient remain in health, address his pain, and improve functional limitations.

Discussion
This case demonstrates the presence of multiple geriatric syndromes including frailty, falls, sensory impairment, multimorbidity, and social isolation in an older adult with HIV. Although not all aging HIV patients are at risk of or will acquire premature geriatric-related conditions, developing tools to identify these syndromes, coordinated care between geriatrics and HIV care, and enhancing support systems for these patients will be key to prevention of future morbidity and mortality.

A18
The evaluation of dyspnea and edema by Point-of-Care Ultrasound in Geriatric Ambulatory Care Setting

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BACKGROUND: The value of ultrasound using CLUE protocol (Cardiac Limited Ultrasound Exam) as a point-of-care cardiopulmonary modality inclues portability, safe and cost-effectiveness compared with other imaging modalities, which permits rapid assessment cardiac function and volume status. Ultrasound images can be evaluated in real time, which permits rapid diagnostic interpretation in a wide variety of settings, such as the outpatient clinic, inpatient ward, critical care unit, emergency department, nursing home, etc.

CASE PRESENTATION: The patient is a 67-year-old male with neurogenic bladder secondary to spinal injury, bipolar disorder, status post left knee amputation who was hospitalized due to bilateral leg edema, rash and acute kidney injury who was discharged with low dose furosemide with diagnosis of idiopathic nonspecific vasculitis. He presented to geriatric clinic about a month after the discharge with complaints of worsening edema and dyspnea all over his body well as worsening weakness and non-productive cough. Point-of-care ultrasound scan per CLUE (Cardiopulmonary Limited Ultrasound

Exam) protocol using laptop sized portable ultrasound machine was performed by a geriatrician in the clinic which revealed (1) negative cardiac exam on limited echocardiogram (2) severe dehydration/low CVP on IVC scan (3) right side pneumonia suggested by unilateral shredded sign (4) moderate pleural effusion (5) pulmonary edema suggested by B-line dominant lung scan at bilateral second intercostal lung spaces. Bladder scan and DVT screening of right lower extremity were negative. The patient ended up being hospitalized and workup showed acute kidney injury, low albumin level, proteinuria, anasarca as well as right lower lobe pneumonia. Renal biopsy showed pauci-immune necrotizing crescentic glomerulonephritis. High dose of furosemide and prednisone were initiated and his edema and dyspnea resolved.

CONCLUSION: Cardiopulmonary Limited Ultrasound Exam (CLUE) protocol is a non-invasive, reilable, time and cost effective point-of-care modality for determining the etiology of dyspnea and edema which can be easily performed and improve the quality of patient care and outcome in geriatric ambulatory care setting.

A19

Miller Fisher Syndrome: A Rare form of Guillain-Barré Syndrome

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Introduction: Guillain-Barré Syndrome (GBS) presents as an acute monophasic paralysis usually preceded by infection. World-wide incidence is 1-2 cases/100, 000/year with slight male preponderance. Incidence increases 20% every decade beyond the first decade of life. Thought to result from the immune response cross-reacting with peripheral nerve components ("molecular mimicry"), it can result in demyelinating and/or axonal forms. The most common linked infection is Campylobacter jejuni; it has also been associated with Cytomegalo, Epstein-Barr, Zika and HIV viruses.

Clinical Scenario: A 62-year-old butcher with DMII and HBP presented to our ED complaining of generalized and R facial weakness worsening over 4 days. He reported a short diarrheal illness a week prior, along with fever and chills. Weakness began in his legs and progressed to his upper extremities, associated with urinary retention and dysphagia. On exam he had R facial droop, ptosis, and complete ophthalmoplegia. Motor strength in both upper extremities was 3-4/5 and 1-2/5 in both lower extremities. Sensation was decreased in all extremities. Initial labs, MRI of the spine and CT cord compression study were all WNL. An LP revealed elevated WBCs; he underwent plasmapheresis and 5 days of IVIG with no improvement.

Discussion: The cardinal features of GBS are progressive, generally symmetrical muscle weakness with depressed or absent DTRs. Weakness varies from mild difficulty with walking to nearly complete paralysis of all skeletal, facial, respiratory, and bulbar muscles. Rare features include papilledema, facial myokymia, hearing loss, meningeal signs, and vocal cord paralysis. Dysautonomia may result in acute hypertension and lead to posterior leukoencephalopathy, most often reversible. GBS progresses over a period of two weeks; symptoms peak at four weeks. Progressive symptoms > eight weeks are consistent with a diagnosis of chronic inflammatory demyelinating polyradiculoneuropathy. Miller Fisher syndrome (MFS), a variant of GBS, presents with ophthalmoplegia, ataxia and areflexia. Twenty-five percent of those with MFS develop extremity weakness. Our patient presented with the typical triad of Miller Fisher Syndrome along with weakness that did not respond to medical management. He was transferred to acute rehab for intensive physical therapy.

A20

Under Pressure: Acute Hypertension in the Hospital

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Introduction: Numerous studies and guidelines have been published recently on blood pressure (BP) control in older adults. These publications focus on *outpatient* BP. There are few studies that examine *inpatient* BP control. Acute rises in BP during hospitalization, particularly in older adults, occur frequently. The 2017 ACC/AHA hypertension (HTN) guidelines broadly recommend management strategies for HTN crises. Clinicians are left to their best judgment in the absence of high quality evidence.

Case 1: 96yo F with hx of HTN, aortic stenosis, kidney disease, presents with confusion. Found to have BP of 238/100 and acute pulmonary edema on X-ray. BP is controlled on multiple agents as an outpatient. She receives IV furosemide and IV hydralazine, with BP of 139/93 in 1hr. She is admitted to the medical ward, where IV diuresis and IV hydralazine are continued with fluctuations in BP. Outpatient BP medications are slowly restarted, and she is discharged days later with an uptitrated regimen.

Case 2: 91yo F with a hx of HTN and anxiety, presents with abdominal pain. Found to have large bowel obstruction from fecal impaction. BP is controlled on lisinopril as an outpatient. She is admitted to general surgical ward, where constipation is treated and obstruction improves. Lisinopril is held on admission, and BP rises on day 4 to 174/68. She receives IV hydralazine, with BP down to 144/69 after 2hrs. Lisinopril is restarted, and she is discharged without any changes to home regimen.

Discussion: Various factors contribute to acute BP rise in hospitalized patients. These include pain, anxiety, withdrawal of home medications, and urinary retention. These cases show excessive lowering of BP with IV hydralazine. HTN emergency is managed inappropriately on the floor, restarting of outpatient medications is delayed, and causes of acute HTN are not examined. Management is often unnecessarily aggressive and potentially dangerous.

Conclusion: HTN emergency should be managed in the intensive care unit with continuous BP monitoring and careful reduction of BP to prevent ischemic complications. In the absence of compelling evidence, HTN urgency should not be treated with IV medications. Instead, an evaluation of secondary causes of acute HTN should be undertaken. Outpatient medications should be resumed as soon as possible, with titration and close outpatient followup if needed. Future studies are necessary to establish guidelines for management of elevated BP in the hospital, particularly in older adults.

A21

"Neuro psychiatric manifestations in the elderly population need not have psychiatric etiology"

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Background:

Behavioral symptoms are commonly encountered in geriatric population in every setting including inpatient, nursing home/rehabilitation, and outpatient. Though these symptoms are commonly attributed to psychiatric or mental conditions, many of them have a non psychiatric background. Misdiagnosis will lead to mistreatment with antipsychotics and can even be detrimental in elderly people with multiple comorbidities.

Methods:

We report two separate cases in different settings

Case Description:

The first patient was a 70 year old male residing in nursing home with extensive medical problems including well controlled diabetes mellitus and chronic kidney disease. At baseline, he was alert and communicative. He was on a combination regimen of long acting insulin and short acting insulin. The resident was noted to be agitated and

confused on a fine morning by the nurse. Initial clinical evaluation did not reveal any significant change from baseline or increased sympathetic activity and the nurse was reassured. The behavioral symptoms continued to happen again in a few days, in early mornings. Hypogylcemia as low as 40 mg/dl was revealed in consecutive days. These symptoms completely resolved after correcting hypoglycemia. Behavioral changes without any sympathetic manifestations were the only clue to hypoglycemia in this elderly gentleman.

The second patient was a 73 year old female who was brought to the hospital for visual hallucinations by the home attendant. She was described as "seeing ghosts" for 2 days prior to admission. Her medical problems included systemic lupus erythematosis, hypertension, and chronic kidney disease. Psychiatry evaluation was done in the emergency department and it was thought to be "a cultural phenomenon" of seeing ghosts. As she was prepared for discharge from the hospital, she developed multiple seizures in right upper extremity with a preferential gaze to left. She was ultimately diagnosed to have temporal lobe seizures. Antipsychotics can lower seizure threshold and would be detrimental in this situation.

Conclusion:

Above cases represent only the tip of an iceberg for non psychiatric causes of behavioral manifestations in the elderly population. Treatment with antipsychotics or benzodiazipines should be avoided in the initial encounter of behavioral changes and a thorough search for an alternative cause should be undertaken. Neuroglycopenia should be routinely ruled out in all such cases.

A22

Sudden Uncontrolled Diabetes Followed by Erythema Nodosum: Atypical Presentation of Pancreatic Adenocarcinoma in an Octogenarian

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BACKGROUND

Uncontrolled diabetes is a common occurrence in older adults. A sudden increase in hemoglobin A1C may be an indication of a serious underlying condition. Incidence of malignancy increases with age and must always be a consideration.

METHODS

An 83-year-old male with a history of diet-controlled DMII, HTN, and HLD presented to a new physician to establish care. His hemoglobin A1C from 4 years prior was 5.7 and glucose from 2 years prior was 134. His most recent A1C was found to be 14. The patient admitted to following a poor diet, and an unintentional 15-lb weight loss over the last year. The patient recently noted a skin rash, with painful, non-pruritic nodules on his extremities.

On physical exam, the patient was found to have multiple nodular erythematous lesions of his feet, medial shins, and thighs with similar lesions over his upper extremities. The patient's right 1st MCP was swollen without tenderness, and there was some bogginess to his heels bilaterally.

RESULTS

LDH 350 CA 19-9 7 ESR 111 CRP 264

An Abdominal CT showed multiple cystic lesions on the pancreatic body/tail, possibly pancreatic pseudocysts; main lesion (7.0x8.6x10.0cm), was mixed solid and cystic, neoplasm could not be excluded.

An upper endoscopic ultrasound with biopsy was performed which revealed pancreatic adenocarcinoma. The patient was discharged home. Unfortunately, the patient was discharged home with Insulin Detemir with instructions from endocrinology to use 45 units daily. Being previously insulin naïve, the patient did not have a glucometer at home and was still learning how to inject insulin effectively. The patient lost consciousness at home and was found to have had a cardiac arrest and low blood sugars when evaluated by EMS, likely from hypoglycemic shock. The patient subsequently passed away.

CONCLUSIONS

Uncontrolled diabetes is not uncommon in older adults. However, when it occurs in patients with previously well-controlled diabetes, further evaluation is indicated. Weight loss is common in uncontrolled diabetes but is also commonly associated with malignancy. In the presence of signs and symptoms of multiple organ system abnormalities, a unifying diagnosis should be considered. Finally, insulin is a high-risk medication at all ages, but especially for older adults. Discharge from a hospital with insulin as a new medication therefore can result in significant morbidity without proper education and surveillance.

A23

Intensive Multidisciplinary Primary Care a Successful Approach for Self-Neglect

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Background

Self-neglect is the inability to manage essential self-care due to physical or psychological illness. Prevalence is estimated to be 5%-29% in older adults. Self-neglect is the primary type of elder abuse reported to adult protective services. Known risk factors include cognitive impairment, psychiatric disease, alcohol and substance abuse, male sex, social isolation, old age, and low income. Older self-neglecters are more likely to skip medications, miss appointments and have increased emergency health care utilization. Their one-year mortality is increased six-fold, and their long-term mortality is almost twice as high.

Case

Mr. V is an 80 yo male with end stage renal disease on hemodialysis, hypertension, coronary artery disease, crohn's disease, diabetes and dementia with behavioral disturbances. He lives alone, is independent with social supports from his son who is out of state and an aide. He had a history of bi-weekly emergency room visits and frequent hospitalizations with occasional intensive care unit admissions. He missed most follow-up appointments, was non-adherent to medications and had a poor diet. As a high risk patient, he was enrolled in the Geriatrics Preventable Admissions Care Team (GERIPACT). This is an intensive outpatient primary care program with a multidisciplinary team including a clinician, a social worker and a care coordinator. The team discovered that Mr. V's rent was unpaid and his phone was disconnected. He didn't open mail, and didn't understand any paperwork. He was provided with frequent visits, a 24/7 hotline, medication blister packs helped reduce polypharmacy. The team helped him to organize his mail, pay his bills; transportation was arranged, appointment reminders sent, and home care hours increased. These interventions resulted in a dramatic decrease in emergency room utilization and hospitalizations from 14 visits/year to 6 visits/year while he was enrolled.

Conclusions

The goal of self-neglect management is harm reduction which can be achieved by enrolling patients in intensive primary care programs. Multidisciplinary team approach is key as each member of the team collaborates to focus on a specific area such as medication adherence or home safety to improve outcomes.

Reference: Papaioannou et al (2012) Self-neglect of the elderly. An overview, European Journal of General Practice, 18:3, 187-190

A24

Common Geriatric Conditions + Common Medications: a Perfect Storm for "Iatrogenic" Seizures.

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Background

The prevalence of seizures in adults older than 65 is the highest among any age group. Incidence increases linearly each decade. Predisposing factors such as old stroke (33%), dementia (11%) and

neoplasm (4%) are more commonly seen in this age group. Common precipitating factors include infections, metabolic disturbances, acute trauma, acute stroke, and a long list of medications that lower seizure threshold. Seizures in this age group are often more subtle, presenting as delirium, memory lapses, or mimicking common neurologic conditions; 50%- 70% of new seizures are of a focal onset.

Case

An 80 y/o F with hypertension, sarcoidosis, primary biliary cirrhosis, basal cell carcinoma, and generalized anxiety disorder presented to urgent clinic for follow up on leg wound and possible tardive dyskinesia. History is notable for dementia and prior occipital stroke. The patient had injured her left shin and developed a hematoma. A dermatologist prescribed ciprofloxacin for cellulitis (given her antibiotic allergies). Olanzapine had been recently uptitrated by psychiatry because of increased anxiety. Tramadol was also increased due to worsening pain. Other medications included prednisone, azathioprine, escitalopram and clopidogrel. On exam mental status was at baseline, she had left leg bruising and hematoma with surrounding erythema. Sporadic twitching was noticed in her right cheek. Patient then had a GTC seizure witnessed by her daughter and medical staff. She was brought to the emergency department where workup was significant for elevated lactate; imaging showed the old occipital infarct but no acute changes and EEG showed areas concerning for epileptiform potentials. Neurology determined that she required antiepileptics given her risk factors and the prior twitching was thought to be a partial seizure. She was admitted for management of new onset seizure.

Conclusions

In high risk patients with history of cerebral infarcts and dementia it is important to keep in mind the medications that may lower seizure threshold. Titration should be cautious and alternatives used whenever possible. Seizures in this age group have often a focal onset with rapid secondary generalization. A high level of suspicion is required when symptoms such as twitching present.

Reference:

Sirven JI Acute and chronic seizures in patients older than 60 years. Mayo Clin Proc. 2001;76175- 183

A25
Neuroleptic Cardiomyopathy
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Background: Many atypical antipsychotics increase the risk of drug-induced dilated cardiomyopathy and sudden cardiac death. Neuroleptic cardiomyopathy is a serious complication of psychotropic therapy.

Clinical Case: 62-year-old female with PMH of schizoaffective disorder, bipolar type presented to ECF with tardive dyskinesia, dysphagia, and weight loss. Family declined PEG tube placement due to concern that patient would tamper with tubing. History of unspecified chronic cardiac disease, however was asymptomatic at the time of initial presentation. Remained relatively stable initially on antidepressants and low-dose antipsychotics, however condition deteriorated requiring inpatient psychiatric admission for aggressive behaviors, visual hallucinations, and suicidal ideation. In collaboration with psychiatric consultants, multiple antipsychotics were trialed along with nonpharmacologic approaches with limited impact on the patient's behaviors. Patient developed symptoms of acute heart failure exacerbation. BNP was 2196 pg/mL. Echo showed LVEF 43%, RCA WMA, stage 3 diastolic dysfunction, moderate to severe MVR, papillary muscle dysfunction, moderate TVR, and pulmonary hypertension. Symptoms improved during hospital admission following IV diuresis. Risks of cardiac cath were considered and outweighed anticipated benefits. Patient experienced progressive symptoms upon returning to the ECF, and in consultation with her self-appointed health care representative, the patient requested nonaggressive care. She refused oral diuretics, and unwitnessed sudden death subsequently occurred. Per medical record review, duration of consistent exposure to neuroleptic medications was approximately one year prior to death, with unknown psychotropics being prescribed previously from the time of diagnosis in her twenties. Other possible causes of cardiomyopathy including HTN, CAD, and valvular disease were reviewed and unable to be definitively ruled out.

Conclusion: This case demonstrates the significance of recognizing uncommon adverse side effects associated with atypical antipsychotics, as well as the importance of balancing these risks with the potential therapeutic benefits of this class of medications.

A26
What is Causing My Dysphagia? A Rare Case of Pulmonary Neuroendocrine Tumor with Dysphagia as First Clinical Manifestation
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Background:

Pulmonary neuroendocrine tumors are classified in low, medium, high-grade secretory tumors and pulmonary small cell carcinoma (SCLC) as a distinctly different tumor clinically and genetically speaking. SCLC is a highly malignant cancer that arises within the lung, and less commonly from other parts from the body (gastrointestinal, cervix, prostate). This cancer is also known to express a variety of neuroendocrine markers causing, among others, *Lambert-Eaton Myastenia Gravis* (LEMG); a rare autoimmune disorder characterized by muscle weakness. Furthermore, having dysphagia as LEMG first clinical presentation is even more rarely encountered, making this clinical condition a fascinating diagnostic challenge.

Case Presentation:

A 79-year-old male with PMH of chronic obstructive pulmonary disease (COPD), latent TB, cervical diffuse idiopathic skeletal hyperostosis osteophytes (DISH), and dysphagia with significant weight loss, that initially was thought secondary to DISH, was admitted to the ER for worsening dyspnea and a *new right lung pulmonary mass with pleural effusion*. The patient was admitted to the ward with oxygen and antibiotics for post obstructive pneumonia. On further mass characterization, an endobronchial biopsy revealed SCLC with negative CT scans in the staging work up. The swallow studies were found to be abnormal but at that point the staff was uncertain if it was related to DASH or as a consequence of *SCLC paraneoplastic syndrome*. On further shared medical decision-making conversations the patient he and his family decided against chemotherapy or any further invasive procedure opting for comfort care; since life expectancy is low without treatment, he was discharged home on hospice and palliative care.

Conclusion:

Despite the fact that this patient refused further testing to confirm LEMG as the cause of his dysphagia, atypical presentation of the disease should always be suspected in geriatrics patients. For the longest time this patient's weight loss and consequencial deterioration was always attributed to DISH progression and other differential diagnosis were never considered at the time. In smoker patients presenting with dysphagia malignancies should be highly suspected and act upon immediately to guarantee timely management and improve outcomes.

A27
To Treat or Not to Treat: Primary CNS Lymphoma in an Octogenarian
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Primary central nervous system lymphoma (PCNSL) is a rare non-Hodgkin lymphoma, accounting for 3% of all primary brain tumors. More than half of PCNSL diagnoses are found in patients older than 50. Treatments don't always improve survival or quality of life. Therapy involves methotrexate alone or with radiation. However, the elderly are at an increased risk of adverse effects.

CASE

84 year old Jehovah Witness male independent in ADLs and IADLs with PMH of CHF, HTN, and atrial fib., presented to ED with right sided weakness. He fell two weeks prior, with no deficits but reported decreased visual acuity. MRI brain showed four lesions; suspicious for metastatic disease. Neurosurgery recommended tumor resection and biopsy. Biopsy showed B-cell lymphoma. Oncology suggested chemotherapy and radiation but he was not a candidate. After a palliative care consult, family opted to pursue aggressive treatment. One week later, he was admitted to another facility and a different oncologist recommended radiation without chemotherapy due to risk of myelosuppression in a Jehovah Witness. He received a total of 25 radiation treatments. A year after initial diagnosis, patient is bedbound with inability to perform ADLs.

DISCUSSION

Elderly patients with PCNSL may present with subtle changes like fall and decreased vision. 30% of PCNSL present with multiple lesions on brain imaging, while 70% present as a single lesion, making it difficult to differentiate from metastatic disease. Imaging should be carefully reviewed to decide between stereotactic biopsy or resection. Older age and low functional status are negative prognostic factors. It is also important to consider patient's religious and cultural values for management. Healthy older adults should consider the standard therapy, while frail patients may benefit from palliative options. Quality of life and life expectancy are factors to consider when communicating to family members about the risk of neurotoxicity associated with radiotherapy, and a high risk of relapse and myelosuppression with only chemotherapy.

REFERENCES

1.Prica A, Chan K, Cheung M. Combined modality therapy versus chemotherapy alone as an induction regimen for PCNSL: A cost-effectiveness analysis. Neuro-oncology. 2014;16(10):1384-1391. doi: 10.1093/neuonc/nou057.

2.Chiavazza C, Pellerino A, Ferrio F, Cistaro A, Soffietti R, RudAf R. Primary CNS lymphomas: Challenges in diagnosis and monitoring. Biomed Res Int. 2018;2018:3606970. doi: 10.1155/2018/3606970.

A28 Encore Presentation
Thinking outside the Box

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Background:

Lung cancer has a 5 yr survival of 18.6% which increases to 56% when localized (1). Pulmonary nodules have been seen in screening CTs at a rate of 8–51%(2-4) with incidence of malignancy b/w 1.1-12% (2,5,6) and present the opportunity of early diagnosis. Fleischner's guidelines keep a balance b/w benefits of early diagnosis vs harms of testing and interventions (7,8).

We present a case of incidental PNs with missed diagnosis indicating limitations in standard of care.

Method: Case Study.
CASE DESCRIPTION:

Our pt. is a 73 Y O M with a PMH of CAD, HTN with RFs of smoking and asbestos exposure found to have PNs incidentally in 2016 and was followed up in lung mass clinic, as per guidelines (8,9) via 3 CTs done 08/2016, 11/2016 and 05/2017. PNs were in RLL partially calcified in the periphery 2.4x1.7 cm staying stable and LUL decreased in size from 9.8 mm to 6.5 mm through the follow up period. In 08/2017, the patient presented with rt. sided weakness and on brain MRI had an 18 mm lesion in the pons treated as a Brain abscess with Abx. The failure of the "abscess" to resolve lead to biopsy of the brain lesion showing adenocarcinoma leading to diagnosis of NSCLC with brain metastasis in 04/2018. The pt. was treated with brain radiation with poor response and transitioned to inpatient hospice in 11/2018.

RESULTS/CONCLUSIONS:

This case raises the concern for limitations regarding the soul usage of Fleischner's guidelines and highlights the potential of further risk stratification. This can be done by using Labs (ESR and CRP, though neither specific nor sensitive, if seen in conjugation with the scenario and degree of elevation may offer some value), RFs and alarm features like weight loss, decreased appetite etc. By using the above we can potentially further risk stratify patients into a very high risk category using a more aggressive approach and offering potentially life saving curative treatment in cases such as the one reported. More studies are needed to address these issues.

References:.1- SEER Cancer Statistics Review, 1975–2015. 2- *Chest* 132,94S–107S (2007). 3- *Lancet* 354,99–105 (1999). 4-*Crit. Care Med.* 162,782–787 (2000). 5-*Eur. J. Radiol.* 45,69–77 (2003). 6-*Chest* 109,100–103 (1996). 7- Radiology. 2013;266(1):304. Epub 2012 Oct 15. 8- Guidelines for Management of Incidental Pulmonary Nodules Detected on CT Images: Epub 2017 Feb 23.

A29
Acute Intolerance to Oral Feeding in a Patient with Advanced Dementia: The Diagnosis May Lie With the Index Finger!

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Background

In caring for long term care (LTC) facility residents with advanced dementia, it is not easy for health care providers to obtain a meaningful history and complete the physical examination as residents with dementia may have limitations in communication and cooperation. Often, relevant aspects of physical examination are skipped. Rectal examination, although a simple means to diagnose many common disorders in the old, is seldom carried out.

Case

A 90 years old female resident with advanced dementia, hypothyroidism, cerebrovascular accident with aphasia, was on aspirin, levothyroxine, mirtazapine, senna and lactulose. One day, she was reported to have a marked decline in oral intake for 1 day, with distended rigid abdomen. On assessment, abdomen was severely distended and tympanic. Abdominal x-ray was ordered. Digital rectal examination (DRE) was deferred initially. While awaiting x-ray, DRE was performed, confirming impacted hard stool. X-ray demonstrated fecal impaction. She underwent tap water enema, which significantly relieved the abdominal distension. Next day, her abdomen became soft. And her oral feeding tolerance was now back to her baseline. Mirtazipine may have been contributory.

Discussion

Acute intolerance in oral intake in LTC facility residents may be due to many reasons. A common cause is severe constipation with fecal impaction, a disorder that fails to get consideration or is overlooked; diagnosis is delayed until there is a distended abdomen, pain or vomiting. As the case demonstrated, a simple DRE led to correct diagnosis and expedited appropriate management. Prompt relief from constipation can better appetite, oral intake and quality of life in those with advanced dementia. Following diagnosis, it is prudent to address the causative factors to prevent recurrence; typically they include medical and psychiatric disorders, medications and diet.

Lessons learnt

● In residents with dementia, acute intolerance to oral feeding must prompt search for reversible causes; constipation with fecal impaction is one consideration.

● Basic digital rectal examination is a useful diagnostic maneuver in such settings, not to be forgotten!

Reference

SS Rao, JT Go. Update on the management of constipation in the elderly: new treatment options. Clin Interv Aging. 2010;5:163–171

A30
Unrecognized Hypoglycemia May Present as Hypertensive Urgency: Think Beyond the Obvious!

H. Choi, T. S. Dharmarajan. *Geriatric Medicine, Montefiore Medical Center Wakefield, Bronx, NY.*

Background

Hypertensive urgency refers to markedly elevated blood pressure (BP) without acute target organ damage. When an older adult with comorbidities has markedly elevated BP, several explanations may be causative. One of the unsuspected causes of hypertensive urgency may be lethal, but easily diagnosed and treatable; it is severe hypoglycemia.

Case

80 years old female with obesity, HTN, brittle type 2 diabetes mellitus on basal-bolus insulin, and stage 4 chronic kidney disease presented to clinic with vague discomfort and fatigue, new onset. Her initial BP was 205/105 mmHg, repeat reading 204/100. Notably, she had recent bereavement from loss of her son months earlier. She was not in heart failure. Lab tests were drawn. Glucose level was 29 mg%, result available the next day. Provider called patient immediately; the daughter stated that following clinic visit, patient had dinner and felt much better; her post meal finger stick was >200 mg%. And the BP at home was markedly lower. The insulin regimen was revised, target A1c raised; patient and daughter were counseled. Of note, the patient also had mild cognitive impairment.

Discussion

Severe hypoglycemia reduces parasympathetic tone causing cardiovascular autonomic imbalance. Experiments on humans have demonstrated that insulin induced hypoglycemia causes blood pressure elevation through sympatho-adrenal mechanisms. Because of physiologic decline in autonomic regulatory functions with aging, older adults are more likely to manifest neuroglycopenic manifestations (confusion, fatigue, apathy) rather than adrenergic features (sweating, tachycardia). Moreover, due to age-related physiological changes or comorbidity (e.g. decreased renal function), those on insulin are at greater risk for hypoglycemia. Our patient had sudden BP elevation with vague manifestations, all from severe hypoglycemia.

Lesson learnt

● Vague manifestations with hypertensive urgency in older adults on insulin should prompt glucose monitoring (ideally fingerstick) to rule out hypoglycemia

● Unrecognized hypoglycemia is a more common cause of visits to the ER or clinic than hyperglycemia in the old, calling for less stringent target A1c levels (AGS guidelines)

Reference

Feldman-Billard S et al. Hypoglycemia-induced blood pressure elevation in patients with diabetes. Arch Intern Med. 2010;170:829-31

A31
Granulomatosis with polyangiitis in an older adult

H. Sun, J. Shum, B. Solitar, J. Chodosh, A. B. Buttar. *Medicine, NYU School of Medicine, New York, NY.*

Case Presentation: An 86 yo male with history of chronic sinusitis, HTN and DM came to the hospital with cough, exertional dyspnea, and unintentional weight loss for 3 months. Initial chest CT showed right middle lobe consolidation and pulmonary nodules. He was treated for pneumonia and discharged home. He returned 8 days later and repeat chest CT showed increased size of bilateral nodular consolidations, and new small subsegmental pulmonary emboli. Despite treatment, he developed acute respiratory failure requiring intubation, acute kidney injury and hypotension requiring vasopressors. Geriatrics was involved to assist with family meetings, to understand the patient's goals of care, and to set realistic treatment plans. Due to the patient's lack of capacity, his friend as healthcare proxy (HCP) along with patient's niece and nephew made the decision to not resuscitate.

Given patient's history of chronic sinusitis with rapidly progressive lung involvement, Granulomatosis with polyangiitis (GPA) was suspected and lung biopsy result confirmed the diagnosis. A multidisciplinary meeting was held with patient's HCP, niece, nephew, geriatrics and rheumatology to discuss treatment options. After much debate, the family decided to pursue a trial of aggressive treatment with rituxin. However, rituxin infusion was stopped when patient further decompensated. After patient's condition stabilized, he firmly expressed his wish to go home. Another family meeting was held and treatment was shifted to comfort care to align with the patient's goals of care.

Discussion: GPA is a systemic necrotizing vasculitis affecting small- and medium-sized vessels. The reported peak incidence of GPA is between ages 65 to 70 years. Upper airway disease is the most common presenting feature of GPA. Our patient presented with typical features of GPA at an atypical age. Although early initiation of treatment has shown to improve patient survival in the average population, there is lack of evidence in frail older adults. Questions regarding treatment side effect, outcome and disease prognosis should be explored with patients at the earliest point of care possible in order to set a realistic treatment plan. Establishing rapport with patient and family, and involving them in management is crucial for making treatment decisions that align with their goals of care.

A32
It's the antibiotic not the infection: an unusual cause of delirium

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Introduction

Delirium is a common cause of hospital admission from nursing homes (NH). This case discusses a NH resident admitted to the hospital for altered mental status (AMS) from ertapenem induced delirium. Increased awareness of this rare side effect as a cause for delirium is important as NH providers are tasked with caring for increasingly multi-morbid, ill patients.

Case Description

A 66 yo with Frontotemporal Dementia and L heel osteomyelitis presented to the hospital with AMS. On exam, he had fluctuations in mental status, inattentive and inappropriate. Vitals were stable. Work up for delirium found: WBC 11, Hgb 9.8, BUN 32, Cr 1.4 (baseline 1.3), Glucose 401; UA, Urine Drug screen and urine, blood and PICC line cultures were all negative. CT head and MRI brain were also unremarkable. Since no other cause of delirium was identified and delirium persisted, Geriatrics was consulted. Further history gathered including from NH found symptoms began after ertapenem therapy was initiated for multi-drug resistant, multi-organism osteomyelitis (Morganella, Proteus and Coneybacterium species). It was determined ertapenem could be the cause of this delirium and 2 days after stopping it, his delirium resolved. He was subsequently discharged to the NH on ceftazidime and avibactam.

Discussion

Medications are a common cause of delirium, but antibiotics can rarely cause delirium and the incidence of delirium from ertapenem is only 3-5% (1). Some common neurological symptoms seen with ertapenem induced delirium include AMS, garbled speech, hallucinations and agitation (2,3). As the severity of illness and worsening antibiotic resistance among NH patients increases, it is important to be aware of rare side effects that antibiotics such as ertapenem can cause.

References

1. Apodaca, K et al. Ertapenem-Induced Delirium: A Case Report and Literature Review. Psychosomatics 56:5, Sept/Oct 2015 pp. 561-565.

2. Veillette, J and Epps, P. Ertapenem-induced Hallucinations and Delirium in an Elderly patient. Consultant Pharmacist. April 2016; Vol. 31 No. 4 pp 207-213.

3. Sutton SS, Jumper M, Cook S, Edun B, Wyatt MD. Ertapenem-Induced Encephalopathy in a Patient With Normal Renal Function. J Investig Med High Impact Case Rep. 2017;5.

A33 Encore Presentation
What Your Patients Don't Tell You: A Case of Polypharmacy and Nutraceutical Use Causing Hallucinations in a Geriatric Patient

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Introduction: Nutraceuticals are natural products that blur the line between food and drug. They include vitamins and food derivatives claiming health benefits beyond basic nutritional value. Up to 70% of US consumers use some form of nutraceutical daily, including many in the geriatric population.

Case Presentation: Patient is a 76 year old woman presenting with visual hallucinations. She had visions of snakes, rain, grass growing in her room. The hallucinations have occurred intermittently for 6 months. Two prior episodes occurred in the setting of urinary tract infection for which the patient was treated. She was subsequently admitted to the hospital for delirium. Physical, laboratory and imaging evaluations for infection, metabolic and neurologic derangements were negative. By the second day of hospitalization, the hallucinations had subsided. Additional history provided by the patient's family revealed that in addition to prescribed medications, patient was taking more than 30 nutraceutical products. The next day, the patient's daughter brought the patient's current medications: 10 herbal supplements, 10 vitamins, 3 antihistamines, 4 laxatives, 4 cold & flu products, 7 antacids and 4 prescribed medications. Herbal supplements included licorice. Polypharmacy and use of numerous nutraceutical products were suspected to cause of hallucinations.

Discussion: The purported health benefits associated with nutraceutical use are questionable. Concurrent polypharmacy and nutraceutical use in the elderly can lead to interactions and potential toxicity. Reported cases of toxicities and side effects include liver toxicity, bradycardia, blurry vision, bleeding, gastrointestinal symptoms, and hallucinations. They have been reported with use of herbal supplements such as kava kava, ginseng, licorice, jimson weed, ginkgo and valerian root. Simultaneous exposure to other compounds and the heterogeneous composition of nutraceuticals often make it difficult to determine the mechanisms of toxicity, even when doses are known. Since many patients do not report the use of nutraceuticals to their physician, medication reconciliation should routinely include evaluation of nutraceutical use.

A34
From Delirium to Dissection: A Case of Acute Dissection with Chronic Anemia

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Introduction: Aortic dissection is the most common acute aortic syndrome and is associated with high mortality. Most occur in patients aged 40-70 years with a peak in those 50-65 years. It occurs more commonly in men, but women tend to be older at presentation.

Case Presentation: An 82-year-old woman with a history of hyperlipidemia, hypertension, end stage renal disease, post kidney transplant, on hemodialysis presented from a skilled nursing facility with acute on chronic anemia. She had been discharged to SNF after a one week hospitalization for delirium. Her hospital course was complicated by fluctuations in blood pressure (from low to markedly elevated) and persistent hypoglycemia. She was treated for suspected adrenal insufficiency with glucocorticoids, with subsequent clinical improvement. Two days after discharge, episodes of hypotension were noted at the SNF. She reported nausea, dry heaves and indigestion,

attributed to uremia. Complete blood count and basic metabolic panel were sent in anticipation of hemodialysis. Hemoglobin was 5.2, decreased from 8.9 at discharge. The patient was sent to the emergency department where a stool guaiac returned positive and was admitted for acute blood loss anemia from presumed gastrointestinal bleed. There was no melena, hematochezia, hematemesis or rectal bleeding. Non urgent endoscopy was planned due to low suspicion for acute gastrointestinal bleed. The patient responded initially to 2-units transfusion of packed red blood cells, with hemoglobin improving to baseline, then developed elevated blood pressure despite dialysis. Receipt of IV antihypertensives led to hypotension. Chest radiograph showed bilateral pulmonary edema and new moderate sized left pleural effusion. Subsequent CT of the thorax demonstrated dissection of the descending thoracic aorta with intramural hematoma and large left pleural effusion consistent with hemothorax. Further interventions were not pursued in keeping with the patient's goals of care. She was transitioned to comfort measures and subsequently expired.

Discussion: Aortic dissection should be considered as a cause of acute blood loss anemia in geriatric patients with risk factors. Geriatric patients can present with atypical symptoms causing delayed diagnosis.

A35
Functional/Cognitive Decline in Bipolar Disorder

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Psychiatric diseases have been associated with cognitive decline in late life. Bipolar Disorder (BD), a mood disturbance with distinct episodes of mania alternating with dysthymia, can produce functional decline that improves with treatment. Distinguishing between BD and dementia may be difficult yet presents a critical diagnostic and treatment challenge: pharmacologic treatments for BD can produce dysfunction and delirium in persons with dementia.

The patient is an 80 year old male first diagnosed with BD in his early 60's, with cycles of frank depression and mania, treated successfully with lithium, valproic acid, and antipsychotics. In between episodes the patient was highly functional, cognitively and physically: a former math teacher, in good health, who actively maintained his house. His last manic episode was 3 years ago. Over approximately 18 months his cognition and function gradually declined while his BD appeared under control on valproic acid. He began to need assistance with IADLs and experience falls. His physical exam revealed an alert male, no abnormal neurological signs, and decreased muscle mass. His speech was fluent but lacked specificity and was reduced in amount. There was no evidence of depression. Labs were unremarkable and head CT showed microvascular ischemic changes that were unchanged from 3 years prior. The differential diagnosis included atypical dysthymia without affect change, hypoactive delirium due to medications, Alzheimer's dementia and vascular dementia. A trial of an antidepressant produced sedation and worse function. Neuropsychological testing showed moderate to severe impairments in memory, executive function and confrontational naming, which typically would not be affected by BD. 1 year later the patient is on valproic acid and memantine with a continued downhill course: IADL-dependent and needing assistance with ADL.

This case illustrates the complexity of differentiating dementia from chronic psychiatric illness associated with prior reversible cognitive and functional declines. This case raises several questions: are BD or the anticholinergic medications used to treat BD risk factors for dementia? Is BD associated with a more rapid form of dementia, eg, microvascular disease? Longitudinal studies of BD, which include serial careful cognitive assessments, are needed to elucidate the relationship between BD, medications used to treat BD, and dementia.

A36

Polypharmacy and the Parkinsonian Predicament

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Introduction: Parkinson disease (PD) is the 2nd most commonly diagnosed neurodegenerative disorder after Alzheimer disease and due to lack of definitive diagnostic methods, PD is a clinical diagnosis. Diagnostic accuracy is challenging given that many movement disorders can mimic PD - including progressive supranuclear palsy and drug induced parkinsonism (DIP). Identifying the most likely diagnosis is important for clinical care. It is suspected that 16-20% of clinical PD diagnoses are invalidated after autopsy (1). Clinicians must be vigilant for mimics of PD, especially potentially reversible conditions such as DIP, and recognize that the motor effects of DIP can persist for months and even worsen after the offending drug is stopped.

Case Presentation: 73 year old community dwelling man with history of seizures, depression, traumatic brain injury and non-progressing HIV infection without antiretroviral therapy had frequent emergency room and hospital visits for altered mental status (AMS) associated with parkinsonian-type movement disturbances. He exhibited periods of paucity of speech/aphasia, slowed movements/shuffling gait and paranoid behavior. Initially, it was hypothesized the episodes resulted from unwitnessed seizure activity due to medication non-adherence. However, as his AMS and parkinsonism symptoms continued to wax and wane despite adhering to antiepileptics, an alternative explanation was sought. Through a multidisciplinary approach including consultation with Geriatrics, Psychiatry, and Neurology, it was proposed that the patient's symptoms resulted from DIP. The inciting medications were levetiracetam and valproic acid. These medications were stopped and weaned off, respectively, in favor of lacosamide, and his symptoms improved enough for him to be discharged. Unfortunately, the improvement was only temporary and he was admitted a few weeks later with AMS. A definitive diagnosis for this patient is still elusive, although DIP remains high on the differential as "DIP usually resolves within weeks to months after stopping the offending drug; however, parkinsonism may persist or progress in 10-50% of patients."(2)

Resources

1. Rizzo G, Copetti M, Arcuti S, Martino D, Fontana A, Logroscino G. Accuracy of clinical diagnosis of Parkinson disease: A systematic review and meta-analysis. *Neuro*. 2016 Feb;86(6):566-76.

2. Shin H-W, Chung SJ. Drug-Induced Parkinsonism. *J Clin Neurol (Seoul, Korea)*. 2012;8(1):15-21.

A37

A Case of Mononeuritis Multiplex in a Patient with History of Multiple Cancers

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Purpose:

Discuss the differential diagnosis and evaluation of mononeuritis multiplex in a patient with a history of multiple cancers.

Case:

A 75-year-old Caucasian female with a history of thyroid, skin (basal cell, squamous cell, and melanoma), endometrial, and cervical cancers, retroperitoneal lymph node schwannoma, and hypertension presented to the clinic with progressive paresthesia of her bilateral lower extremities and weakness of her right lower extremity. EMG showed evidence of mononeuritis multiplex. Of note, the patient had an enlarging schwannoma on recent MRI and has a first degree relative with a schwannoma, suggesting possible multiple endocrine neoplasia type 2b. Neurologic exam showed normal strength, symmetric in all four extremities, and normal sensation to light touch and pin prick. Atrophy was noted in the right lower leg and bilateral distal hands,

with reflexes brisk and symmetrical. Laboratory evaluation including TSH, a1c, heavy metals, SPEP, and UPEP were all within normal limits. ANA showed speckled pattern with 1:80 titer, but ANA antibody panel was negative. ESR and CRP were slightly elevated. Sural nerve biopsy and genetic evaluation are pending.

Discussion:

It is estimated that up to 30% of severe, debilitating neuropathy in geriatric patients may be due to vasculitic neuropathies such as mononeuritis multiplex. Mononeuritis multiplex is typically caused by a vasculitis which may be due to rheumatologic disease, malignancy or infection with the most common etiologies being systemic vasculitides, such as eosinophilic granulomatosis with polyangiitis, polyarteritis nodosa, and granulomatosis with polyangiitis. Connective tissue disorders, such as systemic lupus erythematosus, rheumatoid arthritis and Sjogren's syndrome have also been associated with the disease. Rarely, it can be a paraneoplastic syndrome and presenting symptom of underlying cancer. The evaluation should include common vasculitides and connective tissue disorders with consideration of occult malignancy in high-risk patients.

Conclusion:

Vasculitic neuropathy should be considered in elderly patients with severe neuropathy. For patients with a history of multiple cancer types and a diagnosis of mononeuritis multiplex, it is important to consider new or recurrent malignancy as an underlying cause, particularly when other vasculitides and connective tissue disorders have been ruled out.

A38

An unfortunate case of vision loss that could have been prevented by a screening test

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Background: Each year over 252,710 women in the United States are diagnosed with breast cancer, and more than 40,500 will die. Approximately 1 in 8 U.S. women (about 12.4%) will develop invasive breast cancer throughout their lifetime. Multiple risk factors for breast cancer have been identified, and the most significant are gender by being a woman and age with two out of three invasive breast cancers found in women over the age of 55.

We report a case of an 82 -year-old female who presented at the office with a persistent complaint of imbalance and left lower lip droop for over 2 weeks concerning for stroke. EKG was performed in the office and while doing it, she was found to have a protruding mass on the left side of her chest that she kept for herself for around 4 years.

Blood work showed hypercalcemia 12.8 mg/dl for which she was admitted to the in-patient service and treated with Zoledronic acid infusion, IVF and furosemide with subsequent improvement of the calcium levels to 9.9 mg/dl. MRI of the brain showed no osseous or parenchymal lesions. Chest X-ray was negative for lytic lesions. Since the patient was hemodynamically stable, she was discharged home. FNA of the lesion was positive for Infiltrating ductal carcinoma, low grade, ER/PR 100% positive, Ki67 20%, HER2 negative.

During a 1-month period interval, the patient developed left eye proptosis and diplopia with progressive vision loss. MRI of the orbits showed one extra-axial mass located just posterior to the left orbit. The patient was initiated on palliative radiation therapy without recovery of her vision.

Methods: Case Report

Discussion: Even though breast cancer is a common condition, metastatic involvement of the orbit in malignant tumors is rare, being breast cancer the reason for most of these cases.

Conclusion: This case is an excellent example of the utility of mammograms as a screening tool. Also, when eye symptoms appear in patients with cancer should always be investigated with consideration of ocular metastatic disease.

A39

Pneumonia management in nursing homes: Findings from a payment demonstration project

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Background

The Optimizing Patient Transfers, Impacting Medical Quality, & Improving Symptoms: Transforming Institutional Care (OPTIMISTIC) project is a Centers for Medicare and Medicaid (CMS) demonstration project, tasked with reducing potentially avoidable hospitalizations of nursing home residents diagnosed with one of six conditions in the nursing home (urinary tract infection, pneumonia, COPD or asthma exacerbation, heart failure exacerbation, electrolyte imbalance, and new or worsening skin infection. Facilities participating in OPTIMISTIC are able to bill Medicare for treatment of these conditions in place. Little is known about variations in clinical management of these conditions. The purpose of this study is to examine the management and outcomes of episodes of pneumonia, one of the conditions with the highest incidence in OPTIMISTIC nursing homes.

Methods

This case series uses data collected by chart review from nursing home medical records of the 7 facilities with the greatest pneumonia caseload of the 40 enrolled facilities between Nov 2017-April 2018. Within each facility, cases of pneumonia were randomly selected for inclusion. Data were entered into an extraction tool designed by the study team.

Results

Data were extracted from 41 records of unique patients. Despite CMS reimbursing for a maximum of 7 days for treatment of pneumonia, 78.0% of patients were clinically treated for a longer time period. All 41 patients were treated with antibiotics; 53.7% were given a fluoroquinolone and 24.4% were given amoxicillin/clavulanate. The CURB-65 scores in 58.3% of the cases indicated a recommendation for hospitalization. Most patients (87.8%) were stabilized in the nursing home; three (7.3%) were hospitalized during the pneumonia episode, one (2.4%) transferred to hospice, and one (2.4%) died.

Conclusion

Nursing facilities successfully provided enhanced care in place for most patients diagnosed with pneumonia. Optimizing antibiotic prescribing is an area identified for improvement, given the range of antibiotic agents chosen including the high rate of fluoroquinolone use and extended treatment duration.

A40

Large Paraesophageal Hiatal Hernias in Nonagenarians: A Surgical Challenge

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Background: Nonagenarians may be denied surgical treatment for large paraesophageal hernias due to age bias. A case series is presented to demonstrate the need for best surgical practice.

Methods: An IRB approved database for patients 75 years and older who had a geriatric preoperative assessment revealed 4 nonagenarians (91-94 years; 1 male, 3 female; all Caucasian) with a large paraesophageal hiatal hernia from 2013-2018. The Sinai Abbreviated Geriatric Evaluation (SAGE) was performed to assess for possible postoperative complications. SAGE includes cognition screen (Mini-cog©: 1 passed, 3 failed), ability to perform activities of daily living (ADLs: 2 able to perform, 2 unable to perform) and gait speed (2 within timeframe, 2 took longer). SAGE revealed 2 at risk for postoperative complications, 2 likely not at risk. Fried Frailty Index (2 prefrail, 2 frail), ASA (3 ASA 3, 1 ASA 4), performance status

(Eastern Cooperative Oncology Group-ECOG: 3 were ECOG 1, 1 was ECOG 2), and a caregiver assessment (Zarit Caregiver Burden-all had willing caregivers) were performed. All patients had diagnostic studies confirming a large hiatal hernia with approximately 80% of the stomach in the left chest. Common symptoms were dysphagia, early satiety, and weight loss. Multiple comorbidities were found in all patients. Patients were admitted day of surgery and had elective surgery under general anesthesia by the same surgeon. A small, upper midline laparotomy with reduction of the hernia and fixation of the stomach to the abdominal wall with a temporary gastrostomy tube placement was performed. Average anesthesia time was 65 minutes.

Results: The average postoperative length of stay was 2.5 days. Three patients were discharged to home; one to an acute rehabilitation facility. One patient had a small wound infection. No readmissions within 90 days. All patients had their gastrostomy tubes removed at one month during a clinic visit.

Conclusions: Elective surgical treatment for paraesophageal hernias in patients 90 years and older can be accomplished with good results. Optimal preoperative preparation using a scoring system like SAGE can guide operative treatment to help manage patient and family expectations. Attention to detail perioperatively is imperative along with communication with the surgical team. The results of elective surgery in the older patient are good. Advanced age should not be the only consideration against elective surgery.

A41

Once Again: "Treat the Patient Not the Results"- A Case of Pseudohypoglycemia

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Background: Hypoglycemia is a medical emergency, consequences for a frail elderly nursing home patient could be detrimental. Another recognized clinical condition is Pseudohypoglycemia, associated with low glycemia in absence of symptoms of hypoglycemia. This condition has been described in patients with leukocytosis, polycythemia, delay in separation of plasma from formed blood elements, hemolytic crisis, hypovolemic shock, Raynaud phenomenon, macroglobulinemia and others.

Objectives: To present a case of Pseudohypoglycemia and to alert clinical providers of this syndrome as may be more frequent in clinical frail patients.

Material and Methods: We reviewed patient's chart and PUBMED publications that describe cases of Pseudohypoglycemia.

Case Report: 83 yo lady with recent diagnosis of gallbladder adenocarcinoma with liver metastases. Port placed for plans to start palliative gemcitabine. Prior coming to our facility she presented to the hospital with Malaise and Leukocytosis- RSV infection was detected and she received supportive care. Goal was for patient to have rehabilitation with physical strengthening at our facility in order to be able to return home and receive hospice services at home. Patient had prior scheduled blood work and- critical value for low blood sugar of 19 mmol/L was called. Pt received 50 ml Glucose 50% i.v. as part of urgent protocol for hypoglycemia and.. recheck capillary checks again confirmed glycemia of 17-19 mmol/L. Pt was awake, alert, comfortable in bed, denying explicitly shakiness, sweating, anxiety, confusion, lightheadiness or other symptoms. Another abnormal laboratory result was Leukocytosis of 22000.

Nursing staff were in process of contacting the EMS when the physician on call was contacted who was able to distinguish the lack of symptoms and recognized the condition as Pseudohypoglycemia. Patient was not sent to the ER but reassured and staff was educated.

Conclusion: The purpose of reporting this case is to increase awareness of Pseudohypoglycemia. This is not a frequent occasion but on time recognition would direct clinical appropriate decisions. True hypoglycemic episodes are generally characterized by symptoms

of hypoglycemia; none of these criteria were present in our patient. In this case recognition prevented patent's unnecessary ER visit, possible hospital readmission.

A42
Up in the Air: An Approach to Air Travel in the Complex Older Adult

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Background: Older adults comprise approximately 5-10% of US international travelers, and this number is expected to grow. There are reports of older people developing delirium as a result of air travel, but little information exists regarding the care of the older patient with delirium or dementia surrounding air travel.

Case: Mr. M is an 82 year-old male who presented to clinic for assessment of impaired cognition and functional decline in the setting of multiple hospitalizations with prolonged delirium. Pertinent medical history includes CVA with residual hemiparesis approximately 18 months prior. Shortly after CVA, family noted functional and cognitive decline consistent with vascular dementia. Six months prior the clinic visit he developed a small bowel obstruction and was diagnosed with both GI and pulmonary TB. During this hospitalization he developed a mixed delirium that persisted at the time of the initial clinic visit. He experienced profound functional decline, requiring maximum assist with all transfers and assistance with feeding. Medications were notable for insulin, apixaban, aspirin, furosemide, carvedilol, isoniazid, ethambutol, and levofloxacin. Social history was significant for splitting time between his native country India and the US. He sold his US home before the stroke in preparation for a permanent move to India. On exam he was frail-appearing and inattentive. During the clinic visit, his family expressed a strong desire to bring him to India.

Management: In collaboration with primary care, medications were streamlined and he received home visits with coaching about non-pharmacologic management of delirium. His delirium improved over several weeks. Geriatrics made many practical recommendations regarding air travel in the setting of poor functional status and medical comorbidities, including wearing a condom catheter during flight and booking longer layovers for transition time. His caregivers received coaching about management of neuropsychiatric behaviors and he did not require any antipsychotics. His family reported a successful flight to India without complication.

Conclusion: Given the expected increases in older travelers, geriatricians will need to become comfortable crafting individualized plans that allow older patients with cognitive impairment to air travel.

A43
Reliability of Synovial Fluid Analysis in the Elderly with Comorbidities

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Background:
Joint pain is a common complaint of the elderly patient population and the differential remains broad with varying degrees of urgency in treatment. Arthrocentesis with synovial fluid (SF) analysis is the diagnostic gold standard. The objectives of this study is to investigate the reliability of synovial studies and examine the affect from increasing age and comorbidities.

Methods:
Charts of patients who underwent joint aspiration at the Brooklyn VA hospital over a 15-year period were retrospectively analyzed. Exclusions were age <18, recent joint instrumentation or concurrent antibiotic use. Synovial White Blood Cell (WBC) counts, in cells/mm3, were compared to the traditionally utilized cut-offs: <2000 as normal, 2000-50000 as inflammatory, and >50,000 suggestive of septic arthritis.

Results:
180 synovial arthrocenteses were analyzed; 41 gout, 28 pseudogout, and 8 positive bacterial cultures. 174 were men with mean age of 66.5 years (range 29-85). For above age 50, a synovial WBC count of >2000cells/mm3 showed a specificity of 88% (95% CI: 79%-94%) and a sensitivity of 58% (95% CI: 45%-70%) for crystal-induced arthropathy. The reliability of commonly utilized cutoffs was proven by median values (Table 1). With comorbidities, the sensitivities were low (range 52-65%) while specificity ranged 86-96%. The PPV and NPV remained low, except for PPV for crystals in DM was 95%.

Conclusions:
We confirmed that the traditionally used cutoffs maintain their specificity but not sensitivity, meaning clinicians can comfortably treat for non-inflammatory conditions when the synovial WBC count remains <2000cells/mm3. The high PPV in diagnosing a crystal arthropathy in diabetics should increase willingness to initiate treatment in that population. Confounders were that patients carry multiple comorbidities particularly as they age.

Table 1. Inflammatory Synovial Fluid White Blood Cell Count Medians Based on Comorbidity and Statistical Relevance of the 2000 cells/mm3 Traditional Cutoff

Comorbidity	N[a]	Normal (cells/mm3)	Gout (cells/mm3)	Pseudogout (cells/mm3)	Sensitivity[b]	Specificity[b]	PPV[b]	NPV[b]
Age >50yrs old	151	251.5	5343.0	603.0	58% (45-70)	88% (79-94)	77% (62-88)	75% (66-83)
Diabetes	56	159.0	6371.5	530.0	65% (45-81)	96% (80-99)	95% (76-99)	69% (51-83)
Hypertension	119	219.0	5815.5	525.0	57% (42-71)	91% (82-97)	83% (66-93)	74% (63-83)
Hyperlipidemia on statin therapy	66	194.1	3908.0	510.0	52% (33-71)	92% (78-98)	83% (59-96)	70% (55-83)
Cancer History	39	247.5	4385.5	550.0	54% (25-81)	86% (65-97)	70% (35-93)	76% (55-91)

(a) patients with septic arthritis or missing values were not included
(b) Reported Percentage (95% Confidence Interval)

A44
Paravertebral Extramedullary Hematopoiesis - A Compensatory Phenomenon at An Uncommon Site

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Introduction: Extramedullary hematopoiesis (EMH) is a rare condition which is characterized by the presence of hematopoietic tissue outside the bone marrow. We report a case of an 86-year-old female with paravertebral EMH without any prior history of hemoglobinopathies.

Case Presentation: An 86-year-old woman with past medical history of hypertension, breast cancer, hypothyroidism, chronic normocytic anemia with no prior treatment, was admitted to the hospital with right flank pain and vomiting. CT scan showed ureter calculus with hydronephrosis. Incidentally, the imaging also showed a left thoracic paraspinal soft tissue mass. Post-hospitalization, the paraspinal and renal mass were evaluated concurrently. She was feeling well, and review of systems was negative. Physical exam was unremarkable, including neurologic exam. Personal and family history were negative for hematologic malignancy or hemoglobinopathies. Laboratory results revealed normocytic anemia (hematocrit 34.5) and normal white blood cell and platelet count. Her renal mass was found to be an angiomyolipoma. A CT-guided biopsy of the paraspinal mass revealed bone marrow trilineage hematopoiesis (extramedullary) with no evidence of malignancy. Hematology and oncology consultation did not recommend further intervention given the lack of symptoms.

Discussion: EMH is when normal red blood cells are formed outside the bone marrow as a compensatory mechanism when the marrow is unable to meet the body's demands. It is often associated with various hematological disorders such as myelofibrosis, thalassemia, lymphoma, leukemia or post-bone marrow irradiation. EMH is

largely an asymptomatic condition; but, in rare cases, can lead to cord compression from mass-effect. Paraspinal location of the hematopoietic tissue is seen in 11-15% of cases and is typically noted incidentally on imaging.

Conclusion: Paravertebral EMH is an uncommon condition diagnosed based on clinical, imaging, and cytological findings and can remain asymptomatic in many patients. Management depends on the patient's symptoms and clinical condition and requires monitoring for development of cord compression due to mass effect. Hence, it is important to consider EMH in the differential diagnosis of a paraspinal mass.

Reference: Haidar R, Mhaidli H, Taher AT. Paraspinal extramedullary hematopoiesis in patients with thalassemia intermedia. *Eur Spine J.* 2010;19(6):871-8.

A45
Case report: Behavioral variant of FTD and implications for family

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Frontotemporal dementias (FTD) are a group of clinically and neuropathologically heterogeneous neurodegenerative disorders characterized by prominent changes in social behavior & personality, or aphasia accompanied by degeneration of frontal and temporal lobe. Behavior variant is most common form (bvFTD). Though less common than Alzheimer's Dementia, FTD is often underdiagnosed and confused with other psychiatric illnesses. Accurate diagnosis and management are important due to its socioeconomic burden and implications for family.

72 year old male was brought by family with reports of bizarre behavior over 10 years, He was fired from a tenured position after making sexual remarks to colleagues, was calling police asking about weather and sports scores, was apathetic towards his sick wife, threatening to shoot family and pets for minor arguments, shopping endlessly and eating excessively (gained 50 lbs in 1year.) His clinical picture was consistent with bvFTD. He scored 28/30 on MOCA. Though PET scan and Neuropsychological testing was ordered to corroborate clinical diagnosis, he refused testing. He was evaluated by psychiatry, but was labeled as "of sound mind and body." As his behaviors worsened, he required increasing help with IADLs due to growing body habitus. Further evaluation excluded other psychiatric disorders. He was rapidly exhausting his financial resources by excessive shopping. He clearly did not have any insight to his condition and was eventually determined to have impaired decision making. After a hospitalization, he was discharged to nursing home. A multidisciplinary meeting was organized and statement of expert evaluation was filed for legal guardianship to be pursued.

bvFTD is most common FTD subtype, with hallmarks including progressive personality and behavioral changes. Diagnosis requires 3 of 6 clinical features: dysinhibition, apathy, loss of sympathy/empathy, compulsive behaviors, hyperorality, dysexecutive neuropsychological profile plus demonstrable functional decline. PET scan supports the diagnosis. There are no FDA approved treatments for FTD, so management focuses on symptom management and interventions focusing on patient health and safety. A high index of suspicion for bvFTD should be maintained for any patient presenting at a young age with unexplained behavioral changes unexplained by another psychiatric diagnosis. Early intervention benefits patient and family by safeguarding their lives and resources.

A46
Suicide in a Home Hospice Patient

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Background: Depression is underdiagnosed and undertreated in older adults with serious illness. 5-10% of older people have depression, and in those with life-limiting illness, the prevalence of depression increases to 75%. Suicide is a serious concern in older adults with depression. In fact, older people comprise 24% of completed suicides. Serious illness is also a risk factor for suicide. The incidence of suicide among cancer patients is nearly twice that of the general population. The highest rate of completed suicide is noted among white men >85 years old (0.05%). Most older suicide victims were in their first major depressive episode and had seen a physician within the last month of life.

Case description: Mr. E. was a Caucasian, college-educated 88 year-old man with past medical history of COPD (on 4 L/min oxygen via nasal cannula), atrial fibrillation, hypertension, benign prostatic hypertrophy and no known history of depression. During a joint home hospice visit by a physician and social worker, patient was found to be deceased. His partner, who acted as patient's caregiver, was away on a trip at the time of patient's death. An empty bottle of hydromorphone, prescribed by hospice, an empty whiskey glass, and a suicide note were found at patient's bedside. In his suicide note, patient expressed that he no longer wished to experience symptoms of shortness of breath and urinary incontinence. Following investigation by the police department, cause of death was deemed to be suicide via overdose.

Discussion: Depression is very common and is underrecognized in older patients with serious illness. Diagnosing depression in older adults is challenging because grief, existential distress, fatigue, and changes of physical illness, all of which are common in older adults, can mimic depression. Multi-modal treatments for depression are most effective and include: treatment of physical symptoms of underlying illness; antidepressants; psychostimulants; and different types of psychotherapy. Utilization of an interdisciplinary team is key to the treatment of depression.

Conclusion: Diagnosing depression in older patients with serious illness is challenging. Patients who are older and have serious illness are at high risk for suicide. There are effective multi-modal treatments for depression in older adults with serious illness that should be considered.

A47
Cross-sectional study on the association between frailty and muscle performance of hospitalized older adults with coronary artery disease

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Objective To explore the association between frailty and muscle performance of hospitalized older adults with coronary artery disease. **Methods** A total of 122 hospitalized elderly patients diagnosed with coronary artery disease (NYHA Class I–II) form cardiology and geriatrics department, Peking Union Medical College Hospital between December 2017 and March 2018 were enrolled in the study. A comprehensive geriatric assessment was performed to evaluate existing comorbidity and geriatric syndromes of the patients. Frailty was assessed using the Clinical Fraity Scale. The patients were classified as non-frail, mild frail, moderate or severely frail, according to the frailty scale. Muscle performance was assessed using grip strength, gait speed, the timed-up-and-go test (TUGT), the five times sit to stand test (FTSST), as well as the balance test. Bioelectrical impedance analysis was performed for patients with reduced grip strength or slow gait speed to measure their appendicular skeletal muscle mass, whole body skeletal muscle mass, whole body protein, as well as to calculate the appendicular skeletal muscle index (ASMI). **Results** There were 28 frail patients (22.9%) and 94 non-frail (77.0%) patients

in this group, with 16 mild frail cases (13.1%) and 12 moderate or severely frail cases(9.8%). The frail patients were much older, with more comorbid conditions, higher proportion of malnutrition, polypharmacy, urinary incontinence, using walking-aid, lower prealbumin level, and higer C-reactive protein level, compared with those non-frail patients (all P<0.05). Compared with non-frail patients, the frail patients had poorer grip strength, slower gait speed, worse TUGT and FTSST performance(T or Z=-6.258, -5.536, 5.770, 4.926, respectively, all P<0.001). According to Spearman rank correlation analysis, grip strength was significantly, positively correlated with the appendicular skeletal muscle mass, whole body skeletal muscle mass, whole body protein, and ASMI. **Conclusions** There is a high incidence of frailty among hospitalized older adults with coronary artery disease. Moreover, poor muscle performance is a common clinical feature for frail elderly patients with coronary artery disease. Assessment of frailty and muscle performance can help to evaluate the overall function of older adults with cardiovascular disease in a more precise way.

A48
Characteristics of esophageal motility in elderly patients with gastroesophageal reflux disease
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Objective: Esophageal motility plays an important role in the anti-reflux barrier of patients with gastroesophageal reflux disease (GERD). GERD is a very common disorder among older adults. The aim of this study is to investigate characteristics of esophageal motility in GERD patients aged 60 years and above. **Methods:** This is a retrospective study for patients with reflux symptoms who underwent esophageal manometry. A total of 257 patients were performed high-resolution manometry between January 2015 and October 2018. Medical history and endoscopy data were collected using single-blinding method. The patients were divided into adult group (aged 18 to 59 years) and elderly group(aged 60 years and older). Data of resting lower esophageal sphincter (length and pressure), esophageal body clearance (distal contractile integral and ineffective motility by Chicago Classification v 3.0), existence of hiatus hernia (HH) by Barium meal and reflux esophagitis (RE) by endoscopy were evaluated. **Results:** Of the 257 patients, 56 were excluded because of achalasia (9 cases), secondary RE (14 cases), and absence of endoscopy (33 cases). 201 patients (152 in adult group and 49 in elderly group) with data integrity(esophageal manometry and endoscopy) were finally enrolled in the study. (1) There was no significant difference in lower esophageal sphincter length (LESL), LES pressure (LESP), distal contractile integral (DCI), as well as incidence of HH and RE between adult group and elderly group (P>0.05). (2) Incidence of ineffective motility (IEM) was significantly higher in elderly group compared to adult group (P<0.001). **Conclusion:** Compared to adult GERD patients, elderly GERD patients presented poor esophageal body clearance, as well as higher incidence of anatomy abnormality at gastroesophageal junction and reflux esophagitis, although there was no significant difference in both groups.

Characteristics of esophageal motility in elderly patients with GERD

Contents	Elderly group (n=49)	Adult group (n=152)	p value
gender(M/F)	18/31	86/66	0.409
RE%	55.1%(27/49)	40.7%(62/152)	0.270
HH(%)	38.8%(19/49)	25.0%(38/152)	0.268
LESP(mmHg)	9.45±6.91	7.73±6.25	0.561
LSEL(cm)	3.21±1.25	3.05±0.83	0.919
IEM(%)	71.4%(35/49)	40.1%%(61/152)	0.001
DCI(mmHg.cm.s)	200(25,1777)	234(20,1423)	0.148

RE:reflux esophagitis, HH: hiatus hernia, LESP:lower esophageal sphincter pressure, LESL:lower esophageal sphincter length, IEM: ineffective motility, DCI: distal contractile integral

A49
A diagnostic challenge: Atypical presentation of metastatic prostate cancer
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Background: Prostate cancer is the most common male cancer, and incidence rises steeply with age. Around 12% of older patients present with prostate cancer that is metastatic at time of diagnosis with bone pain as a frequent initial manifestation.

Case: An 82-year-old man with hypertension and sick sinus syndrome with implanted pacemaker presented with subacute onset of confusion and agitation of 3 weeks. He was functionally independent and not known to have cognitive impairment. Further history revealed unintended weight loss of 3kg over 3 months. Physical examination was unremarkable. Significantly, laboratory investigations showed marked elevation of ALP 2520U/L (bone-associated ALP 8%), LDH 3360U/L and Ferritin 2460ug/L. Contrasted computed tomography (CT) scan of the brain, thorax, abdomen and pelvis, electroencephalography and cerebrospinal fluid studies including bacterial and viral studies and flow cytometry were negative. Magnetic resonance imaging of the brain was not done due to pacemaker incompatibility. A whole body positron emission tomography CT scan showed diffuse FDG uptake in the skeleton but no solid organ uptake. As suspicion for malignancy remained high with lymphoma as a differential, bone marrow study was done. Bone marrow trephine revealed clumps of non-hematopoeitic cells with positive expression for PSAP and PSA on histology. In correlation with raised serum PSA level 167ug/L and widespread osteoblastic lesions involving the axial and appendicular skeleton on bone scan, the final diagnosis was metastatic prostate adenocarcinoma. The patient was referred to Urology and started on Casodex and Lucrin. His mental status improved and he was discharged home. Subsequent follow up showed improvement of PSA, LDH and ALP levels.

Conclusion: Delirium in the elderly often indicates an underlying disease process. Our patient did not present with any lower urinary tract symptoms or bone pain, and initial tests only showed raised ALP and LDH with normal cross-sectional imaging results. In a functionally independent, cognitively intact patient, a change in mental state warrants a thorough investigation. This case highlights the value of comprehensive geriatric assessment in establishing baseline cognition for an accurate diagnosis of delirium, and the need for a high index of suspicion in elderly who often present atypically, to avoid missing fatal diagnoses.

A50
How Often Do We Have to Remind Ourselves to Use Fluoroquinolones More Judiciously?
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Background: Fluoroquinolones are often used as first-line treatment of urinary tract infections (UTI). However, given high local resistance rates of *E. coli* to fluoroquinolones, risk of adverse events including black box warnings on use, and published guidelines recommending the use of other agents, we sought to examine the impact of a multifaceted antimicrobial stewardship campaign over time to determine the sustainability of the intervention and maintenance of outcomes.

Methods: Charles Morris Center for Rehab and Nursing is a 159-bed nonprofit nursing facility. An antimicrobial stewardship campaign utilizing educational materials for patients, family, staff, and providers was disseminated to all staff and providers at the facility through in-service lectures to staff and printed handouts for providers. Monthly reports of urine cultures and sensitivities and antibiotic use were reviewed and shared with providers, specifically the frequency

of fluoroquinolone prescriptions. Patient demographic data, clinical symptoms, urinalyses, urine cultures, and antibiotic use in residents who underwent treatment for UTIs were analyzed.

Results: In the one-year study period, the multifaceted antimicrobial stewardship campaign utilizing educational materials for patients, family, staff, and providers on fluoroquinolone use was effective at decreasing fluoroquinolone use from 49.3% to 27%. However, at two years post-intervention, the use of fluoroquinolones for the treatment of UTI, confirmed or suspected, again approached previous rates up to 43.8%.

Conclusions: An antimicrobial stewardship campaign based mainly on educational initiatives did not sustain initially favorable results at two years, and fluoroquinolones once again became the most frequently prescribed first-line therapies. This suggests the need for continued education and alternative and more sustainable approaches to maintain appropriate antibiotic use. As a result, this ongoing quality improvement project subsequently increased efforts to reeducate patients, family, staff, and providers and implemented provider order sets to help guide clinicians towards appropriate antibiotic therapy as a more durable and sustainable antimicrobial stewardship initiative.

A51

Developing Geriatric Models to Drive Value in Addressing Acute Unplanned Care

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Background: Over three quarters of seniors have multiple chronic conditions, making them vulnerable to acute exacerbations. These exacerbations often lead to an Emergency Department (ED) visit. Because EDs are typically designed to stabilize patients and disposition them home or admit them to the hospital, seniors are almost 4 times more likely to be admitted from the ED than non-seniors. In fact, almost 70% of senior hospitalizations originate in the ED. Once hospitalized, seniors are vulnerable to developing delirium, hospital-acquired infections and losing functional status. In accordance with recent value-based imperatives, developing new models of unplanned care for seniors could reduce ED visits, hospitalizations, and associated costs.

Methods: In collaboration with the Institute for Healthcare Improvement, a Learning and Action Network (LAN) of six Next Generation Accountable Care Organizations (ACOs) was convened to disrupt the traditional ED-to-hospital pathway. Providing physicians and seniors more options could reduce potentially avoidable hospitalizations. A combination of health system and physician run ACOs were recruited to participate in a 12-month LAN. A Quality Improvement methodology with rapid cycle testing was used to develop new care models focused on responding to seniors' unplanned acute events. Process and outcome data were collected monthly. Faculty supporting the LAN included experts in geriatrics, nursing, social work, and ACO payment.

Results: Within eight months, six models were successfully deployed to address acute unplanned events. Four organizations implemented models delivering acute care at home, a fifth implemented an evidence-based pathway for exacerbations of chronic obstructive lung disease, both in the ED and in skilled nursing facilities. The sixth focused on ED-based screening for unmet needs with the goal of connecting at-risk seniors to community-based supports and services.

Conclusions: The LAN structure enabled successful development, implementation and on-going evaluation of models that strive to better serve seniors by addressing acute unscheduled needs in a novel way. Pre-enrollment strategies, rapid deployment of resources and workforce, monitoring for clinical complications, and measuring patient experience and costs, are all sources of ongoing improvement and shared learnings.

A52

Improving Antibiotic Stewardship Program Educational Materials in the Long Term Care Setting

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BACKGROUND:

In November 2017, the Center for Medicare and Medicaid Services (CMS), mandated the implementation of Antibiotic Stewardship Programs (ASP) within Long Term Care (LTC) facilities in the United States. Family/resident's attitudes about antibiotic use can influence prescribers practice. The purpose of our study was to investigate the experiences, perceptions, and knowledge of families/residents regarding antibiotic use at two University affiliated LTC facilities.

METHODS:

We conducted focus groups and small group discussions with residents (n=28) and family members (n=9) during September and October 2018. Participants were first given a general knowledge assessment about antibiotics followed by an open discussion about their perceptions of the appropriate use and potential dangers of antibiotics in the LTC setting. Facilitators then solicited feedback on current and proposed informational materials regarding antibiotic usage. Conversations were digitally recorded and at least one observer and note-taker was present at all group discussions. Using thematic analysis we identified areas to improve messaging to family members and residents.

RESULTS:

Family member's (n=9) and resident's (n=28) awareness about negative side effects of antibiotics varied. Most participants reported receiving antibiotic risk information from their health care providers as well as friends/family. Thematic analysis identified a lack of concern about antibiotic resistance, but a desire for open dialogue with physicians and nursing home staff. Suggestions for improved communication included regular discussion about antibiotic use risks in case conferences, additional printed materials with impactful stories posted in common areas, and detailed pamphlets for use at point-of-care (change of status). Participants suggested delivering materials in multiple formats at various times (i.e., admission, recurring, and during an acute need) to reinforce important messages.

CONCLUSIONS:

Family members and residents are likely to be more receptive to antibiotic use risk messages delivered passively in conjunction with recurrent provider-based reinforcement. We plan to produce patient story and commitment posters and informational pamphlets related to clinical criteria justifying an antibiotic order at point of care.

A53

Innovation Improving Antimicrobial Stewardship in Post-Acute and Long-term Care (PALTC)

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Background:

Antibiotics are used frequently in PALTC facilities and can lead to resident adverse drug events (ADE), drug interactions, and antibiotic resistance. ADE monitoring was suggested by the Centers for Disease Control (CDC) as an appropriate outcome measure in facilities' infection control and prevention programs but current ADE processes lack consistency, accuracy, efficiency, and thoroughness. We aimed to develop a standardized antibiotic ADE clinical decision support tool and workflow to be embedded in PALTC electronic health records (EHRs).

Methods:

The Maryland Antimicrobial Stewardship Collaborative funded by the CDC and the Maryland, Department of Health, and led by the Lamy Center developed an antibiotic ADE template. Think Research-a digital healthcare solutions company, refined the ADE tool for integration as a prototype into an EHR following interviews with key PALTC stakeholders. The prototype was demonstrated to prospective users in Maryland to garner feedback. Recommended changes were incorporated and tested with selected stakeholders post revision.

Results:

Using a condition-based chronology, common antibiotic ADEs were characterized by signs and symptoms into gastrointestinal, renal, cardiovascular, hematologic, hepatic, skin, anaphylaxis, myositis/tendinitis, and neurologic ADEs. An exception-based logic was employed thus requiring little nursing documentation, the majority of which is by single-click entry. Clinical algorithms identify antimicrobials most commonly associated with signs and symptoms, median occurrence time post drug initiation, and suggested laboratory monitoring. Clinician evaluation and action(s) are documented and outcome subsequently assessed using the Hartwig Severity scale, which describes the level of clinical support provided to remedy the ADE. Antibiotic, ADE type, number, and outcome can be trended with other antimicrobial stewardship metrics.

Conclusions:

Through interprofessional collaboration an ADE tool was developed and integrated as a prototype into a PALTC EHR that can facilitate identification, documentation, and trending of antibiotic ADEs, following further testing.

A54

Changing Face of Long-term Care Pharmacotherapeutic Research

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Background: Evidence regarding strategies to optimize cardiovascular (CVD) pharmacotherapeutic outcomes and medication safety in long-term care settings is scarce. Home health care/hospice (HC) and assisted living (AL) pose greater challenges to optimizing medication use and conducting clinical research than nursing facilities (NF).

Methods: During a half-day symposium sponsored by the National Institute on Aging, American College of Cardiology and American Geriatrics Society, 80 interprofessional clinicians and researchers were divided into three breakout sections: NF, AL, and HC. Using a nominal group technique, each group identified critical knowledge gaps and research priorities for optimizing patient-centered pharmacotherapeutic outcomes in older adults with CVD among these three settings of care.

Results: Prioritized NF research areas identified include quality measure development, optimized prescribing practices, and evaluation of care models that improve prescribing and care transitions. In contrast, AL and HC research landscapes are far less developed and more diverse than NF. AL research priorities are to define data elements, evaluate epidemiology, and evaluate/optimize prescribing. AL based research is challenged by lack of data sources, limited medication oversight, and scare research funding. For HC, research should determine demographic information and prescribing patterns, differentiate short and long-term needs, define support, evaluate specific CVD care/medication needs, and optimize medication outcomes. Limited HC research expertise, lack of institutional review board structure to support HC studies, no formal organized care models, and scare knowledge about medication utilization make research in HC most challenging.

Conclusions: Optimizing pharmacotherapy is a need across all settings. Because of the more formalized setting, NF research should focus on advanced issues such as quality measure development and care models. Current AL/HC research priorities are more basic such as the need to define the epidemiology, identify data sources, and understand prescribing patterns and needs for these sites.

A55

The Hidden Problem List: Assessment of Older Adult Health Records in Search of the Real Patient 2.0

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Background: Problem Lists (PL) should communicate essential elements of health status and are a tool for clinical decision-making. PLs should improve the quality of the health record by adding meaning to it. However, PL content is not standardized and completeness varies. If PLs are not reflective of health status they can have potential for adverse consequences. We examined effectiveness of PLs at reflecting health status of older patients. We determined; a) how common specific geriatric conditions are, as recorded in progress notes; b) how often these conditions are present in the PL after consultation; and c) which conditions showed discrepancies between note content and PLs.

Methods: A consensus list of 18 conditions that capture geriatric health status was created and used in a pilot study at a VA geriatric assessment clinic (GAC). In the current study the consensus list was used to analyze notes at an academic GAC from July to December 2016. Presence or absence of each condition and discrepancy between note content and PL entry was analyzed.

Results: 23 patients were seen in the academic GAC from July through December 2016 and their electronic health records were reviewed. Most common conditions mentioned in provider note were cognitive impairment (83%) and adverse drug effect (83%). Fall risk and cognitive impairment were recorded in the in PL most often (30% and 70% respectively). 46 health records were reviewed in the pilot study at a VA medical center also between July – December 2016. The most common conditions in provider note were cognitive impairment (92%) and fall risk (80%). Cognitive impairment was recorded in the PL most often (58%). Dependence on a caregiver and noncompliance with treatment were found frequently in notes (61%, 57%) but almost never in the PLs (0% and 1% respectively).

Conclusion: Conditions other than cognitive impairment were generally missing from PLs. Health records that do not communicate cognition and function may portray a robust perception of the "virtual patient", with potential adverse consequences. Using these results we will develop tools that make PLs more reflective of geriatric patient's health status.

A56

A Collaborative Approach to Reducing Paroxetine Use in Older Adults

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Background: Paroxetine is highly anticholinergic with adverse effects including sedation and orthostatic hypotension. Older patients are more sensitive to these effects, which can lead to falls and cognitive impairment. Experts in the care of older adults, including the American Geriatrics Society, strongly recommend avoiding paroxetine due to these risks. Using paroxetine in older adults can negatively impact HEDIS performance and health plan quality ratings.

Methods: The Pharmacy, Adult Primary Care, Geriatrics, and Behavioral Health departments collaborated to reduce use of paroxetine in the Kaiser Permanente Georgia (KPGA) older adult

population. Approximately 134 KPGA members ≥ 65 years old on paroxetine were identified in early 2018. A Clinical Pharmacy Specialist (CPS) reviewed each member's chart and pended orders to the primary prescriber for paroxetine taper plans and/or conversion. Recommended alternatives varied based on indication, medical history, and other patient-specific factors. If the prescriber signed the orders, a CPS contacted the member to provide instructions and counseling. To guide future conversations and support independent action by providers, electronic medical record (EMR) clinical decision support tools were implemented and educational materials distributed to the physician group.

Results: As of November 2018, approximately 70% (n=94) of paroxetine prescriptions were discontinued and 5% (n=7) were still being tapered. Sixty-seven prescriptions were stopped via pharmacist intervention while 27 were stopped via independent prescriber action. Of the 88 pharmacist recommendations sent, 85% were accepted, 10% were declined by the member or prescriber, and 5% have not received a response. Thirteen members were poor candidates for conversion and no pharmacist intervention was pursued. Only 3 members failed the conversion or discontinuation attempt.

Conclusion: The risks of paroxetine in older adults are well-known and many safer alternatives exist. Physicians responded positively to efforts to promote safety in KPGA's patient population. The initiative successfully reduced utilization of paroxetine in members ≥ 65 years old and could be adapted for use in other medical groups or delivery systems. The educational material and EMR clinical decision support tools are expected to sustain the initiative. KPGA will continue to monitor paroxetine use in this population.

A57
Development of Interprofessional Geriatric Evaluation To Reduce Risk for Perioperative Neurocognitive Disorder

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Background Cognitive impairment is a risk factor for perioperative neurocognitive disorder (NCD), occurring in 25% of older adults undergoing elective surgery. A geriatric perioperative interprofessional program(IP) was designed to identify, optimize, and manage those at risk to reduce poor surgical outcomes.

Methods An IP team consisting of medicine (Geriatrics, Anesthesiology, Surgery), pharmacy, and occupational therapy at an academic institution developed a program that identifies older adults at risk for perioperative NCD and instituted best practices based on review of current guidelines. Key elements include: provider education, review of high risk medications contributing to delirium (over the counter drugs, prescriptions, anesthetics and pain medications), input from Patient and Family Advisory Committee on educational forms and creation of a referral pathway to an interprofessional geriatric consultation (MD, PharmD) for further guidance.

Results Education of surgical and hospital physicians was conducted and multi-departmental support obtained. Mini-cog screening was implemented during pre-op clinic for patients over 65 with appropriate referral to IP geriatric evaluation where reversible causes of cognitive impairment were treated and high risk medications adjusted. Weekly IP team meetings to review patients screened and scheduled for surgery were established. Patient and provider perioperative workflows were developed along with changes in anesthesia protocols and postoperative order sets. A preoperative patient-friendly handout for education of high risk patients was developed. A logo was created to identify at risk patients to all care providers and postoperative care plans were customized to include prompt return of sensory aids, quiet hours, windowed rooms and scheduled volunteer visits. Other changes include post discharge telephone follow-up and referral for comprehensive geriatric assessment if needed.

Conclusion An interprofessional perioperative assessment program requires changes at multiple levels involving patients, families, nursing and medical staff for successful development and implementation. Evaluation of the program will be used to assess patient outcomes and identify areas for further program refinement.

A58
Gait Speed Slowing with Distraction Distinguishes MCI from Mild Dementia Only with Difficult Task

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Although gait speed slows only minimally through the early course of Alzheimer's disease, numerous investigators have shown that gait speeds slows significantly with cognitive distraction in people with mild cognitive impairment. The so-called "dual-task gait speed" test has been shown to slow substantially with simple concentration tasks, such as animal naming fluency test, in both laboratory and clinic settings. Since gait slowing with cognitive distraction is thought to be a measure of frontal executive cognitive function, we set out to determine if normal, MCI and mild dementia subjects' performance on a dual task gait test could be measurably different in the clinic setting using only a simple stop-watch and two levels of cognitive challenge to frontal executive function. We had patients perform the "timed up and go test" without cognitive interference, with a simple cognitive task (either months of the year forward or counting by 2's) or a difficult cognitive task (months of the year in reverse order or counting backwards from 50 by 3's). We found that normal healthy older adults, MCI patients and those with mild dementia differed in gait speed only with the more challenging tasks, with the MCI subjects performing mid-way between the other groups (14.6 sec for MCI vs. 10.8 sec for controls and 17.5 sec for mild dementia). We believe the dual task gait speed test deserves validation as a potential tool to inform providers when patients are transitioning from MCI to dementia, which can be a difficult and subjective clinical determination using only cognitive assessment tools and family interview.

A59
Improving osteoporosis recognition in the male veteran population

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Background:

While routine screening for osteoporosis in women is well established, osteoporosis may be under-diagnosed in men as there are no standard screening criteria. General risk factors contributing to low bone density include cigarette smoking, advanced age, low body weight, hypogonadism, low-term use of systemic steroids, and white/Caucasian ethnicity. Our clinic initiated a template to help physicians evaluate male patients with risk factors for osteoporosis and obtain appropriate testing as the first intervention in a quality improvement project.

Methods:

Chart review of the male veteran population in our fellows' clinic demonstrated that up to 80% of the patients in whom osteoporosis had never been discussed. We created an evidence-based template to identify risks for osteoporosis in men. Specific questions were asked of the veteran or were obtained from medical charts, including smoking history, physical inactivity, hypogonadism, or history of malabsorption. If veterans had 2 or more positive screening questions, DEXA was ordered after discussion with the veteran. If one question was positive, a DEXA was considered; if no screening questions were positive then the veteran was considered low risk of osteoporosis.

Results:

Prior to starting the intervention template, chart review demonstrated that 17/122 men (14%) had a previous diagnosis of osteoporosis.

After intervention, this percentage increased to 15%. Risk factors were discussed in 78% of male patients based on documented template

use in clinic notes. At-risk veterans were referred for DEXA scans 24% of the time and medications were initiated in 61% of patients. DEXA scans or medications was not ordered if it was not within the patient's goals of care or if there was a lack of other significant risk factors.

Conclusions:

This fellow-directed improvement process found a low rate of osteoporosis recognition in male veterans in our clinic. With a standard evidence-based template given once yearly during the beginning of each patient encounter, our clinic was able to increase awareness and order DEXA exams when appropriate. We recommend comprehensive osteoporosis screening and risk assessment of both males and females in the VA population.

A60 Encore Presentation
Evaluation of an Online Community Resource Referral Platform for Older Adults

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BACKGROUND: Social determinants of health (SDOH) drive health outcomes more often than health care. Despite their limited resources, community-based organizations (CBOs) are better positioned to address SDOH than health systems. The objectives of this project were to: evaluate the feasibility of implementing an online referral system that connects older adults and their caregivers to community SDOH resources; understand the user experience using an example online referral system; and serve as a "pilot" for a future, community-wide, SDOH referral platform.

METHODS: We conducted focus groups with caregivers, CBOs, and clinical providers who refer patients to community SDOH resources (referring providers). We conducted interactive case simulations with referring providers and CBOs.

RESULTS: Current practices for identifying and connecting patients to SDOH resources vary greatly and there is no single, trusted source for identifying resources. Referring providers and CBOs invest substantial effort in referring patients to SDOH resources without feedback on outcomes. All stakeholders were eager for a system that: 1) integrates with the EHR 2) is well-maintained 3) aligns with community values and 4) fosters trust (no referral dumping). Results of the case simulation identified two critical features: 1) a comprehensive overview of SDOH services an individual is currently receiving; and 2) outcomes from eligibility evaluations conducted by other CBOs.

CONCLUSIONS: We identified essential criteria for an online SDOH referral platform: local curation of trusted resources; effective and reliable data sharing between health systems and CBOs; community equity/governance of the platform; and upfront incentives for CBO participation. The North Carolina (NC) Foundation for Health Leadership and Innovation recently announced funding for an integrated SDOH resource database, call center, and care coordination platform for clinicians, social workers, care coordinators, and families in NC. Results from our work will inform the development of this platform.

A61
The role of embedded geriatric consultation in a community hospital

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Background: Various forms of hospital-based Geriatric consultations have been reported with mixed results. The most effective consultations appear to be those which target frail older adults. One RCT showed older adult patients were more likely to survive and be in their own homes one year after emergency admission to the hospital with geriatric comprehensive assessment. However, this and other studies often emerge from academic medical centers and much less is known about Geriatrics in community-based hospitals. Newer

evidence suggests that "embedded" Geriatric consultations are more effective than traditional referral-based consultations. Thus, this project examined the feasibility and efficacy of an embedded Geriatrician within a medical team at a teaching community-based hospital.

Objective: To find acceptance, patterns and trends of a pilot, embedded geriatric consultative service in a community teaching inpatient service.

Methods: Consults were obtained daily from the internal medicine team that the geriatric fellow was "embedded" into. The geriatric fellow would evaluate patients and join the team for "walk rounds," reporting on CGA findings and making recommendations. During an eight week period, Geriatric consultations were categorized relative to age groups of young old (65-74), old (75-84) and old–old (85+) years old. Qualitative measures of barriers and successes of the embedded geriatrician were also gathered.

Results: The top two reasons the medical team consulted an embedded geriatrician were functional impairment (22%) and delirium (22%) across all ages. The reason for consultation varied according to age groups, with transition of care being most prominent with old and old–old groups. Medical teams felt that assistance with transition of care to be the most valuable component of the embedded Geriatrician.

Conclusion: The embedded geriatrician model is feasible and useful to hospitalists in a community–based teaching hospital.

A62
Embedding the gait speed test into an annual flu blitz clinic

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Background: Assessment of gait speed is a key measurement in comprehensive geriatric assessment. Gait speeds <1m/s suggest increased mortality, fall risk, dementia, hospitalization and mortality in elderly. Unlike other vital signs, public knowledge of gait speed is suboptimal, likely due to its restricted use in Geriatric programs. Gait speed assessments during mass public health events such as a community-based vaccine "blitzes" might increase the awareness of evaluating fall risk in older adults. However, this remains untested.

Objective: To determine the feasibility of healthcare redesign and increasing public awareness of senior fall risk by embedding a gait speed test in a weekly flu vaccine "blitz" for the community that is held at a multi-specialty clinic.

Methods: Older adults who completed a flu vaccination at a Flu vaccine blitz were approached and asked if they would like to participate in gait speed testing. The rationale for screening was explained and if the participant screened positive on the test, they were informed of the results, its implications, and the potential need for them to be evaluated in a Fall Prevention clinic. If the participants screened negative, they were encouraged to refer family and peers to the Fall Prevention clinic whom they thought walked slowly or had a fall history. Both parties were provided with a brochure that described the Geriatrics program.

Results: Public knowledge about falls was generated at the flu blitz clinic through active learning via the gait speed test. 30% of elderly receiving a fluzone shot were given gait speed testing. Those who screened positive accepted the recommendation of further evaluation at the Fall Prevention clinic.

Conclusion: Healthcare redesign to improve geriatric screening for frailty and fall risk via gait speed testing can occur at an annual vaccine blitz. However, barriers include participant fatigue, time constraints and self - perception of health. Nonetheless, integration of gait speed into a health-system sponsored preventive healthcare program can be an effective step towards increasing public awareness of senior safety and fall prevention.

A63

Initiatives for Fall Preventions in a Rural Missouri Hospital

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Background: Falls can lead to increased morbidity and mortality and are the leading cause of injury in older adults within the USA. Studies show that between 30-40% of community-dwelling adults over the age of 65 have a fall each year. This increases to about 50% for those who are above the age of 80. There are many modifiable traits that can predispose a patient to a fall. As part of an interdepartmental initiative, a rural hospital located in Ste. Genevieve, Missouri implemented fall reduction strategies to help reduce the number of falls; particularly on the inpatient unit.

Methods: In 2015 a gap analysis of fall reduction strategies was completed. A fall reduction plan was created and implemented in 2016. The fall risk policy and procedure was reviewed and updated. A standardized "fall risk bundle" was implemented including the John Hopkins fall risk assessment for each admission, fall risk intervention in the electronic medical record, non-skid socks issued to all patients, communication with patient / family of fall precautions, meaningful hourly rounding, and standardized use of gait belts. The entire team of inpatient medicine employees completed mandatory fall prevention education. To ensure quality assurance and performance improvement (QAPI), standardized fall audits were performed daily by frontline staff and analyzed weekly by the Department Director. A daily multidisciplinary Huddle was developed to promote team alignment for fall risk prevention to improve patient safety.

Results: Since implementation of the fall prevention program, the number of hospital-wide falls were decreased by 66%. The number of falls annually, 2013-2018, ranged from 24-38. However, the number of falls for 2018-2019 was 9. The most frequent reason for falls occurring on the inpatient unit was due to patients trying to get up on their own to go to the bathroom (70-80%). The most commonly identified gap in fall risk identification was a lack of compliance with placing fall risk identification bands on patients.

Conclusions: We reduced the incidence of falls on the inpatient floor by implementing a robust fall reduction program within our hospital. We have identified other improvement areas to help further reduce falls including a prompted voiding program, incorporating a double check for fall risk band placement, and evaluating the use of personal/bed alarms.

A64

Efforts and Challenges in Retaining Staff in a Rural Nursing Home

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Background: As the proportion of adults above the age of 65 grows, the number of patients in nursing homes will also increase. Nursing workforce instability is very common in all healthcare settings; especially in long term care. In 2009 the turnover rate of nursing facility employees was 40%; by 2012 the nursing staffing report showed that median employee turnover rate was 43.9% per the American Healthcare Association. It is imperative to investigate why employees choose to stay and commit to long term care versus other career paths.

Methods: Ste Genevieve Care Center is a 90-bed skilled nursing and rehabilitation facility located in rural Missouri. Strategies that have been implemented to help with staff retention are to ensure hiring candidates while looking at specific attributes; and focusing on their orientation process by ensuring they are with a senior staff member for an adequate amount of time. Certified nurse aide classes and testing

are also provided on site at no cost to the employee. SGCC implements strategies for staff appreciation including giving out T-shirts to nursing personnel and celebratory luncheons multiple times a year. Performance based evaluations and raises, shift differentials, a recent CNA wage increase in October 2018, as well as a hiring bonus program have been implemented.

Results: Despite efforts to recruit new staff and maintain existing staff, seniority data remains unchanged over the course of the year. 42% of nursing assistants will terminate their employment within 30 days of hire. The hiring bonus during the month of August resulted in multiple new hires, however, it also resulted in a higher termination rate than other months. The majority of our nurse aide staff has been employed for six months or less. On a positive note, 33% of the Care Center staff, in various departments have been employed greater than one year.

Conclusions: Staff retention in a long-term care remains a very challenging task. Ideas and strategies were implemented and did not show much improvement in seniority or length of employment. Even with efforts in place to recruit and maintain staff in a nursing home in a rural setting, it remains a very difficult goal and further efforts will need to be implemented. SGCC will continue to make staff retention one of its highest priorities as consistent staffing produces quality resident care.

A65

Utilizing the Huddle to Improve Geriatric Outcomes in a Rural Hospital

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Background: Ste Genevieve County Memorial Hospital (SGCMH) is a 25 bed critical access hospital located in rural Missouri with 33% of patients over the age of 65. A multidiscipline huddle was implemented to improve communication on the inpatient floor, but also used to improve geriatric outcomes. This is an opportunity to identify emerging events and potential geriatric-related issues, express concern, discuss discharge, and coordinate difficult conversations. By implementing huddle, we removed barriers by equipping participants with details and tools to have crucial conversations and update treatment plan with the cohesive group to derive one common shared patient goal. Especially for geriatric syndromes, huddle is a platform to discuss quality initiatives including DVT prophylaxis, mobility, fall risk, polypharmacy, delirium readmission risk, CAUTI, and discharge planning. A vital focus of huddle is to enhance communication by fostering initiation of "crucial conversations" (e.g. end of life care) with patients and families.

Method: Interdisciplinary Huddle was implemented in 2014. Huddle, occurring Monday through Friday at 10am, is designed to last 30 minutes. Huddle is nurse-driven. Each patient is discussed by the RN in 2-3 minutes. Attendees include the hospitalist, RN team leader, therapists (speech, occupational, physical, respiratory), house supervisor, social services, utilization review, imaging, pharmacist, dietician. The patient summary includes an overview of the patient including lab or vital sign anomalies, plan of care updates, and any concerns. A crucial component of huddle is to foster conversations of prognosis and end-of-life care when applicable.

Results: Since implementation, adverse drug events (including excessive anticoagulation, hypoglycemia, and opioid use), infection rates, falls, and readmissions have all decreased; all of which are crucial in geriatric care.

Conclusions: By utilizing huddle and enhancing communication, we provide quality care, enhance the patient experience, improve nurse and physician satisfaction, prevent errors, and foster patient safety by aligning team members of each individualized plan of care. A need for interdisciplinary collaboration is essential to enhance geriatric care outcomes.

A66

CAM versus NuDESC for Delirium Assessment in an ACE Unit

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Background

One of the ways Acute Care for the Elderly (ACE) units improve outcomes for hospitalized elders is by reducing delirium. At Baystate Medical Center, nurses on the ACE unit assess for delirium twice daily using the Confusion Assessment Method (CAM). However, delirium was being underdiagnosed, as nurses were having difficulty determining the patient's baseline mental status, a frequent problem with CAM reported elsewhere in the literature. CAM is a diagnostic tool with a sensitivity of 94-100% and specificity of 90-95% and takes up to 5 minutes to administer. Nursing delirium screening scale (NuDESC) is a validated screening tool for delirium with a sensitivity of 72% and specificity of 80% when using a cutoff ≥ 2 and takes 1-2 minutes to administer. The purpose of this quality improvement (QI) project was to determine whether to use NuDESC instead of CAM for ease of administration and accuracy.

Methods

From September to November 2018, 6 patients on the ACE unit were chosen daily, at random, to receive NuDESC assessments by a nurse educator and QI nurse. Over 3 months, n=287 patients were assessed with NuDESC and findings were compared to twice daily CAM assessments and interdisciplinary team discussion. For example, if any CAM assessment over the preceding 24 hours was positive or nurses reported delirium during rounds, this was counted as a positive CAM. Each NuDESC score was then compared to CAM, which allowed for calculation of concordance. Delirium incidence was calculated using CAM, NuDESC cutoff >2 and NuDESC cutoff ≥ 2.

Results

CAM concordance with NuDESC was highest at the extremes of NuDESC scores. For example, with NuDESC scores of 0 and 1, CAM concordance rates were 88% and 72%, respectively. For NuDESC scores of 5 and 6+, CAM concordance rates were 100% and 89%, respectively. CAM concordance was lower with NuDESC scores between 2 and 4, ranging from 52-62%. In this small subset of ACE patients, delirium incidence was 29% using CAM compared to 20% for NuDESC cutoff >2 and 35% for NuDESC ≥ 2. It was noted that NuDESC and CAM were less reliable in patients with psychiatric illness, both overstating delirium.

Conclusions

NuDESC is fast, easy to use and highly concordant with CAM at its extremes. In addition, it does not require knowledge of the patient's cognitive baseline. Although NuDESC may overestimate delirium when using a cutoff ≥ 2, it may be preferable for identifying patients at risk and triggering early intervention.

A67

Focus Group of Nursing Home Nurses to Evaluate Nurse-Physician Communication and Decision Making Involved in Hospitalizations

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Background:

Preventable nursing home (NH) resident hospitalization rates vary from 11-70%, contributing to Medicare and Medicaid expenses of over $3 trillion annually. Knowledge, training, and availability of NH staff influence hospitalization decisions, but there has been limited attention given to the complex interactions among NH staff in the hospitalization decision-making process. The purpose of this study was to understand the role of nurses and the challenges they face in this process.

Methods:

Nine nurses at a NH in Chicago participated in a 60-minute on-site focus group. A facilitator asked questions regarding nursing routine, sources of hospitalization decisions, emotions, and suggestions on future training. The focus group discussion was recorded, transcribed, coded, and analyzed using thematic analysis.

Results:

Three themes emerged from the focus group. First, there was uncertainty and differentiation between routine versus non-routine aspects of resident hospitalizations. In emergency states (e.g. chest pain) it was clear that residents required to be hospitalized; whereas in less clear situations, nurses used SBAR (Situation, Background, Assessment, Recommendation) or consulted colleagues before communicating with physicians. Second, physicians ultimately decided whether to hospitalize residents, even though nurses were responsible for recognizing resident changes as being the physicians' "eyes and ears." The nurses expressed a variety of emotions around physician interactions, varying from anger and frustration to relief. These emotions were compounded by extra paperwork with readmissions. Third, there were challenges with hospitalization decision-making, including a lack of equipment, time, and staffing. The nurses recommended training including discussions of actual hospitalization cases and role-playing to build decision-making self-efficacy.

Conclusions:

NH nurses addressed the routine, physician communication and various challenges involved in the hospitalization decision making of residents. Future work on unnecessary hospitalizations should address the ambiguity around residents' conditions perceived by nurses and nurse-physician interactions. Nurse training and other interventions could emphasize tools (SBAR) and include role-playing to improve nurse-physician communication.

A68

Educating older adults regarding opiods

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The National epidemic of opioid use disorders is also affecting older adults. It is therefore important to evaluate the perceptions of older adults regarding the safety and side-effect profile of opioids.

Methods: A structured survey to evaluate the knowledge of older adults regarding the side-effects of opioids. Results: Forty older adults, both males and females $\geq$ age 65. Thirty-one of the 40 patients were not on any pain medication, whereas 22.5% were on pain medications. The opioid side-effect knowledge score for all patients was evaluated. Among those who acknowledged memory issues as an opioid side-effect, 55% were on pain medications and 15% were not taking any pain medications. In addition, 55% of patients taking pain medications were aware of the side-effect of confusion compared to only 10% taking pain medications. Opioid-induced constipation was acknowledged by 40% of patients on pain medications vs only 10% of those not taking pain medications. Patients on pain medications vs those not on pain medications were also more aware of falls and injuries (57.5% vs 15%). Similarly, dizziness was acknowledged more by patients taking pain medications vs those not on pain medications (47.5% vs 13%; p = 0.0357).

Conclusion: Our results suggest that more patients on pain medications were aware of the side-effects of opioids compared to those not taking any pain medications. These results will assist us with designing effective patient education tools for a quality improvement project on opioids for older adults.

A69

Diabetes Quality Improvement in a Senior Health Outpatient Program

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Background: Diabetes prevalence in Americans age 65 and older is 25%. Poor diabetes control in the elderly produces significant health consequences including amputations, vision loss and coronary artery disease. Diabetes control is often a key performance indicator in value-based care and ACOs. Our goal was to lower our number of patients with a hemoglobin A1C of over 9 from 27% to 24% over 8 months. The percent of patients with an A1C over 9 is a commonly used quality measure.

Methods: Our population is a primary care geriatric practice affiliated with an urban safety net hospital. The total is 3465 patients-64% female, with an age range of 55 to 105 years old. 66% of patients are diabetic. 18% are African American, 8 % Hispanic, with 9 % non-English speaking. Patients with A1C's over 8 were identified on daily provider schedules with a green dot - using EPIC EMR. An RN saw these patients and used a standardized template to maintain a consistent approach to each patient's diabetic plan of care including a medication and health maintenance review. Extended intervention was offered including: visits with our CNP diabetic educator, dietician referrals, handouts on diabetic management and referrals to a community lay person led diabetic and lifestyle class called EVI base.

Results: EPIC EMR executive dashboard was utilized for measures. Initially 28% of our patients had an A1C above 9. With increased outreach in the initial phase of our project, the percent of patients with an A1C out of range rose to 30%. The number of diabetics with no A1C performed in the previous year fell. Over the months June to November our percentage fell from 30% to 24 % of patients with an A1C over 9. Eye exams went from 54% to 67% in the same year.

Conclusion: A nurse led clinic intervention can help improve diabetes control in a geriatric population. More evaluation is needed to determine which elements of the intervention: RN coaching, CNP diabetes education, and EVI base was most significant in leading to improved control.

A70

Transforming the Way We Think, Talk, and Act: A FQHC Becomes Dementia Friendly

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Background: 6 million Americans live with dementia, most in their own communities. Rural communities have larger populations of older adults; therefore, disproportionate cases of dementia. Federally Qualified Health Centers provide a safety net in rural areas, serving one in six residents. Roanoke Chowan Community Health Center, a FQHC, has 4 clinics serving 5 counties in rural NC. RCCHC has 350 patients with dementia. RCCHC prides itself in providing comprehensive, person-centered care, but recognizes that many of its 157 employees have little training in dementia care. Many employees are young, with minimal experience interacting with persons with dementia. In 2018, RCCHC collaborated with ECU's GWEP to launched an initiative to change their employees' perception of dementia, transform the way they talk and act with persons living with dementia and their caregivers, and become the first dementia friendly FQHA.

Methods: The dementia friendly effort was spearheaded through the Hertford Health Maintenance Alliance's (HHMA) Taskforce on Aging. HHMA is a collaborative network of community stakeholders working to improve the area's health and well-being. Steps identified to achieve dementia friendly status for RCCHC: 1. Identification of stakeholders, 2. Virtual Dementia Tour® (VDT) to enhance sensitivity and alter perceptions of dementia (pre- and post-surveys), 3. Dementia

Friends training presented by Mid-East AAA (post-surveys), 4. Positive Approach to Care™ (PAC) workshops (post-surveys), 4. Dementia friendly environmental surveys, 5. Certified Dementia Practitioner training.

Results:

119 RCCHC employees participated in a VDT® and completed a pre- and post-survey. 92% experienced some change in their perception about dementia.

83 employees participated in Dementia Friends education. 97% indicated they agreed or strongly agreed that they learned new information about dementia. 99% indicated that they would use that information to support people living with dementia.

Other steps in the process will be completed in winter 2019.

Conclusion: Results to date support that the combination of VDT, Dementia Friends training, and PAC can alter perceptions about dementia and positively impact intent to change the way one talks to and acts with persons with dementia. Additional research will be needed to determine the extent behaviors are implemented over time and their impact on care.

A71

Identifying Critical Factors Facilitating Patient Safety Improvement in Skilled Nursing Facilities

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Background: With an older, frailer and more dependent patient population, leadership in skilled nursing settings need tools and strategies to manage and reduce preventable adverse events. However, little is known about characteristics unique to skilled nursing settings that facilitate the consistent and effective implementation of patient safety interventions. This project identified individual and organizational factors related to the implementation of the AHRQ's Team Strategies and Tools to Enhance Performance and Patient Safety (TeamSTEPPS) at a skilled nursing unit in North Texas.

Methods: The project team worked with stakeholders and Quality Assurance and Performance Improvement (QAPI) committee to identify patient safety priorities, develop an action plan for training and quality improvement, and implement TeamSTEPPS tools. Training sessions were developed to introduce TeamSTEPPS fundamentals, communication strategies, and a patient safety checklist for use at shift change. Post-surveys were used to assess individual knowledge and skills gained and session quality. Focus groups were used to examine perceptions of organizational facilitators and barriers to quality improvement.

Results: Training was delivered by an interdisciplinary team including a geriatrician, nurse practitioner, and social worker at three one-hour sessions between October 2017 and June 2018. Sixty-seven direct care staff, including nurses and certified nurse aides, completed training sessions. Training evaluations (N=62) using a 5-point Likert scale showed that a majority (72-100%) of trainees were confident in their knowledge of teamwork, falls risk reduction, and TeamSTEPPS communication strategies. Thematic analysis of focus group responses (n=19) identified the usefulness of communication tools and individualized approaches to preventing adverse events and the need for ongoing training with interactive components, videos and case studies. Also, involving management and non-clinical staff and integrating communication tools into hiring and orientation can sustain quality improvement efforts.

Conclusions: Adapting the TeamSTEPPS training for skilled nursing settings can benefit staff and organizations and improve patient safety. Understanding staff perceptions and organizational opportunities and constraints are necessary to implement and sustain patient safety interventions.

A72
HELP: A quality improvement project of a delirium prevention program

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Background: The Hospital Elder Life Program (HELP) is an evidence-based program aimed at preventing delirium and functional decline among older hospitalized patients. Some individuals with delirium may be prescribed antipsychotics/benzodiazepines, which may lead to adverse effects and other associated complications. HELP prevents the potential use of these pharmacologic interventions. Our study aimed to assess the prevalence of newly prescribed antipsychotic/benzodiazepine medication, as well as 30-day readmission, among HELP-enrolled patients.

Methods: We conducted a retrospective quality improvement study of patients ≥ 65 years of age (n=518) who were enrolled into 8 HELP units in a community, teaching hospital during January-September, 2018. Antipsychotic/benzodiazepine medications were pulled from EPIC. History of chronic mental illnesses were classified by ICD10 codes. Basic descriptive statistics were used to analyze patient characteristics and comorbidities. Chi-squared and 2-Sample T-tests were performed to detect statistical differences as appropriate.

Results: Prevalence of newly prescribed antipsychotics/benzodiazepines was 11.6%. Patients with a history of chronic mental illness were more likely to receive newly prescribed antipsychotics/benzodiazepines upon admission ($p<0.0001$; see table). Of all patients diagnosed with delirium in this cohort (n=18), only one received a new antipsychotic/benzodiazepine. Overall, 30-day readmission rate was 21% and there was no association with newly prescribed antipsychotics/benzodiazepines.

Conclusion: We were surprised with the high rate of newly prescribed antipsychotics/benzodiazepines among these older patients. Our next step is to develop strategies/ systems to review the use of these medications within our hospital and after our hospital care.

	Overall: N=518, (%)		No New RX at admission: N=458, (%)		New RX at Admission: N=60, (%)		P-Value
Sex: Female	352	(67.95	303	(66.16)	49	(81.67)	0.0115
Discharged To: Home/Assisted							0.3371
Living	341	(65.83)	298	(65.07)	43	(71.67)	
Nursing Facility	145	(27.99)	128	(27.95)	17	(28.33)	
Other	32	(6.17)	32	(6.99)	0	0	
Number of Mental Illnesses: 0	360	(69.50)	342	(74.67)	18	(30.00)	<0.0001
1 or more	158	(30.50)	116	(25.33)	42	(70.00)	
Readmission within 30 Days: No	408	(78.76)	362	(79.04)	46	(76.67)	0.6726

A73
Medication Prescribing Practices for Older Nursing Home Patients

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Background
Medication prescribing practices in older patients is a cause of potential and actual harm, including medication side effects, drug interactions, adverse health events, and death. Geriatric Medicine providers can mitigate harms of polypharmacy and suboptimal prescribing by modifying medication regimens, especially at transitions of care, and by educating providers. The goal of this study was to evaluate if education by Geriatric Medicine fellows to Community Living Center (CLC) providers at the Michael E. DeBakey Veterans Affairs Medical Center (VA) in Houston, Texas improves prescribing practices.

Methods
This pre-post intervention quality improvement study was conducted at 2 VA CLC units with 10 pre-intervention (12/2017) and 10 post-intervention (02/2018) patients, with an educational intervention for CLC providers by Geriatric Medicine fellows (01/2018). Chart review for each patient at admission and after 1 week was performed by other Geriatric Medicine fellows to identify suboptimal medication prescribing, including benzodiazepines, sedative sleep aids, muscle relaxers, non-steroidal anti-inflammatory drugs (NSAIDs), and inappropriate proton-pump inhibitors (PPIs) and dual anti-platelet therapy (DAPT). Percentage change of affected patients and suboptimal medications prescribed after 1 week in the CLC was measured.

Results
Pre-intervention prescribing of suboptimal medications increased 14% after 1 week with 50% of patients on ≥1 suboptimal medication; post-intervention rates decreased 33% after 1 week with 30% of patients on ≥1 suboptimal medication. 47% absolute reduction in prescribing and 20% absolute reduction in number of affected patients were seen after provider education. NSAIDs, inappropriate PPIs and DAPT, and muscle relaxers were common offenders. Minimal use of benzodiazepines and sedative sleep aids was found.

Conclusions
Education is likely successful in reducing use of suboptimal medications by VA CLC providers, although sample size is small. Minimal use of benzodiazepines and sedative sleep aids suggests understanding of saliently suboptimal medications, but inappropriate continuation of PPIs and DAPT beyond evidence-based time frames and use of muscle relaxers and NSAIDs (versus safer alternatives) for pain relief despite education suggest areas for improvement. Efforts to improve prescribing and de-prescribing culture, and use of a multidisciplinary team are needed.

A74
Do we really need a pill for that? Reducing Polypharmacy in a Surgical ACE Unit

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Background: The Acute Care for Elders (ACE) model of care has been shown to improve clinical outcomes by addressing the essential four areas summarized by the Age-friendly health system initiative (Mentation, Mobility, Medications and What Matters). Our goal was to assess the efficacy of ACE unit interventions on polypharmacy reduction, prescribing behavior, and nursing comfort level.

Methods: Using the "SPICES" acronym (Sleep, Pain/Polypharmacy, Immobility, Confusion/Constipation, Enteral Nutrition, Social Support), we provided unit-based nursing staff education and guidance for geriatric syndrome assessment and management. This was done via a 2-hr didactic, with follow-up via a monthly newsletter. Nursing workflow was modified to include reporting SPICES, including polypharmacy concerns, during daily ACE rounds. We assessed nurses' comfort in dealing with polypharmacy issues via the NICHE driven Geriatric Institutional Assessment Profile (GIAP) survey, both pre-intervention and six-months post. We assessed the clinician prescribing behavior on the unit by the best practice alert 'Benzodiazepine and sedative use in older adults', captured while ordering in the EMR.

Results: The ACE unit nursing education began July 1, 2017. The GIAP survey was completed by 21 unit-based nurses pre-intervention. On a 5 point likert scale, nurses reported their comfort-level with addressing polypharmacy as 3.33, which was the lowest amongst all geriatric syndromes. At six months post-intervention, the survey completed by 24 nurses showed comfort-level improvement to 3.69. The Benzodiazepine and Sedative use in older adults best practice alert, was triggered 61 times in the preceding year July 1, 2016- June 30, 2017. This same alert was triggered 49 times in the intervention period July 1, 2017 – June 30, 2018.

Conclusions: Implementation of nursing-driven interventions for polypharmacy reduction in a surgical ACE unit was feasible and effective at our institution. There was improvement in nursing comfort

with polypharmacy, which needs to be further tailored to unit-based nursing needs. The improvement in clinician prescribing behavior on the unit may be attributed to nursing comfort in dealing with geriatric syndromes. Managing polypharmacy in hospitalized older adults needs a multi-level approach with provider education, workflow changes, and order set modification, amongst others.

A75

Why are They Eating Dinner in Bed: Barriers to Mobility in Hospitalized Older Adults

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Background: Mobility loss in hospitalized older adults is associated with longer length of stay (LOS), readmission, and facility placement. The Quality and Performance Measurement Committee of the American Geriatrics Society supports greater focus on mobility as an outcome for hospitalized older adults. Fall rates have been low at our institution, but poor attention to mobility is increasingly recognized. Promoting mobility starts with having an understanding of the barriers to it. Our goal was to assess the knowledge and viewpoints of residents and charge nurses regarding barriers to mobility for hospitalized older adults.

Methods: A general medical nursing unit at an academic medical center was chosen. A survey was administered to internal medicine residents working on the unit. Eight questions asked in multiple-choice format assessed views and knowledge of mobility. 17 residents were invited to participate, and 11 completed the survey. Two charge nurses from the unit were interviewed individually.

Results: 55% of residents surveyed thought our patients value mobility. The same amount thought mobility loss was associated with LOS, readmission, and facility placement. 100% thought mobility should be more of a priority. 64% thought RNs on the unit assess mobility daily. 18% thought mobility was a quality outcome measured in our healthcare system. None of the residents were aware of any validated means to assess mobility. The barrier to mobility most cited was waiting for physical therapy (PT) to see the patient, at 82%. 73% thought risk of falling was a barrier. 9% of residents thought nursing shortage and nursing workload was a barrier. None of the residents cited restraints or bed alarms, but did report telemetry and lines as barriers. Both charge nurses cited nursing staff shortage, workload, and waiting for PT as the greatest barriers.

Conclusions: Both residents and charge nurses felt that waiting for PT was a major barrier to mobilizing our patients. Only one resident was in-tune with nursing staff shortages and workload. The majority of residents surveyed, and both nurses, did think mobility loss is associated with LOS, readmission, and facility placement. In the upcoming months, more unit-based nurses, aides, and physical therapists will be interviewed, so common barriers may be identified. The goal is to design and implement a 'mobility care path' for hospitalized older adults.

A76

Integrating Memory Support into Primary Care (IMSIP)

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The independent living supportive housing of Center Communities of Brookline (CCB), of Hebrew SeniorLife, houses 660 older adults in Boston, Massachusetts. CCB is supported, on site, by an unique geriatrics primary care practice that cares for 170 of the 660 seniors who live in CCB. Our quality improvement project leverages our expertise caring for independent living seniors with dementia. We developed a model called Integrating Memory Support into Primary Care Program (IMSIP) to integrate best practices for memory support into primary care. The goal of this program is early

identification of cognitive impairment and earlier application of supportive interventions.

IMSIP is built upon the coordination and expertise of an interdisciplinary Memory Support Team (MST). The team includes a physician, nurse practitioner, medical assistant (MA), social worker and clinical coordinator. All patients with a MOCA of < 26/30 receive memory support.

The IMSIP model is implemented in three stages:

1. Screening: The memory support MA champion administers the Mini-Cog to every patient in our practice. Those with abnormal Mini-Cogs ($\leq 4/5$) are administered a MOCA.

2. Assessment: The MST works with each patient and his/her family to gather a detailed history, physical examination, laboratory data, and identify care needs.

3. Support: The physician or nurse practitioner creates a specialized care plan using a template which encompasses the 5 Ms model of geriatrics (Mobility, Mind, Medication, Multicomplexity and what Matters most). The template is reviewed and modified as needed at each visit. A secure daily email is sent to the MST group to address daily issues that arise and the MST holds monthly meetings to discuss the IMSIP patients.

Seventy-seven of the 80 Mini-Cog examinations screened positive for further evaluation with a MOCA. Of the 53 MOCA evaluations, 46 scored < 26/30. The 46 patients have a memory support care template reviewed each visit.

IMSIP is an unique program which aims to improve the quality of life in cognitively impaired patients with a holistic approach, keeping seniors living independently in the community for as long as possible. An additional aim is to disseminate this model among five primary care practices within our network; focusing on early detection (training memory support MA champions) and educating providers on memory support interventions using the 5 Ms framework.

A77

Moving FREE-ly: The Success of a Novel Veterans' Administration Fall Reduction, Education, and Exercise Program to Reduce the Risk of Falling

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Background: Group-based fall prevention programs can reduce falls and are recommended by the Centers of Disease Control. However, these programs are rarely incorporated into Veterans' Administration (VA) Hospitals and may not be suitable for a frail Veteran population. Thus, we developed an outpatient, hospital-based group fall prevention program to address the needs of this high risk population.

Methods: Allied health professionals, all specialized in Geriatrics and fall prevention created a novel fall prevention group program ('Moving FREE-ly') based on available evidenced-based interventions. The program consists of six sessions, facilitated by the providers. Content included instruction, exercises and activities addressing the following risk factors: gait; assistive devices; environmental safety; vision impairment; medications; bone health. Participants also identified and modified behaviors associated with falling risk. Recruitment occurred at the VA PSHCS if they met the following criteria: history of falling, unsteadiness with walking or fear of falling; not wheelchair bound; not cognitively impaired. Self-reported measures of falling risk and physical performance tests were collected pre- and post-program then compared with t-tests and chi-square analysis to determine reduction in risk.

Results: Between March, 2017 and November, 2018, 30 Veterans (mean age 75 (SD ±9); 69% white; 90% male) enrolled and completed in 'Moving FREE-ly'. At baseline, 71% had fallen in the last 12 months, 76% had a fear of falling and 68% felt unsteady with walking. Participants had significant improvement in Timed-Up-and-Go (TUG) (p=0.1), 30 second Sit-to-Stand test (0.04) and fear of falling (p=0.02).

There was a non-significant trend toward increased self-efficacy in ability to improve strength (p=0.14), balance (p=0.28) and reduce falls (p=0.21). Most stated the class motivated them to review medications with their physician and to make safety modifications to their home environment. All would recommend the class to others.

Conclusion: Comparison of before and after assessments suggest that the 'Moving FREE-ly' program reduces the risk of falling. Improvements were seen in both intrinsic and extrinsic risk factors and the program influenced positive behavior modifications associated with falling risk reduction.

A78

Preventing Recurrent Fragility Fractures in the Nursing Home

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Background: Older adults residing in long term care facilities represent a vulnerable population with a myriad of chronic conditions, and when they succumb to a complication, the resultant health care cost can be exorbitant. Osteoporosis has a prevalence of greater than 80% in nursing home residents and they fracture at a rate of more than 10 times their peers in the community. The disparity of treatment rates between nursing home residents and their community dwelling peers is acknowledged, but not well understood. Those with a prior fragility fracture of the hip or vertebrae are 2-3 times more likely to experience a second fracture. Effective osteoporosis treatments that prevent vertebral and non-vertebral fractures reduce mortality by approximately 10% in frail individuals who are at high risk of fractures. Understanding practice patterns of physicians and advanced practice providers may shed light on the barriers preventing treatment adherance. We plan to study this problem through the lens of a quality improvement approach.

Methods: We aim to improve the compliance of pharmacotherapy for patients with previous fragility fracture in the long term care setting through a quality improvement study. Cases will be identified through a software analysis program which includes 15 nursing facilities in Southeast Minnesota. They will be confirmed through the electronic medical record and interventions will be designed based on survey feedback from the long term care providers. We also plan to provide an in-service educational session on current treatment guidelines and develop a tool to remind providers to evaluate for treatment at their recertification visits.

Results: In our initial query, 100 of 127 patients with prior fragility fracture are not receiving appropriate pharmacologic treatment for osteoporosis. A survey will be distributed to long term care providers in the Mayo Clinic affiliated long term care facilities in Southeast Minnesota to evaluate knowledge, skills, and attitudes regarding treatment of fragility fractures.

Conclusions: This population is known to be both under-diagnosed and under-treated for osteoporosis; however, no clear solutions have been determined. By targeting the prescribing providers caring for these patients we hope to gain understanding of the obstacles they are facing and design interventions aimed at improving quality of osteoporosis treatment.

A79

Advanced Care Planning Quality Improvement Project for Family Medicine Residents

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Background: Advanced care planning (ACP) improves end of life care and increases the probability that patients receive care consistent with their wishes. Primary care physicians are ideally positioned to have these discussions, facilitated by the ongoing physician-patient relationship. However, completion of advanced care planning in the outpatient setting is difficult in part because of physician comfort level both during residency and post-training. After an observed low completion rate of Advanced Care in residency clinics, a quality improvement project was designed to improve resident education and ACP completion.

Methods: The targeted population was comprised of patients age +90 years old or 65 years and older with the following co-morbidities: CHF, ESRD, ESLD, COPD, stage IV cancer (metastatic), CVA, Dementia, CAD or +2 hospital admissions in the last 12 months. 42 family medicine residents practicing at three urban low socio-economic residency offices were included. Resident self-reported surveys were planned at three time points (0,3 and 6 months). Resident education was provided through inclusion of advanced care planning instruction in their core curriculum series. A protocol was also developed for patient outreach for each of the three health centers. Letters with patient information and the Pennsylvania Advanced Care Directive Packet were mailed to patients prior to specified office visits. Follow up phone calls were completed two weeks after each office discussion.

Results: Of the initial resident survey responses, 32% of residents were neutral in their comfort level completing advanced care planning, 41% were slightly uncomfortable and 12% were uncomfortable. A majority of residents (68%) did not ask patients to return for follow up visits to discuss advance care planning and 78% were uncertain were to locate ACP packets in their offices. Main barriers included time, physician comfort and patient comfort. 6% of identified patients had advanced care discussions completed prior to our intervention. Our goal is a 50% increase in completion of ACP discussion and scanned supporting documents in three residency offices. Future directions include expanding monitoring resident comfort level and completion of advanced care planning throughout the duration of their residency training.

A80

Depression Screening and Follow-up in Older Adults at an Academic Geriatrics Practice: A Needs Assessment

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Background: Depression in older adults is common, but is under-diagnosed and treated. Depression is associated with several serious negative outcomes such as impaired function, decreased quality of life, increased health care utilization and overall increased morbidity and mortality, including suicide. Screening for depression and follow-up plan documentation is endorsed by The National Quality Forum and the US Preventive Services Task Force. Our interdisciplinary team aimed to assess our current depression screening rates and follow-up practices.

Methods: This quality improvement (QI) study is being conducted at an academic outpatient geriatrics practice serving over 4,000 patients ≥ age 65 from the NYC-Metropolitan area. Using the electronic medical record (EMR), Mount Sinai Health Partners' Clinically Integrated Network collects and analyzes data to provide a performance metric per provider as a percentage. The numerator is the number of patients screened for depression, and if positive have a documented follow-up plan. The denominator is all patients excluding those previously screened within 12 months, or with an active diagnosis of depression or bipolar disorder. Medical assistants screen for depression annually using the Patient Health Questionnaire-2 (PHQ-2). If PHQ-2 is positive, a provider assesses for depression via PHQ-9. Both validated screening tools are built into EMR flowsheets. If PHQ-9 is positive, a depression smartset prompts documentation of a follow-up plan.

Results: From 11/2017-11/2018, 1,913 patient encounters were due for depression screening. The total depression screening and follow-up rate was 77.6%. There was variability among providers from 46.7 to 90.3%.

Conclusions: Our baseline data shows a need for improved screening for depression and appropriate follow-up in a high risk and

vulnerable patient population, as well as an inconsistency in screening rates among providers. Next steps are to implement and test a rapid cycle improvement process using the Plan-Do-Study-Act technique. The first intervention targets completion of the PHQ-9 when there is a positive PHQ-2 screen. Our goals are: (1) increase overall depression screening and follow-up documentation to $\geq$ 85% and improve provider consistency; (2) create a sustainable QI process measure that can be disseminated locally and nationally.

A81

A Multi-Disciplinary Approach to Implementing Telemedicine in Nursing Homes

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Background: The United States is experiencing a demographic shift, where the older adult population is expected to more than double from 32 million in 2012 to more than 88 million in 2050. Coupled with the current and anticipated shortage of providers, there is a need to identify alternative ways for clinicians to serve the healthcare needs of older adults. This is especially relevant in post-acute care (PAC) where one of the greatest challenges in providing comprehensive healthcare services is a lack of access. Alternative delivery models such as telehealth can allow providers to evaluate a resident with a change of condition, provide specialist consultations or manage care continuum transitions in place. Despite its benefits, telehealth adoption in PAC has been limited. Challenges in information dissemination on how telehealth can be used in PAC and lack of specific guidance on implementation for staff contributes to the lack of proliferation of telehealth models. Thus, there is a need for informative and guiding resources to assist PAC facilities in the implementation and utilization of telehealth tools and processes.

Methods: The West Health Institute convened leading telehealth organizations to understand best practices for telehealth in PAC settings. The leading organizations that participated in this endeavor are Curavi Health, TripleCare, Avera eCARE, AGS, AMDA, Cobble Hill, CCHP, Foley & Lardner, LLC, SHARP HealthCare and UC San Diego Health.

Results: This collaboration developed and shared recommendations on critical components of telehealth implementation to empower PAC settings to improve access and quality of care with telehealth. The completed implementation manual includes guidelines and recommendations on topics such as: Needs Assessments, Readiness Assessments, Financial and Reimbursement models, Implementation, Legal and Policy considerations and Performance Monitoring and Sustainability.

Conclusions: Through this extensive network of telehealth advocates, the goal of the collaboration is to disseminate learnings to advance telehealth implementation and enable older adults to successfully age in place. With informative and guiding resources to assist staff, we can provide them with necessary tools to implement and utilize telehealth and help shape the next generation of post-acute care clinicians.

A82

A Proactive Approach to Addressing the Needs of Seniors with COPD

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Background: Seniors with Chronic Obstructive Pulmonary Disease (COPD) often have multiple comorbidities which contribute to the complexity of their condition. Park Nicollet's Next Generation Accountable Care Organization (NGACO) realized an opportunity to improve its response to acute events for these patients, 54% of whom had 1-35 emergency room (ER) visits in 2017, and 40% had 1-9 admissions to our hospital. We designed an Intensive Case Management

program (ICMP)[*] to provide support for seniors with COPD who were transitioning from hospital to home, hospital to skilled nursing facilities, and ER to home.

Methods: The ICMP, which began in January 2018, was designed to meet the specific needs of COPD patients. Criteria for enrollment were the presence of COPD with multiple comorbidities and previously identified opportunities for care management; many of these patients were at end of life. We employed a certified complex care management nurse who met with patients in their homes within 2-5 days of a hospitalization or ER visit. This program, which averaged 45 days focused on structured symptom management and included educational reinforcement on (diet, medications, etc.), smoking cessation, activity level, rehabilitation, scheduling follow-up visits with Primary Care Physicians and other specialties, working on barriers to care and Advanced Care Planning. A retrospective utilization review evaluated unplanned ER visits and hospital admissions within 7 days, and 3 months of the intervention.

Results: To date, 33 COPD patients have been enrolled. Within 7 days, 0 patients returned to the ER and only 5 were admitted to the hospital. Moreover, 3-month pre-post utilization analyses revealed a 76% decrease in ER visits and an 80% decrease in hospital admissions compared to baseline.

Conclusions: A relatively brief and inexpensive ICMP helped COPD patients avoid unnecessary ER visits and hospital admissions by helping them better manage their symptoms, providing specific education reinforcement, and identifying patients' needs that may have previously gone undiscovered. Park Nicollet will continue to evaluate the effectiveness of this intervention through surveys and data collection as well as analysis of NGACO full claims data for the ACO patients engaged in the intervention.

A83

Current status of Multiple Chronic Diseases and Application of CCM Model Pilot Project in Korea

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Background: As Korea becomes an aged society, excessive medical use becomes a social problem. We show the status of multiple chronic diseases and introduce the results of the two year pilot project using Connected Care Model (CCM) in Korea.

Methods: We analyzed data of 2005, 2010, and 2015 for three times analysis using National sample database of NHIS in Korea. In 2016-2017, 18 institutions conducted a pilot project for the intensive management of multiple chronic diseases using 250 people with the intensive care program.

Results: The regional and timely changes of major chronic diseases such as hypertension, diabetes, dyslipidemia and 46 chronic diseases were analyzed by time and SES etc and the degree of medical use was analyzed. After two years of pilot work, there has been a rise in several health indicators along with a decline in total medical costs.

Conclusions: The national status of multiple chronic diseases has been analyzed, and the new care model is desired to expand across the country in the future. In the future, appropriate selection of subjects, multidisciplinary management of the healthcare field, establishment of individualized care plans for patients, easily communication of patients and related healthcare institutions, continuous and integrated medical care and education, Is needed.

A84

Delivery of a Functioning Report to Dialysis Patients and Their Providers to Improve Patient-Centeredness of Care

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Background: Maintaining physical function is important to dialysis patients, but recognition of poor functioning by dialysis providers is suboptimal. Recognition of function-related issues could lead to more patient-centered communication. We tested whether delivery of an individualized functioning report to dialysis patients and their providers would improve patients' perceptions of care.

Methods: We used focus groups and surveys to gather patient and provider feedback to create and assess the functioning report, which we used to develop a report-generating app. Using the app, we assessed 43 hemodialysis patients at two outpatient facilities and delivered individualized reports (including pictorial representations of physical performance, perceived physical functioning, and community mobility) to patients and their providers. The paired t test was used to test for differences in patient perception of patient-centeredness of care (PPPC) scores (1=most to 4=least patient-centered), from baseline to 1 month after report delivery.

Results: Delivery of the reports to both patients and providers was not associated with a change in PPPC score (follow-up vs. baseline, 2.35 vs. 2.36; $P>0.9$). While two-thirds of surveyed providers reported always or sometimes discussing the reports they received, 98% of patients reported that no one on the dialysis care team had discussed the report with them. However, patients and providers generally reacted positively to the individualized reports. Among patients, 40.5% reported wanting to discuss the report with their provider and 35.7% had discussed it with family or friends; all reported willingness to undergo future assessments. Most providers (87.5%) felt comfortable discussing the report and 37.5% felt it led to better communication with their patients.

Conclusions: While potential lack of fidelity to the intervention precludes conclusions about effects of the report on patient-centeredness of care, this study introduces a novel, patient-friendly, individualized multi-domain functional report that is easily implemented via app in a clinical setting. This pilot study will also guide future use of the report in both the clinic and pragmatic research studies, within and beyond the dialysis population.

A85

Establishing a Deprescribing Clinic Collaborative Model to Reduce Polypharmacy and Increase Patient Engagement

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Background: Within the geriatric population, polypharmacy is a serious concern. It contributes to the risk of adverse medication interactions, financial burden, frequent outpatient visits and hospitalizations. However, older community-dwelling patients often believe in the necessity of their medications. The objective of this study is to assess how an interdisciplinary deprescribing clinic (IDC) influences patient medication regimens and beliefs.

Methods: This study will include patients aged 65 and older taking 10 or more medications, with at least one medication on the 2015 Beer's Criteria Table. The IDC will be conducted by a pharmacist and geriatric provider. Outcomes measured include decreased number of medications, change in the Medication Regimen Complexity Index (MRCI) score and change in Beliefs about Medicine Questionnaire (BMQ) score. BMQ and MRCI will be calculated before the intervention and 6 months post-intervention.

Results: We have collected data from two participants. n=50 is anticipated. The first participant had 21 medications and a BMQ of 14. Post-visit, there were 21 medications. The second participant had 21 medications and a BMQ score of 21. Post-visit, there were 20 medications. MRCI data is being calculated.

Conclusion: Preliminary data shows some success in decreasing medication burden. As patients attend future visits, progress will likely occur. Beyond patient care, the IDC is an educationally rich environment, allowing learners to safely deprescribe. Future studies should look at potential benefits, including decreased adverse drug events, cost and hospitalizations. Barriers to the success of the IDC include reluctance of patients to stop medications, coordination of transportation to visits, and patient literacy.

References

1. Allison M Paquin, Kristin M Zimmerman, Tia R Kostas, Lindsey Pelletier, Angela Hwang, Mark Simone, Lara M Skarf & James L Rudolph (2013) Complexity perplexity: a systematic review to describe the measurement of medication regimen complexity, Expert Opinion on Drug Safety, 12:6, 829-840, DOI: 10.1517/14740338.2013.823944

2. Verhagen, Arianne. (2017). Beliefs about Medicine Questionnaire. Journal of Physiotherapy. 64. 10.1016/j.jphys. 2017.04.006.

A86

Personalized goal setting in the primary care of persons with cognitive impairment

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Background: Health outcome and process measures for dementia may not capture what is most important to patients or their caregivers. Personalized goal attainment could be used to measure how well care provided meets a patient's current and evolving needs. We studied the feasibility and acceptability of using goal-attainment scaling to set goals and measure goal achievement in the primary care of patients with cognitive impairment.

Methods: We piloted a process of goal setting with 25 persons with cognitive impairment and their family caregivers in 4 primary care clinics with 10 providers (2 physicians, 4 NPs, 3 PAs, and 1 nurse case manager). At 3 months, we measured goal attainment using a 5-category goal attainment scale and care satisfaction. Qualitative interviews were completed with providers and patient-caregiver dyads to explore barriers and facilitators of goal setting.

Results: Most participants had early (46%) or moderate (33%) stage dementia. Caregivers were adult children (50%) or spouses (46%), and 42% "quite frequently" experienced caregiver burden. All 25 participants set a personalized health goal, and 14 completed a 3-month follow-up visit. Most goal discussions (80%) were conducted with the patient and caregiver together. There was great diversity among health goals chosen by patient-caregiver dyads (i.e., preventing falls, improving mood and sleep, increasing social interaction, addressing cognitive concerns, and planning for the future). Care satisfaction following goal-setting was high with 81% of dyads reporting that "every effort was made" by the provider to "include what matters most to you in choosing what to do next." Eight participants (57%) who completed follow-up visits had attained their goals at 3 months. Goal setting discussions ranged from 9 to 50 minutes (mean 29 (SD 13)). Providers felt goal-setting improved their understanding of what was most important to patients, but also identified increased visit time as a barrier to use.

Conclusions: Goal-setting with persons with cognitive impairment and their caregivers in a primary care setting was feasible; however, it added both value and time to the clinical visit.

A87
Integra at Home: Acute care in the comfort of home

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In an effort to create alternatives for older, frail adults for whom hospitalization can present risks, we present Integra @ Home, a hospital at home model aimed at providing acute care in the home that is integrated into an accountable care organization, Integra community care network. The pilot started in 2017. Overall 1800 members were evaluated with the following criteria: adults over 80 with multiple medical issues, frailty, dementia, high ER utilization and within 10 miles of the local hospital. Eligible diagnoses included cellulitis, UTI, pneumonia, CHF or COPD exacerbation. Exclusion criteria included: requiring more than 4L/ O2 nasal cannula, evidence of early sepsis and lack of caregiver. The clinical team consists of geriatricians, physician assistants, nurses case managers and a community paramedicine group. Patients are enrolled on a voluntary basis with support from their caregivers. They undergo extensive education on their disease processes and warning symptoms and are asked to call Integra @ Home for evaluation at the first onset of symptoms. A collaborative care plan is formed with the patient's primary goal of being treated at home in mind. The community paramedics provide 24/7day coverage with provider support. At the resolution of acute symptoms, the patient is considered discharged but not disenrolled and is followed for 30 days. At present the program has gone live and successfully caring for 5 patients. The program went according to protocol in 100% of episodes, the readmission rate within 30 days after the acute episode was 0%, episodes with a quality concern were 60%. Those quality concerns were delay in lab processing, courier and mobile X-ray services. One of 5 patients required escalation to the hospital for worsening of condition. Patient satisfaction and caregiver satisfaction results were 80%. Integra @ Home represents a model of care aimed at providing frail older adult patients an alternative setting for acute care. While this model is not meant to replace the acute hospital setting for serious illness, it is a more patient centered model allowing for quality standardized care at home at a lower overall cost to the healthcare system. The Integra @ Home pilot demonstrated similar findings to existing research; successful treatment of CHF, COPD and PNA episodes in the home setting with improved patient satisfaction and decreased overall cost.

A88
Quality Improvement: An Interdepartmental Pilot Program to Improve Geriatric Intergrated Behavioral Health into a Primary Care Practice

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Background: The Rowan School of Osteopathic Medicine (SOM), Department of Geriatrics and Gerontology, New Jersey Institute for Successful Aging (NJISA) and the Rowan SOM Department of Internal Medicine (IM) partnered to develop and deliver a pilot model of integrated behavioral health care for older adults 55+ receiving primary care through internal medicine.

Methods: Pilot program for integrated geriatric behavioral health focused on IM physicians identifying patient's age 55+ who would benefit from a behavioral health consultation with a Licensed Clinical Social Worker (LCSW). A multi-tiered approach was implemented to increase access to care: 1) NJISA LCSW offered weekly 'on call' availability to assess patients in IM exam room directly following physician appointment if behavioral health concerns were identified; 2) Outside of 'on call' hours, LCSW was given referral information to make outreach to patient; or 3) The patient was given contact information for NJISA LCSW to independently schedule a consultation.

Results: Over a 12-month period, there were 35 total encounters (29 non-duplicate patients). The mean age was 63 years and 93% of patients referred were female. Of 29 non-duplicated referrals, over half (56%) resulted in a behavioral health (BH) consult. The highest rate of BH consult completion was exam room consultation (100%); followed by patient being given LCSW contact information (40%); and LCSW conducting outreach (25%). Sustainability was measured by billable hours; for 35 total encounters, nearly half (46%) of the contacts were billable with a mean time of 50 minutes per contact (range 30 to 60 min.). The remaining contacts were non-billable with a mean time of 6 minutes (range 0 to 45 min.).

Conclusions: As previous models have demonstrated, completion rates are higher when a behavioral health professional is available for consultation at the time of the primary care visit. Rates of completion decrease once the patient has left the physician office, however, there was a significant return rate (40%) of patients who were given LCSW contact information. This model shows a need for continued geriatric integrated behavioral health care and demonstrates viability for a sustainable practice.

A89
Decreasing Inpatient Opioid Prescribing Among Hospitalists

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Background: It is well known that opiate prescribing in older inpatients can have adverse consequences. The Washington State Hospital Association set forth as one of its goals to reduce Adverse Drug Events due to opioid prescribing. From January to July 2017 at Providence Everett Hospital 78% of inpatients, most of whom were 65+ years, were prescribed an opioid during their stay. Our opioid workgroup's goal was to reduce inpatient opioid prescribing within our hospitalists. Methods:Quasi-Experimental Study Design. Setting: Medicine telemetry unit within 605-bed tertiary care hospital. Subjects: 70 hospitalists. Time frame May 2017-July 2018. Intervention: Two-pronged approach.1)A bright pink sign placed above patients' beds alerting providers to be mindful of opiate prescribing in vulnerable populations: a) elderly; b) decreased renal function; c) obese. 2) a series of educational talks to the hospitalist group proffering pain management guidelines for the vulnerable groups described above. Measurement: two-tailed t-test comparing inpatient discharges before and after the interventions. Results: For the measurement period, inpatient opiate prescribing among hospitalists decreased from 75% to 69% (p<0.01). Patients prescribed opioids at discharge decreased from 36% to 34% (p<0.01). Inpatients prescribed an opioid during their stay who were NOT on opioids prior to admission decreased from 76% to 70% (p<0.01). An attitudinal survey among the providers at the end of the measurement period indicated that only 7 of 29 (24%) responding providers felt that the pink sign affected their opiate prescribing habits. However, 62% of providers found the educational talks beneficial in altering their opiate prescribing habits, with 86% requesting periodic refresher talks. Conclusion: Inpatient provider opiate prescribing behavior can be changed, and in order to effect this change, for our institution, educational talks are superior to physical reminder signs. Other acute care hospitals may wish to implement similar interventions to decrease inpatient opiate prescribing. References:1) The association of gender and body mass index with postoperative pain scores when undergoing ankle fracture surgery, J Anaesthesiol Clin Pharmacol. 2014 Apr;2) Pain reporting, opiate dosing, and the adverse effects of opiates after hip or knee replacement in patients 60 years old or older, Geriatr Orthop Surg Rehabil. 2012;3) Harvard Medical School Update for Hospital Medicine:Pain Management Pearls for the Hospitalized Patients 2016

A90

Disparities In Cognitive Screening Of Hispanic Seniors

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BACKGROUND: 4.7million Americans had AD in 2010 and there will be 13.8 million by 2050. By 2060, minorities aged >65 years will represent 45% of the US population. Hispanics are 1.5 times as likely to have ADRD when compared to whites. Cognitive impairment is frequently unrecognized and underdiagnosed.

AIM: Spanish speaking patients that are >65 years have not had cognitive testing due to the language barrier. By instituting a targeted screening program and administration of the Mini-Cog in their preferred language, Hispanic seniors will be appropriately evaluated for dementia. Promote staff awareness of need for dementia screening for minorities.

METHODS: Cross-Sectional QI study conducted at an urban, academic geriatric clinic. Charts of Spanish speaking elders who had appointments with their PCP were reviewed to determine if the patient had cognitive testing done in the last 2 years. The Spanish version MiniCog test was administered by trained clinical staff. MiniCog graphic cards edited in Spanish served to aid the examiner.

RESULTS: Senior Health Clinic total of 3465 patients. 4.1% list Spanish as their preferred language. 25 patients were reviewed. Age range: 65-94, 18 females, average schooling was 7 years. 72% of the patients had no cognitive testing in the last 2 years nor a Medicare Wellness Visit. From the 7 participants that were screened during their Medicare Wellness visit, 57% had cognitive impairment (score <3) with no subsequent work up. From the 12 that participated in the Spanish MiniCog, 8 had no recorded cognitive diagnosis despite 50% scoring <3 on their Spanish MiniCog.

DISCUSSION: 72% of the Spanish speaking seniors had not been tested for cognitive impairment in the last 2 years. The rest had been screened using the MiniCog during a Medicare wellness visit (MWV). Scores between tests in English vs. Spanish were similar. 57% of the screened patients had a score <3, but no further testing. This could be due to many reasons, including; lack of time, trained staff and language barrier.

CONCLUSION: Regardless of the patient's preferred language, a Mini Cog test should be performed to screen for cognitive impairment. It's more likely this will occur during the annual MWV. A patient's preferred language is preferable for testing. Follow up for positive screening is essential to address cognitive decline.

A91

Adaptation of HELP to Brazilian cultural context, in a University Public Hospital

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The Hospital Elder Life Program (HELP) is an effective multimodal intervention to improve the quality of care for hospitalized elderly[1,2]. It has been replicated successfully in several countries. However, reports of such experience in developing countries are scarce[2]. The Hospital das Clínicas of the Universidade Federal de Minas Gerais is a Brazilian public health institution, a reference center for health assistance in the country. This work has the objective to describe the process of implementing a pilot project to adapt the HELP to the Brazilian cultural context, in a public university hospital. This project has been developed in the emergency department of the hospital, by the geriatrics and gerontology staff, since August of 2017. Once the patients have gone through the emergency ward, they are observed for 3 to 7 days in the clinical decision unit, where they receive care supplied by the multi-professional staff focused in HELP proceedings. If they are admitted to the hospital, they continue to receive this approach throughout hospitalization. To provide content and knowledge to our staff, we translated videos and other types of resources on the HELP website. We also adapted booklets and data collection forms. The project is evolving, and the hospital's board of directors supports it. However, the professionals enrolled in HELP do not work exclusively at it. We have been relying on a multi-professional team formed by university professors and hospital professionals who have oriented undergraduate and resident students. We worked directly guiding patient's caregivers, who contribute to the implementation of the HELP interventions. About 135 older adults and their families were attended by the program so far. HELP evaluation by patients, caregivers, and hospital professional could demonstrate an excellent perspective to implement this approach in the Institution. The adaptation of the program to the cultural and contextual particularities of a Brazilian public university hospital is fundamental for the implementation of HELP in this scenario.

1. Inouye SK et al. The Hospital Elder Life Program: a model of care to prevent cognitive and functional decline in older hospitalized patients. J Am Geriatr Soc. 2000;48(12):1697-706

2. Hshieh TT et al. Effectiveness of multicomponent nonpharmacological delirium interventions: a meta-analysis. JAMA Intern Med. 2015;175(4):512-20

A92

AMPI-AB accuracy: a multidimensional questionnaire for the management of the public healthcare for older people in the city of São Paulo, Brazil

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Background: Since 2015, the Municipal Health Secretariat of São Paulo implemented the instrument "Multidimensional Evaluation of Older People in Primary Care (AMPI-AB)" as a key role and organizer of public healthcare for older people based on functional capacity. The AMPI-AB can be applied by any trained health care professional and is composed of 17 questions. Its final score classifies the elderly in 3 functional categories (healthy, pre-frail and frail) and guides the elaboration of an individualized healthcare plan and referrals to geriatric services.

Methods: A longitudinal study was carried out at a basic health unit in São Paulo city to analyze the accuracy of the AMPI-AB in the diagnosis of Frailty Syndrome (CHS) and as a predictor of mortality and functional loss for basic and instrumental activities for daily living (BADL and IADL). The accuracy analysis was performed by calculating ROC curve, log-rank test and multivariate analysis.

Results: We included 310 participants, with an average follow-up of 15.5 months, mean age of 79.4±8.1 years and 66.5% were female. 16.1% were classified as frail by the AMPI-AB, 45.2% as pre-frail and 38.7% as healthy. The frail group (CHS) presented mean AMPI-AB score of 10.4±3.0 and the non-frail of 6.0±2.9 (p<0.001). At follow-up, 7.1% of participants died and functional loss for BADL was detected in 8.9% and for IADL in 41.1%. The area under the ROC curve for diagnosis of CHS frailty was 0.851±0.03 (95%CI0.789-0.912,p<0.001). In survival analysis, the log-rank test revealed a p<0,001 between the 3 AMPI-AB groups. After multivariate logistic regression, the AMPI-AB was associated with a greater risk of frailty (OR1.96,CI95%1.43-2.68) and a greater risk for functional loss in BADL (OR1.25,CI95%1.03-1.53) and IADL (OR1.21,CI95%1.09-1,36).

Conclusion: In this study, AMPI-AB presented good accuracy in the detection of older people with diagnosis of Frailty Syndrome and in predicting mortality and functional loss in primary care.

A93

"Geri-MOT"- A practice-based specialized geriatric care model

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Background: Up to recently, comprehensive geriatric care in Germany was solely hospital based. Even when the legislature introduced a geriatric out-patient model ("Geriatrische Institutsambulanz") in 2015, it was meant to be linked to a geriatric department. This model's goal was to ensure the best possible self-sufficiency of elderly citizens in their home situation using assessment and giving geriatric advice to the responsible GP, without the option of actual geriatric therapy. The lack of specialized geriatric care in the state capital Schwerin and the surrounding area, due to the closure of the geriatric department in the local clinic forced us to develop new strategies for our elderly citizens.

Methods: In September 2018, honoring all the legislature's rules and conditions concerning the implementation of a specialized geriatric care model, we formed a geriatric team (nurses, physiotherapists, occupational therapist, speech therapists, a neuropsychologist and a geriatrician) and introduced our practice-based geriatric service for home-dwelling elderly patients (>70 yrs., min. two geriatric conditions ("geriatric I's")) including a consulting service for the referring GP, and a comprehensive assessment (ADL, IADL, mobility, stability, self-sufficiency, cognition, continence, nutrition, emotion, pain, visual and auditive impairment, suitability of medication, living conditions, technical aids, social and nursing care), starting initially with a half-day out-patients clinic. Because our aim is to keep our patients "running" the service was dubbed "Geri-M.O.T.".

Results: Since September 2018 more than 60 patients (accompanied by their next of kin) were assessed within our service. They got a summary of their results and advice according to our findings, as well as information concerning additional services (Meals on wheels, nursing care, day-care etc.). Apart from this, the referring GP was informed of all assessment results and our recommendations in writing and through a telephone feedback within 24 hours.

Conclusions: The concept of a practice-based specialized geriatric care service has proven efficient and in high demand since its introduction. Therefore the allotted service hours are growing steadily.

A94

Patient Outcomes Related to Receiving Care on a Dedicated Acute Care for Elders (ACE) Unit versus through an ACE Order Set

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Background:

The Acute Care for Elders (ACE) model aims to reduce complications of hospitalization in older adults to improve overall patient and system outcomes. Interventions include staff training, unit modifications, and care protocols.

Our large urban teaching hospital established an ACE Unit in 2011. Because of limited bed-capacity, however, some patients identified as candidates for an ACE Unit admission were admitted to other settings under an ACE order set. These 'bed-spaced' ACE patients as a result may not receive the same degree of focused care available on the ACE Unit. Because of these disparities, we sought to compare the outcomes of three ACE-designated groups: patients admitted to the ACE Unit, 'bed-spaced' patients using an ACE orderset, and 'bed-spaced' patients using an ACE orderset who later transferred to the ACE Unit for completion of their care.

Methods:

3540 ACE-designated patient admissions over 5 years were analyzed (1481 ACE admissions, 1515 'bed-spaced', 544 'bed-spaced' patients that transferred to ACE). The primary outcomes were discharge disposition and in-hospital mortality. Univariate and multivariate comparisons were performed using administrative data.

A secondary analysis used propensity matching to adjust for case-mix by matching for the 47 most common diagnoses as defined by the Canadian CMG+ grouping system.

Results:

In adjusted models, ACE Unit patients were more likely to be discharged home (OR 1.28 (1.08-1.51), p = <0.01) as were patients who transferred to the ACE Unit (OR 1.56 (1.24-1.97), p < 0.01) when compared to 'bed-spaced' patients. The benefits of admission to the ACE unit versus being 'bed-spaced' persisted after adjustment for case-mix (OR 1.29 (1.07-1.57), p = 0.01). Patients transferred to the ACE Unit had a lower in-hospital mortality rate versus their 'bed-spaced' peers (OR 0.56 (0.33-0.95), p = 0.03). There was a non-significant trend toward decreased mortality for direct admission to the ACE Unit.

Conclusion:

After correction for identifiable differences including age, sex, resource intensity, case-mix, and other factors, disparities in clinical outcomes exist between patients admitted to a dedicated ACE Unit versus those cared for under only an ACE order set. This is the first definitive study to demonstrate that care of older adults delivered on a dedicated ACE Unit is superior to care delivered with an ACE order set alone.

A95

INJ TERIPARATIDE BY HOME VISIT PLAN IS THE BEST TREATMENT FOR SEVERELY OSTEOPOROTIC ELDERLY TO PREVENT FRACTURES.

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1. Background : It is under taken to prove the importance of giving Inj Teriparatide for 18 to 24 months by Home Visit Plan for the best results for severely Osteoporotic elders.

2. Methods : 100 elderly patients with clinically diagnosed severe osteoporosis on DEX Scan bet the age group of 61 to 89 years were chosen for this Home Visit Plan. The recommended dose of Teriparatide was is 80 µl containing 20 µg teriparatide to be administered once daily by subcutaneous injection in the thigh or abdomen. Two nurses were specially trained in the job like change of cartridges, needle etc. by the PI. Before the start of therapy all relevant and necessary investigations like DEX Scan were done.

3. Results :

1) To monitor the plan periodic blood works for bone marker [P1NP], repeat DEX Scan after 2 years, regular supplementation of oral calcium and vit D shown and exercise shown significant improvement in the reduction of risk of falls & fractures.

2) Three patients were given daily Inj of TPTD as they were unable to take on their own due to their age they were 85, 88 and 89 yrs of age. The plan proved to be extremly useful and result oriented as most of the elderly were lonely at home.

3) Due to regular Home Visit Plan, we could monitor their other parameters daily like - BP, SpO2, PR, RBG & watch on ADL.

4) The Environmental factors were also studied and modified due regular visits. They include like putting mat in the bathroom and other measures to make home Falls Proof.

5) We could believe about actually giving the doses as our own staff was giving the doses resulting into maintaining and improving HRQoL.

6) Procurement, cold chain, change of needle, cotton gauge, spirit all were no issues as our research team used to provide them for next 30 days till the end of plan.

4. Conclusions :

1) Home Visit plan for treatment by TPTD helped the patients for continuous treatment without even a gap of one day.

2). Any fault in the technique or delivery systems was overcome either by training family members or doing regular Home Visits.

3) Every Patient was given monthly pack of oral calcium and Vit D tabs 30 in toto.

4) The communications gap between doctor and nursing practitioners on one side and patients and family members on other side was filled.

5) After the end of prescribed TPTD therapy all patients were given ALENDRONATE orally with an average Drug Holiday Of 2 To 3 Months.

A96

Opportunistic Screening for Osteoporosis (OSO) or Fragility fracture (FF) risks in Geriatric Medicine (GRM) - A Quality Improvement Activity (QIA).

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BACKGROUND : NICE (UK) Osteoporosis guideline refers to OSO or Fragility fractures risk in Women ≥ 65 and Men ≥75, at any point of contact in health care, using FRAX (UK) for risk stratification, where, high risk may benefit from Bone Density (BMD) scan and consideration of anti-osteoporosis treatment. As there was a perceived lack of consensus on OSO for GRM in-patients, a QIA to assess treatment gaps, changes in practice and the impact post implementation of pathway was performed over past two years.

METHOD: Snap-shot surveys performed on GRM in-patients in October 2016; repeated in March 2018 to assess changes in clinical practice after the implementation of OSO. Patients with history of severe dementia, premorbidly bedbound, end organ failures and life-limiting illnesses and on antiresorptive medications were excluded. Patients are deemed eligible for anti-osteoporosis treatment based on a history of previous fragility fracture and FRAX score in accordance with US NOF.

RESULTS: Of 118 identified in first survey, 69 (58%) patients were excluded. 49 included; average age, 85; 49 % (n= 24) males. Of the 49, previous fragility fracture 24/49 (49%), and all 100% (n=49, P< 0. 01) fulfilled the US NOF FRAX threshold of treatment at ≥20% major osteoporotic fracture and/ or ≥3 % hip fracture over 10 years (high risk). 30% (15) had BMD done the previous year.

Of 119 patients in the second survey: 46 (39%) excluded. 73 included; average age 84.3; 44 % (n=32) males. History of fragility fractures 40% (29); 97% (n= 71, P < 0. 01) fulfilled the US NOF FRAX high risk treatment threshold. 30% (22) of patients had BMD done the previous year.

CONCLUSIONS: There is a persistent gap in osteoporosis management despite OSO implementation. As most of (97-100%) eligible GRM in-patients fulfil FRAX treatment threshold at any time, enhancing existing OSO pathway to include BMD as the default screening and diagnostic tool, supplemented by FRAX score may improve awareness and increase anti-osteoporosis treatment initiation in local context. This may also reduce fracture related admissions in the elderly. This QIA mandates implementation of enhanced OSO in GRM and further study of its hospital-wide role. A repeat QIA is also important to assess improvement of the osteoporosis treatment gap in our population.

A97

Polypharmacy and the challenge of medication reconciliation in Chinese elderly patients near the end of life

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Background: The aim of care in the elderly patients near the end of life should be symptom control, other than prolonging life. End-of-life pharmacotherapy is complex and challenging because of polypharmacy, adverse drug events, particularly poorly developed evidence base. The end-of-life care practice may be different between China and western countries due to culture and healthcare insurance. We described clinical characteristics and medication use among hospitalized elderly patients near the end of life. **Methods:** This was a retrospective, observational study in the Geriatric ward of PUMC Hospital from January 2015 to December 2017. Ninety-nine elderly patients were included,who were in the highest mortality group according to the UCSF prognostic index for 1-year mortality(≥6 points, Walter LC. JAMA, 2001, 285(23):2987-2994). Multiple chronic conditions, both admission and discharge medications were collected and analyzed. **Results:** Patients were 79.8±6.3 years old, and the index for 1-year mortality were 9.8±2.3 points. The top three chronic diseases were malignant tumors (76.8%), hypertension (56.6%) and coronary heart disease (39.4%). The top three geriatric syndromes were polypharmacy (72.7%), malnutrition or nutrition risk (72.7%) and constipation (45.4%). After medication reconciliation, the mean number of medications increased from 4.7±3.7 to 7.4±3.9 (*P*<0.01). Number of patients treated with drugs for symptom control, such as laxatives (27.3%-40.4%), analgesics (13.1%-28.3%), respiratory system drugs (17.2%-25.2%), antiacids (13.1%-25.2%), vitamins (23.2%-42.4%), iron supplements (4.0%-21.2%) and antidepressants (3.0%-9.1%), were significantly increased (*P*<0.05); however, the number treated with anti-hypertensives (46.5%-38.4%) were significantly decreased (*P*<0.05). **Conclusion:** Drugs for symptom control were increased in the elderly patients near the end of life, while preventive drugs were decreased. Decisions regarding pharmacotherapy in the elderly patients near the end of life should take account of comfort-oriented goals of care and the risk of adverse drug events.

A98

Use of Cognitive Screening as a Predictor of Hospitalization and Post-hospitalization outcomes.

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Background: Prior studies suggest that patients with cognitive impairment (CI) are at risk for worse post-hospitalization outcomes including hospital readmission and mortality. Our study aimed to determine if the presence of CI as detected by a quick bedside cognitive screen, the Mini-Cog test was associated with hospital readmission, length of stay and mortality.

Methods: In a prospective cohort study, 668 medical or surgical patients 65 years and older who were admitted to a tertiary care academic hospital over a two-year period were screened for CI with the Mini-Cog test within 24 hours of admission. Demographics, comorbidities, diagnoses, length of stay and readmission events were collected. One-year mortality data was obtained from the National Death Index. We performed multivariable regression adjusting for confounders to determine the association between CI and our outcomes.

Results: Among included patients, median age was 80 years (IQR 74-86) and 58% were female. 35% screened positive for CI based on the Mini-Cog. Those screening positive were older (median age 83 versus 78), had more prior hospitalizations, were less likely to be admitted from home and had lower functional independence and self-reported performance scores (p<0.001 for all). Patients with CI were more likely to be discharged to a post-acute care facility (54% versus 39%, p<0.001). Readmission rates at 30, 60 and 90 days for patients with and without CI were: 16% versus 14%; 29% versus 23%; and 35% versus 27% respectively. In adjusted analyses, there were no significant differences between the two groups at any of these three time periods. Median length-of-stay was 4 days for both groups. One-year survival was 77% versus 84% in those with and without CI, a non-significant difference after adjusting for covariates.

Conclusions: CI as screened for by the Mini-Cog was not associated with our primary outcomes but was associated with discharge to post-acute care. Although there was a trend toward worse outcomes in those with CI, lack of statistical significance may be related to the lack

of power. Despite the findings, assessment of CI on admission may impact care of the patient and determine a baseline cognitive level to tailor interventions to mitigate risks for older patients. Other tools such as frailty assessments may be more useful in predicting outcomes in the hospitalized elderly.

A99 Encore Presentation
Reducing falls after hospital discharge using patient education
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Background

This randomized controlled trial evaluated the effect of providing individualized falls prevention education in addition to usual care on falls rates among older people for six months after discharge from hospital.

Methods

A randomized controlled clinical trial at three hospitals in Australia (ANZ Clinical Trials Registry;ACTRN12615000784516). Baseline and outcome measurements were completed by blinded assessors. Participants were aged 60 years and over, admitted for rehabilitation and cognitively able to engage in patient education (Abbreviated mental test score >7/10). Intervention: tailored education comprising video presentation, patient workbook, structured discussion and goal setting led by trained therapist. Control: social intervention. Both groups continued with usual care. Primary outcome measured was falls rates in the six months after hospital discharge, compared between groups using negative binomial regression.

Results

Of n=382 participants, (mean age 77.7 (SD 8.7) years) there were 378 falls (fall rate/1000 patient days, 5.9 intervention; 5.9 control) reported by 164 (42.9%) participants in six months following hospital discharge. Falls rates between the intervention and control groups were not significantly different [adjusted incident rate ratio, 1.09; 95% CI (0.78 to 1.52)]. Both control and intervention groups showed high utilization of falls preventive strategies.

Conclusions

Compared to usual care, which included home care assistance, occupational therapist home visits and exercise, adding individualized falls prevention education did not reduce falls after patients were discharged home from hospital.

A100
The NIH Toolbox Cognition Battery in a Geriatric Clinical Trial: Feasibility and Comparison with Traditional Neuropsychological Measures
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Background: Geriatric researchers desire a reliable and efficient battery to measure cognition for clinical trials. The NIH Toolbox Cognition Battery (NTCB) is an electronically-administered cognitive test battery, but has not yet been used in a clinical trial setting. This feasibility study used the NTCB for evaluation of cognitive abilities in older adults as part of a clinical trial for an acute meal intervention.

Methods: As part of an acute meal intervention, 33 older adults completed the NTCB and several traditional neuropsychological measures. Data were evaluated for reliability across two points, three weeks apart. NTCB composite and subtest scores were evaluated against established neuropsychological measures of memory, language, and executive functioning.

Results: Improvements across the two times were observed for the NTCB Fluid (t=-3.16, p<.01) and Total (t=-2.29, p=.03) Composite scores, as well as executive functioning (t=-2.13, p=.04) and episodic memory (t=-2.75, p=.01) subtests, despite randomization in the clinical trial. Increased age was associated with decreased performance on NTCB subtests of executive functioning (r=-.371, p=.03, and episodic memory (r=-.559, p<.01), as well as Fluid (r=-.481, p<.01) and Total (r=-.374, p<.05) Composite scores. Traditional neuropsychological measures of phonemic and semantic fluency correlated with NTCB measures of executive functioning (r's=.425-.602, p's<.05) and processing speed (r's=.474-.516, p's<.01). Measures of immediate and delayed memory correlated with NTCB measures of processing speed (r's=.427-.4750, p's<.01) and language (r's=.580-.582, p's<.01), but not episodic memory.

Conclusions: Preliminary findings demonstrate the feasibility of the NTCB as a tool to measure cognition in a clinical trial of older adults. Poorer fluid cognitive abilities, such as executive functioning, working memory, and processing speed, were associated with older age, and further correlated with traditional neuropsychological measures. Larger sample sizes will help to understanding the reliability, sensitivity, and specificity of the NTCB sub-scores in older adults. Further evaluations with clinical populations, including people with cognitive impairment, are warranted.

A101
Does the type of relationship between a nursing home resident and their health care proxy impact research study participation?
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Background Due to cognitive impairment, many nursing home residents need a health care proxy (HCP) to make decisions on behalf of the patient. This includes participation in research studies. Our goal is to determine if the type of relationship between a nursing home resident and their health care proxy impacts participation in a research study.

Methods Data was from a randomized clinical trial of fecal transplants in nursing home residents recruited between June 2017 and June 2018. For eligible residents who lacked capacity, we obtained information on their HCP from the nursing home medical record, including relationship of the HCP to the nursing home resident. We contacted all HCPs by telephone to discuss the research study.

Results A total of 272 nursing home residents required a HCP to make decisions. Of the HCPs, 47% were children, 13% were siblings, 22% were other family members (e.g. niece, grandchild), 8% were friends, 8% were guardians, and 3% had no relationship listed. The study team made successful contact, defined as the opportunity to explain the research study in detail, with 46% of the children, 73% of the siblings, 50% of other family members, and 54% of friends. We made successful contact with only 15% of the guardians. Of note, 67% of the guardians never responded to the initial call.

Conclusions The type of relationship between a nursing home resident and their health care proxy likely impacts the participation of nursing home residents in research studies. Guardians do not appear to be as responsive as other types of HCPs, potentially biasing the research sample. Moreover, whether similar findings occur for

clinical situations should be explored, as the lack of response by guardians may have adverse health outcomes for a highly vulnerable population.

A102

THE RELATIONSHIP BETWEEN OPEN AND CLOSED EYES IN STATIC BALANCE IN ELDERLY ADULT WOMEN BEFORE AND AFTER AEROBIC DANCE TRAINING PROGRAM.

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Abstract: Within the population of older adults changes at the neuromuscular level are evidenced due to aging processes, which can be determined on the variables of static postural balance in lower limbs. The aim was to determine the relationship between open and closed eyes in static balance in elderly adult women before and after aerobic dance training program. Methods: Twelve healthy older adult women were randomized to an intervention group (INT, n = 6, 67.16 ± 5.34 years), body weight (64.88 ± 9.79 Kg), average lean muscle weight (24, 83 ± 2.38%), body fat (38.15 ± 6.56%) and a control group (CON, n = 6, 67.66 ± 5.98 years), body weight (65.3 ± 12.90 Kg, average lean muscle weight (23.56 ± 2.40%) and body fat (42.76 ± 6.48) A progressive dance program was carried out over a period of 8 weeks (twice a week, with a total of 16 sessions). The variables of stabilometry in the orthostatic position were determined, applying the unipodal Romberg test with open and closed eyes for 30 seconds, using a multiple pressure platform (BTS P Walk). Differences were established between the pre and post values of the intervention and control group, as well as a correlation coefficient (Pearson) and the effect size (Cohen's d) was calculated to compare the variables. Results: Significant correlations (r) were found together with the p-value and effect size (Cohen's d) of the intervention group. Unipodal right foot: Distance COP pre and post unipodal (DCOPUPD): P = 0.4, delta of means 262.8, delta of correlation = 0.50, r2 = 0.66 d Cohen 0.4. Unipodal average velocity (VelmediaD): p = 0.01 * delta of means 0.005, delta of correlation = 0.66, r2 = 0.66 d Cohen 0.4. Lumbar lateral flexion (LSFUPD): p = 0.27, mean delta -0.08, correlation delta = 1.0, r2 = -0.06 Cohen -0.1. Stability radius (RED): p = 0.01 *, mean delta 277.89, correlation delta = 0.87, r2 = -0.81 d Cohen 0.5. Unipodal left foot: Distance COP pre and post unipodal (DCOPUPI): P = 0.001 *, delta of means 262.8, delta of correlation = 0.80, r2 = 0.92 d Cohen -0.3. Unipodal average velocity (VelmediaI): P = 0.001 * delta of means 0.0011, delta of correlation = 0.91, r2 = 0.91 d Cohen -0.3. Lumbar lateral flexion (LSFUPI): p = 0.09, mean delta 0.11, correlation delta = 0.57, r2 = 0.52 d Cohen -0.3. Conclusions: The practice of dancing in older women improves the unipodal postural balance in both closed and open eyes.

A103

Tailoring PREPARE, an Advance Care Planning Intervention, with Patient Activation

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BACKGROUND: Patient activation, a validated construct measured by the Patient Activation Measure (PAM), is defined as the knowledge, confidence, and skill to manage one's health. PAM has been associated with prior advance care planning (ACP) engagement. The goal of this study was to (a) assess whether PAM scores increase prospectively in response to easy-to-use ACP interventions, and (b) if patients of all PAM levels equally engage in the ACP process.

METHODS: Participants included 414 veterans (≥60 years of age with ≥2 chronic/serious conditions) enrolled in a randomized trial of a patient-facing ACP website (i.e., PREPARE) and an easy-to-read advance directive (AD) vs an AD alone. The primary outcome was (a) PAM scores (0-100) which are stratified into PAM levels: Level 1 "disengaged and overwhelmed", Level 2 "Becoming aware, but still struggling", Level 3 "Taking Action", and Level 4 "Maintaining and pushing further" and (b) the validated ACP Engagement Survey. This survey measures Behavior Change Processes (knowledge, contemplation, self-efficacy, readiness) on an average 5-point Likert scale. We examined (a) PAM by study arm and (b) associations between PAM and ACP Engagement scores using linear regression adjusted for race, health literacy, baseline ACP, clustering by physician, and stratifying by study arm.

RESULTS: Participants mean age was 71.1 (±7.8) years, including 43% non-whites, 81% men, and 20% with limited health literacy. PAM scores (patient activation) did not increase in response to the ACP interventions in either arm. However, regardless of PAM level (1-4), ACP Process scores increased from baseline for both ACP interventions, p<0.001 for all. When stratifying by study arm, PAM levels affected the response to PREPARE vs AD-alone. Patients with PAM levels 2-4 had increased ACP Process scores in the PREPARE vs AD-alone arm (p<0.05), but not for PAM Level 1 (p=0.15).

CONCLUSIONS: Easy-to-read ACP tools did not change patients' PAM scores. Activation may be a fixed trait. However, patients of varying PAM levels (2-4) had increased engagement in ACP when exposed to the ACP-PREPARE website versus an AD alone. Assessment of patient activation may allow tailoring of ACP interventions most likely to benefit patients. Patients in PAM level 1 may need additional facilitation to engage with ACP materials.

A104 Encore Presentation

Efficacy of Lemborexant vs Zolpidem Extended Release and Placebo in Elderly Subjects with Insomnia: Results from SUNRISE 1

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Background: SUNRISE 1 was a randomized, double-blind, placebo (PBO)- and active-controlled, 1-month, global Phase 3 study of lemborexant (LEM) in subjects (females ≥55y; males ≥65y) with confirmed insomnia disorder (chief insomnia complaint: sleep maintenance difficulties) and no comorbid sleep disorders. This analysis evaluated the efficacy of LEM in the subgroup of elderly (≥65y) participants.

Methods: In SUNRISE 1 (n=1006), after an ~2-week single-blind PBO run-in period, subjects were randomized to PBO, zolpidem tartrate extended release (ZOL, 6.25mg) or LEM (5mg [LEM5]; 10mg [LEM10]) for 1 month. Efficacy was measured by polysomnography (PSG). Average values from paired PSGs at Baseline (during PBO run-in), Nights 1/2, and Nights 29/30 were analyzed for latency to persistent sleep (LPS), wake after sleep onset (WASO), WASO in the second half of the night (WASO2H), and sleep efficiency (SE; total sleep time/time in bed, standardized for all subjects at 8h).

Results: A total of 453 subjects were ≥65y (137 males, 316 females); 95.6% of these subjects (433/453) completed the study. All comparisons of LEM5 and LEM10 to both PBO and ZOL were statistically significant at p<0.05 at both the beginning (Nights 1/2) and end (Nights 29/30) of treatment (Table). No deaths and no serious adverse events (AEs) were reported in subjects ≥65y taking LEM5 or LEM10 during the study; most treatment-emergent AEs were mild/moderate.

Conclusions: LEM improved sleep onset and sleep maintenance in this population. Importantly, versus ZOL, LEM significantly reduced WASO2H, the time when elderly individuals have the most difficulty maintaining sleep. LEM was well-tolerated (safety data presented separately). These results support the development of LEM as a treatment for insomnia disorder in the elderly.

PSG parameter[a]	Nights 1/2			Nights 29/30		
	ZOL	LEM5	LEM10	ZOL	LEM5	LEM10
LPS, min	-1	−9[b,d]	−10[c,d]	+5[b,f]	−7[d]	−8[c,d]
WASO, min	−32.4 (4.4)[b]	−45.8 (4.4)[b,d]	−50.0 (4.4)[b,d]	−12.5 (5.1)[c]	−28.3 (5.1)[b,d]	−24.2 (5.1)[b,e]
WASO2H, min	−16.4 (3.6)[b]	−30.7 (3.7)[b,d]	−32.3 (3.6)[b,d]	−7.0 (4.0)	−18.7 (4.0)[b,d]	−16.3 (4.0)[b,e]
SE, %	7.4 (1.0)[b]	11.4 (1.0)[b,d]	12.6 (1.0)[b,d]	2.4 (1.2)[c]	7.7 (1.2)[b,d]	7.3 (1.2)[b,d]

Table. Treatment Difference from Placebo for Polysomnography Variables

LPS = latency to persistent sleep; SE = sleep efficiency; WASO = wake after sleep onset; WASO2H = wake after sleep onset in the second half of the night; min=minutes.
[a]For LPS, values shown are median differences from placebo in changes from baseline; standard errors are not represented since analyses were conducted on geometric mean ratios. For other PSG parameters, values are least squares mean (standard error) difference from PBO.
[b]P<0.01 vs PBO; [c]P<0.05 vs PBO; [d]P<0.01 vs ZOL; [e]P<0.05 vs ZOL.
[f]PBO significantly better than ZOL.

A105

Association between Patient Priorities Care and Healthcare Tasks and Treatment Burden among Older Adults with Multiple Chronic Conditions

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Background: Older adults with multiple chronic conditions (MCCs) must adhere to increasing numbers and complexity of healthcare tasks that may be burdensome and of uncertain benefit. Patient Priorities Care (PPC) is an approach to decision-making focused on achieving patient-specific health outcome goals and avoiding unwanted, potentially burdensome, healthcare. The study aim was to compare perceived treatment burden and categories of ambulatory healthcare utilization between older adults with MCCs who did and did not receive PPC.

Methods: The design was quasi-experimental with matched PPC and usual care (UC) offices in a primary care practice in Connecticut. Participants included 163 older adults cared for by 10 primary care providers (PCPs) trained in PPC and 203 similar patients who received UC from 7 PCPs at a comparable office. Patient eligibility included: >3 chronic conditions, ≥10 medications, or saw >2 specialists in the past year; lack of advanced dementia; and not hospice eligible, resident of a nursing home, or on dialysis. Perceived treatment burden was assessed at baseline and follow-up with the Treatment Burden Questionnaire (TBQ). Healthcare utilization data, abstracted from PCP visit notes over 9-months follow-up, included number (%) of participants with medications added or stopped; diagnostic tests, referrals, and procedures ordered or avoided. We estimated a weighted regression model (using inverse probability of PCP office assignment weights) to examine the association between PPC vs UC status and change in TBQ scores. A weighted logistic regression model was estimated for the categories of healthcare utilization.

Results: TBQ score decreased from baseline to follow-up by 5.2 more points in the PPC vs. UC participants (β=5.2; p=.05). PPC patients were more likely to have medications stopped (Odds Ratio 2.3; 95% CI, 1.3-3.8) and referrals avoided (5.4; 1.1-25.5) and less likely to have diagnostic tests ordered (0.5; 0.3-0.9) than UC patients. There was a trend of more unwanted procedures avoided (10% vs. 5%) in PPC vs. UC patients.

Conclusions: PPC was associated with reduced treatment burden and unwanted utilization, suggesting that aligning care with patients' priorities is feasible and effective for older adults with MCCs.

A106

Effect of Stigma on Outcomes of a Memory Training Intervention

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Background. Cultural stereotypes equated with aging that emphasize decreasing competence and increasing forgetfulness can be threatening to older adults. Even brief exposure via entertainment media or the patronizing behavior of others may induce stigma in elders and thereby impair memory and executive functions.

Methods. The nonprobability sample was recruited for an RCT known as Senior WISE and conducted in Central Texas. The average age was 75 years and average of 14 years of education. Sex and minority status were consistent across groups. Data were analyzed using SPSS, v21.

Results. First, Pearson Rs were calculated between stigma (MIA Anxiety subscale) and memory outcomes at baseline. Stigma related significantly to Rivermead (RBMT), HVLT, and Memory Self-Efficacy (MSQ). We regressed baseline RBMT, HVLT, and MSQ scores on trait anxiety. Then, after controlling for the effects of trait anxiety, stigma explained a significant portion of the variance within scores on the RBMT (β = -.139, R2 MIA Change = .016, p = .037), HVLT (β = -.145 R2 Change = .017, p =.032), and MSQ-35 (β = -.253, R2 Change = .053, p < .001). Next, training gains were obtained using the difference between the final time point at 26 months, and baseline scores on memory measures. No significant relationships were found between stigma and change in memory over the course of the intervention. A change score from baseline to 26-months was created for stigma. Change in stigma was significantly associated with change in HVLT scores among those in the memory training group, $r(105) = -.228$, $p = .018$. No other measure of change in memory ability related to change in stigma. We regressed and entered as predictors baseline trait anxiety, training condition, and change in stigma during the training. Reductions in stigma were related to increases in HVLT score, β = -.14, $F(1, 201) = 3.021$, $p = .084$, R^2 Change = .015; however, the overall regression model was not a good predictor of HVLT change, $F(4, 201) = 1.793$, $p = .132$, $R^2 = .034$.

Conclusions. With 78 million Baby Boomers aging, stigma is a high priority area of scientific inquiry. The phenomenon can result in a self-fulfilling prophecy whereby people come to resemble the very stereotype they fear confirming. The prevalence of negative aging stereotypes in American culture and patronizing treatment of elders create circumstances conducive to stigma.

A107

Association between benzodiazepine use with the risk of fractures among elderly inpatients with hyperlipidemia : A analysis of the clinical database.

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Background: The prevention of fractures among the elderly is a critical component of geriatric medicine. Previous studies have shown an association between benzodiazepine (BZD) use and the risk of fractures. However, there is little evidence to suggest whether the association between BZD use and the risk of fractures can be explained by liver function. This study aimed to examine if the association of BZD use with the risk of fractures can be fully explained by liver function.

Methods: A clinical database (Medical data vision) was used to assess elderly inpatients aged ≥75 years with hyperlipidemia (ICD10-code E78.5) during April 1, 2012–May 31, 2017. BZD use was defined as one or more prescriptions during the period of the first hospitalization. At the hospital, fracture was defined as that occurring after BZD prescription was determined according to ICD10-code (S02, S12, S22, S32, S42, S52, S62, S72, S82, S92, T02, T10,T12). The odds ratio (OR) and 95% confidence interval (95% CI) for the risk of fractures were calculated using multivariable logistic regression.

Results: Of the 23540 inpatients (mean age ± SD, 82.0 ± 5.0) included in the analysis, 19.2% received BZD, and the incidence of fracture was 0.18%. After adjusting for age, sex, ADL on hospital admittance, prehospital homecare, Charlson Comorbidity Index, length of stay (≥30 days), and liver function (GOT, GPT, LDH, ALP, γGTP), BZD use was found to be associated with the risk of fractures

[OR = 3.81 (95% CI: 2.03–7.12)]. Furthermore, OR for the risk of fractures was the highest in patients using BZD with liver function outside normal range as well as in patients using BZD with liver function within normal range, and the risk of fractures was statistically significant.

Conclusions: BZD use is significantly associated with a higher risk of fractures, even if liver function is within normal range.

A108

Evaluating Life Expectancy by the American Diabetes Association Framework for Older Adults with Diabetes: HRS 1998-2004

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Background: The American Diabetes Association (ADA) recommends individualizing diabetes treatment for older adults on the basis of life expectancy (LE), since people with longer LE are more likely to benefit from intensive treatment. However, it is unclear how effectively the three ADA categories stratify older adults by their LE.

Methods: We conducted an analysis of the Health and Retirement Survey (HRS) 1998-2004 with follow-up through 2014. We identified adults aged ≥65 with diabetes and classified participants by the ADA framework to one of three categories: healthy, intermediate health, or poor health. Intermediate health was defined by ≥3 chronic diseases or difficulties with ≥2 instrumental activities of daily living. Poor health was defined by dependency in ≥2 activities of daily living or end-stage disease; healthy was defined as neither intermediate nor poor health. We calculated the 25th, 50th, and 75th percentiles of LE using a Gompertz survival model.

Results: In 3,274 participants, 50% were classified as healthy, 42% as intermediate health, and 8% as poor health. Median LE differed by ADA category: for healthy participants, it was 13.08 years (95% CI: 12.52, 13.65), for intermediate health, 8.63 years (8.15, 9.12), for poor health, 4.35 years (3.72, 4.98). The interquartile range for LE was larger for healthy participants compared to those in poor health (**Figure**).

Conclusions: The ADA categories identify populations with different median survival times but the distributions of LE overlap substantially. Future studies should examine whether LE calculators can improve risk stratification for diabetes treatment in older adults.
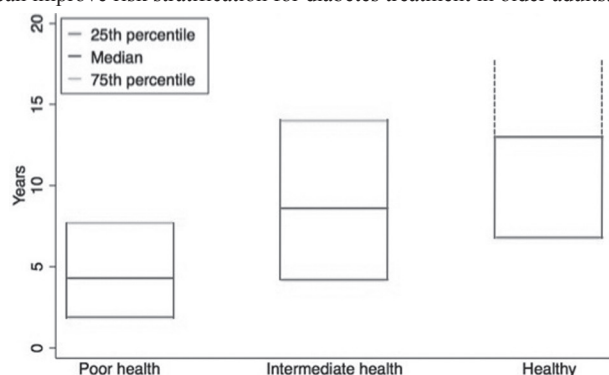
Remaining Life Expectancy by ADA Categories for Older Adults. For the Healthy group, the 75th percentile for LE could not be estimated but was >17 years.

A109

The Prevalence of Geriatric Syndromes as Captured by the Rapid Geriatric Assessment

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Background

The geriatric syndromes of frailty, sarcopenia, weight loss, and dementia are highly prevalent in elderly individuals across all care continuums. Despite their deleterious impact on quality of life, disability, and mortality in older adults, they are frequently under-recognized. At Saint Louis University, the Rapid Geriatric Assessment (RGA) was developed as a brief screening tool to identify these four geriatric syndromes.

Methods

From 2015-2018, the RGA, comprised of the FRAIL, SARC-F, SNAQ, and Rapid Cognitive Screen (RCS) tools, was administered to 10,288 individuals 65 years and older across Missouri in community, office-based medical practice, hospital, Programs of All-Inclusive Care for the Elderly (PACE) and nursing home care settings. Standard statistical methods were used to calculate the prevalence of frailty, sarcopenia, weight loss, and dementia across the sample.

Results

Among the 10,288 individuals screened by the RGA, 31.6% and 36.1% met the screening criteria for pre-frailty and frailty respectively, 43.6% met the screening criteria for sarcopenia, 40.9% were anorectic and at risk for weight loss, and 28.1% met the screening criteria for dementia. The prevalence of frailty, risk for weight loss, sarcopenia, and dementia increased with age.

Conclusions

Using the RGA as a valid screening tool, the prevalence of one or more of the geriatric syndromes of frailty, sarcopenia, weight loss, and dementia in the elderly population across all care continuums is quite high. The purpose of screening for these geriatric syndromes is to enable the implementation of multi-faceted, individualized interventions to prevent further morbidity and disability and promote successful aging in place.

A110

Association between injurious falls in hospitals and falls prevention strategies in place

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Background

There is limited evidence about which strategies could reduce injurious falls in acute wards in US hospitals. The aim of the study was to describe the characteristics and circumstances of injurious falls and examine the association between injurious falls and the falls prevention strategies provided.

Methods

Secondary data analysis of de-identified data from a prospective matched case-control study across 24 acute medical/surgical units. Outcomes were fall prevention strategies documented as being delivered at the time of fall: bed alarm, physical therapy, patient sitter, room change and physical restraint. Data were analysed using logistic regression and hazard ratios.

Results

There were 1033 injurious falls; occurrence peaked on Stay day 2 with 38.2% taking place between 10pm and 6am. Physical therapy (cases 32.9%; controls 21.4%) and physical restraint (cases 14.1%; controls 3.6%) were the most frequently documented falls prevention strategies. There were 359 (53%) cases documented as being at high risk of falls who did not have physical therapy recorded as a strategy. Cases where physical therapy was recorded were more likely to have polypharmacy, be post anaesthesia, and stay longer than 10 days (adjusted OR 1.83, 95%CI 1.40-2.40). Cases where restraint was recorded fell later (Stay day 6) than those without a restraint (Stay day 4; p=0.01) and had longer lengths of stay (restraint 13 days; no restraint 9 days, p=0.007). Cases documenting a mental state change 24 hrs prior to the fall had six times odds of having a physical restraint recorded as a fall prevention strategy (adjusted OR=6.36, 95% CI 4.35-9.30).

Conclusions

Injurious falls on medical/surgical units occur early following admission suggesting preventive strategies should be commenced immediately. Using physical restraint as a strategy resulted in longer lengths of stay.

A111

Long term NSAID use is associated with an increased risk of frailty in men ≥60 years: The Physicians' Health Study

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Background: Inflammation is a central pathway that leads to frailty. Whether over the counter non-aspirin non-steroidal anti-inflammatory drugs (NSAIDs) can play a role in prevention of frailty is unknown.

Methods: Prospective cohort of 12,101 participants ≥60 years in the Physicians' Health study, a completed randomized controlled trial of aspirin vs placebo (1982-1986). Annual follow-up questionnaires collected data on NSAID use, lifestyle and other variables. Average NSAID use was categorized as 0 d/yr, 1-12 d/yr, 13-60 d/yr, and >60 d/yr, averaged over 11 years of follow up following the completion of the trial. Frailty was assessed using a 33-item frailty index calculated from variables collected at the 1999 questionnaire. A score ≥0.21 was considered frail as prior studies suggest. Propensity score inverse probability of treatment weighting was used for statistical control of covariate influences. Logistic regression models estimated odds of prevalent frailty according to NSAID use.

Results: Median age was 70 years (range 60-101). Reported NSAID use was 0 d/yr for 2234, 1-12 d/yr for 5812, 13-60 d/yr for 2833, and >60d/yr for 1222 participants. 2,422 participants (20%) were frail. Those with greater NSAID use were more likely to drink alcohol daily, have smoked previously, have arthritis, hypertension, and heart disease. Less NSAID use was associated with Coumadin use and prior bleed. After propensity score adjustment, the ORs (95% CIs) of prevalent frailty were 0.90 (0.80-1.02), 1.02 (0.89-1.17), and 1.26 (1.07-1.49) for average NSAID use of 1-12 d/yr, 13-60 d/yr, and >60 d/yr, compared to 0 days/yr, overall p<0.001. There was no significant interaction for age, history of arthritis, gastrointestinal bleed, or heart disease.

Conclusion: Long term use of NSAIDs at high frequency may be associated with an increased prevalence of frailty among older men even after consideration of multimorbidity and health behaviors.

A112

Prevalence of Statin Use for Primary Prevention of Cardiovascular Disease in US Veterans ≥65: 2002 and 2012

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Background: Although statins are a proven therapy for cardiovascular disease (CVD) prevention, they remain under-prescribed, with some cohorts estimating rates of <60% of those eligible. We sought to describe statin prescribing for primary CVD prevention in US Veterans ≥65 years in 2002 and 2012.

Methods: All US Veterans without a history of CVD with at least one visit at VA in the year prior, indicating regular VA care. We included all adults ≥65 years as many are at intermediate risk for CVD and eligible for statin therapy according to existing risk calculators. Statin use was ascertained using VA drug prescription data. To be considered a statin user, we required ≥2 prescriptions of any statin in a 6-month period. We did not have access to Medicare prescription data. Descriptive statistics were used to describe statin use in 2002 vs 2012.

Results: Of 1,272,750 Veterans ≥65 without CVD seen in VA in 2002, 360,786 (28%) were prescribed a statin vs 486,869/1,388,799 (35%) in 2012. In 2002, mean age was 73±5 years, 91% were white, 98% male, 72% had hypertension, 30% diabetes, and 81% hyperlipidemia. In contrast, in 2012, mean age was 73±7 years, 87% were white, 98% male, 83% had hypertension, 41% diabetes, and 95% hyperlipidemia. Prevalence of statin use by age decade are shown in the **Table**, with nearly 10% of those taking statins for primary prevention ≥85 years in 2012. Statin use increased significantly (p<0.0001) over the decade.

Conclusion: Use of statins for primary prevention of CVD in older veterans has increased significantly from 2002 to 2012, though remains low. This may reflect practice guideline recommendations over time and uncertainty regarding benefit in older adults. Additional work is needed to understand statin prescribing for primary prevention of CVD in older Veterans. Next steps include incorporating Medicare prescription data.

Prevalence of statin use in US Veterans ≥65 for Primary prevention of CVD

Age by decade:	Prevalence of statin use 2002 (%)	Prevalence of statin use 2012 (%)
65-74 Years	60.7 (n=218,988)	59.8 (n=291,146)
75-84 Years	37.5 (n=135,288)	30.6 (n=149,185)
85+ Years	1.8 (n=6,510)	9.6 (n=46,538)

A113

Pain and Loneliness: Results of a Nationally-Representative Survey of Community-Dwelling Older Adults

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Background: Pain is known to frequently co-occur with psychological health conditions like depression, however, less is known about how pain is linked to loneliness, a critical social risk factor. This study determines if the prevalence of loneliness varies by pain severity in a nationally-representative sample of older adults, even after adjustment for key psychosocial risk factors.

Methods: We used the National Social life Health and Aging Project (NSHAP) 2015-16, to study 3,394 community-dwelling older adults age >50. Self-report pain in the last 4 weeks was categorized as none, mild, moderate, or severe. Loneliness was categorized as lonely or not lonely based on the 3-item UCLA loneliness scale. Depressive symptoms were measured using the CES-D scale. We used multivariate logistic regression to determine the association between loneliness

and pain after adjusting for socio-demographics, cognition, comorbidities, functional status, social network size, and community engagement. To determine whether loneliness was associated with pain independent of depression, we tested models first without then with the depression variable.

Results: The sample was 56% female and on average 68 years old (SD = 11 years). The prevalence of loneliness increased with pain severity (35% for no pain, 46% for mild, 52% for moderate, and 58% for severe). After adjustment, individuals reporting higher levels of pain had a 26% increased odds of loneliness for each increase in severity of pain (aOR: 1.26, 95% CI: 1.16-1.37, p<0.001). The relationship between pain and loneliness remained significant after inclusion of depression in the model, but was attenuated by 57% (aOR: 1.11, 95% CI: 1.02-1.20, p=0.02).

Conclusion: A majority of older adults with moderate or severe pain report significant loneliness, and loneliness is associated with pain independent of depression. Clinicians should assess for loneliness in addition to other psychological symptoms in comprehensive pain management strategies for older adults.

A114
Characteristics of older patients using medical marijuana from a medical marijuana dispensary in New York State

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Background: There are limited data on the patterns of use of medical marijuana among older adults. In addition, little is known regarding different types of medical marijuana products older adults use including methods of delivery and specific cannabidiol (CBD) and tetrahydrocannabinol (THC) concentrations. We compared the differences in medical marijuana use, including product preference, THC:CBD dosing, and qualifying conditions in older patients to that of younger patients.

Methods: We performed a secondary data analysis using patient data from the largest medical marijuana licensee in New York State (NYS), Columbia Care (CC). Our study sample included adults age ≥18 who used CC's medical marijuana products (tinctures, capsules, or vaporization oils in 20T:1C, 1T:1C, and 1T:20C THC:CBD ratios) between Jan. 1, 2016 to Dec. 31, 2017. We stratified patients by age (<65 and ≥65) and compared demographic information, qualifying conditions and symptoms, and medical marijuana products used between older and younger patients.

Results: There were 11,590 individuals who used at least one medical marijuana product with 26% (n=2991) being ≥65 years of age. Older patients using medical marijuana were more likely to be female (54.9% vs 48.9%; p<0.001) and use a dispensary in New York City (24.8% vs 16.9%; p<0.001) compared to younger patients. The most common qualifying condition for older patients was chronic pain (33.8%) followed by neuropathy (31.9%) and cancer (25.0%). The most common qualifying symptom for older patients was severe or chronic pain (81.2%) followed by severe or persistent muscle spasms (23.2%) and cachexia (12.0%). Older patients were more likely to use the sublingual tincture form of marijuana (47.0% vs 32.8%; p<0.001), and less likely to use the vaporization form (21.6% vs 48.0%; p<0.001) compared to younger patients. Older adults were less likely to use the high THC (20T:1C) products compared to younger adults (40.4% vs 43.4%; p<0.001), and more likely to use the low THC (1T:20C) products (34.7% vs 27.5%; p<0.001). The mean daily THC doses were lower for older patients compared to younger patients (9.5 mg vs. 12.9 mg for initial and 13.1 mg vs. 16.9 mg for most recent use; p<0.001 for both).

Conclusion: Our study found key differences in demographics and medical marijuana product use, especially THC content, between older and younger patients in NYS.

A115
Eating alone and nutritional status among Lebanese community dwelling older adults – Preliminary results

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In Lebanon, 11.5% of the population is aged 60 years and older and this number is expected to triple by 2050. Lebanese older adults (OA) have the highest life expectancy in the MENA region averaging at 79.5 years. Nutritional status is one of the major determinants of healthy aging with many factors affecting the nutritional status. In particular, eating alone has been associated with an increased risk of malnutrition. Data about the living arrangements of Lebanese OA and their nutritional status is scarce. Therefore, our objective was to determine the association between eating alone and the risk of malnutrition in community dwelling Lebanese OA. In a cross-sectional study, 74 OA (62.2% women) were recruited from 2 regions of Lebanon. Information about the participants' sociodemographics and living arrangements were collected via a questionnaire. The independent variable, nutritional status, was assessed using the MNA-Short form. Independent t-tests were used to compare those living alone vs those living with family. Almost 30% and 56.8% of the participants were living alone or with a family, respectively. Moreover, 27% of the participants (70% of whom are women) stated that they eat alone. Average BMI and MNA score were 27.8 kg/m^2 and 11.5, respectively. Surprisingly, malnourished OA constituted 13.5% of the sample with 24.3% at risk of malnutrition while most of the participants were overweight and obese with 32.4% and 29.7% respectively. Those who lived alone scored lower on the MNA compared to those living with family, although the difference was not significant. More analyses are needed in order to elucidate these associations among community dwelling Lebanese OA. Our preliminary results showed an unexpected nutritional status among Lebanese community dwelling OA. Even though one third of our sample was living alone, most of the participants had a good nutritional status and good social interactions. Further analyses from our study should differentiate between those living alone and those eating alone because in the Lebanese culture, living alone does not necessarily equate eating alone. Family and social bonds are still highly valued and rare are the OA who are really on their own in Lebanon, implicating the importance of the cultural norms in modulating established associations.

A116
Self-Reported and Actigraphic Long Sleep Duration in Older Persons

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Introduction: Long sleep duration (LS), i.e., lasting ≥9 hours, is associated with many adverse outcomes. The epidemiology of LS has not been established in older persons, including differences in prevalence when based on self-reported vs. actigraphic measures and on the presence or absence of coexisting poor sleep quality.

Methods: Using data on a combined sample of 5,717 older persons from the Study of Osteoporotic Fractures and the Osteoporotic Fractures in Men Sleep Study, we calculated the prevalence of self-reported and actigraphic LS with and without poor sleep quality, respectively. Next, we examined the agreement between self-reported and actigraphic LS and the correlates associated with discordance, using multivariate logistic regression. Correlates included each additional year in age and impairments in cognition (MMSE <24 in women; Teng 3MS <82 in men) and physical function (inability

to do a chair stand). In our analyses, the Pittsburgh Sleep Quality Index (PSQI) evaluated self-reported sleep duration and poor sleep quality (PSQI score >5), whereas results from wrist actigraphy were averaged over approximately 5 days.

Results: Mean age was 80 years (SD 5.8); 50% were female and 10% were African-American. Self-reported and actigraphic LS were established in 453 (7.9%) and 128 (2.2%) participants, respectively. Among those with self-reported LS, 93 (20.5%) also had poor sleep quality. Among those with actigraphic LS, 68 (53.1%) also had poor sleep quality. The correlation between self-reported and actigraphic sleep duration was poor (k=0.10). The odds of discordance in sleep duration were higher with older age (1.05 [1.02, 1.07]) and impaired cognition (2.03 [1.42, 2.90]) and physical function (1.77 [1.36, 2.31]).

Conclusions: In older persons, our results suggest a poor correlation between self-reported and actigraphic sleep duration, most evident with older age and impaired cognition and physical function. Thus, in older persons, the epidemiologic evaluation of LS with or without poor sleep quality, including associations with subsequent adverse health outcomes, should include actigraphy-measured sleep duration.

A117
Equations of glomerular filtration rate and prediction of mortality post-discharge from an ACE Unit

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Background: There is scarce information on the association between estimated glomerular filtration rate (eGFR) and mortality after hospital discharge among older patients. The objective was to determine which of the three glomerular filtration rate equations (MDRD, CKD-EPI, and BIS1) best predicts mortality after discharge in an ACE unit.

Methods: An observational retrospective cohort study, including 2,025 patients'≥60 years. To determine which formula predicts better mortality, we used ROC curves and survival analyses.

Results: Patients had age 82.3±7.2 years (37.7% ≥85), 51.2% were women. The average follow-up time was 5.9 years and 1,270 patients died. The average eGFR was greater for the MDRD equation with 67.6±38.0 mL/min/1.73 m^2, followed by CKEPI2 with 59.7±25.9 and BISI1 with 53.7±23.5 (p<.001). The prevalence of patients classified as high risk (GFR<60 mL/min/1.73 m^2) were 45.9% for MDRD, 63.4% for BISI1 and 47.6% for CKD-EPI. The ROC curves to evaluate the accuracy of the three-eGFR estimation equations had the same predictive capacity for the outcome of post-discharge death. Kaplan-Meir curves across renal function categories (<30.0; 30-59, ≥60) showed no significant differences in survival for MDRD (Log-rank test, p=0.06), BISI1 (p=0.20), and CKD-EPI (p=0.17). In the multivariate Cox regression analysis, renal function was not associated with mortality during the follow-up period; however, mortality risk was significantly associated with age, hospital stay, co-morbidity, hypoalbuminemia, anemia, hypocholesterolemia, and functional dependence.

Conclusion: Renal function in older patients after hospitalization was not associated with mortality. Other variables related to physiological reserves such as age and presence of comorbidity, nutritional status (anemia and hypoalbuminemia), and functionality were associated with mortality risk. The identification of these characteristics may help in detecting a vulnerable group for adverse health events including death.

A118
Report on the effectiveness of the fast capture program (FCP) to screening elderly patients for undiagnosed atrial fibrillation in Brazilian Outpatients

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Introduction: Atrial fibrillation (AF) is the most common arrhythmia in elderly. Findings from 12-lead electrocardiography (ECG) usually confirm the diagnosis. The cornerstones of AF management are rate control and anticoagulation and the prompt diagnosis helps to reduce complications. About 25% of all strokes in elderly are caused by AF. Screening has been advocated because AF is a life threatening condition. The fast capture program (FCP) is a low-cost program to help physicians to identify and treat patients with AF.

Methods: All records of 9388 patients submitted to an ECG in the diagnostic centers of a private geriatrics clinic from July 2017 to January 2018 were evaluated. Those who were diagnosed with AF (n=1180) were referred to a group of specialists (FCP team) to assess need and contraindications for effective treatment and subsequent return to physician who request the ECG for follow-up. Risk-management decisions were based on CHA2DS2-Vasc score, HAS-BLED score and functionality scales like Katz and Lawton. Recommendations for anticoagulation for patients with nonvalvular AF are based on guidelines from a 2014 American College of Cardiology (ACC)/American Heart Association (AHA)/Heart Rhythm Society (HRS) task force.

Results: Among the 9833 elderly patients submitted to ECG, 12% (n = 1180) were diagnosed with AF. About 61% of patients with AF were already anticoagulated and 28% were not, even presenting criteria for this. Then, the team of FCP specialists notified the assistent doctors for the immediate onset of treatment. The population that remained non-anticoagulated (10.2%) due to the contraindications, a fact more frequent in the age group above 91 years. Patients under 70 years were the most anticoagulated age group (95%). Among the anticoagulated patients, 39% were prescribed with warfarin and 61% with the new oral anticoagulants.

Conclusions: The most important clinical significance of AF is the associated five-fold increase in the risk of stroke. Furthermore, AF-related strokes tend to be more severe and have higher mortality. Treatment of AF with anticoagulation is highly effective at reducing this excess risk of stroke. Population-based screening for AF like FCP has the potential for consideration as part of a strategy for cost reduction and improvement of elderly quality life.

A119
Longitudinal cognitive worsening and cognitive recovery associated with hospitalizations: results from the Maintaining Independence in Older Adults Study

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Background
There is a lack of effective treatments for the symptoms of dementia, and no treatments to cure or slow the progression of dementia. A limited pipeline of treatments in clinical trials for dementia indicate that finding effective strategies to improve cognitive resilience and prevent dementia will be needed for the near to long-term future. The objective of this study is to determine the risk factors associated with cognitive worsening after a hospitalization and factors associated with cognitive recovery in an ongoing longitudinal pilot study.

Methods
The study population were enrolled in the observational Maintaining Independence in Older (MIO) Adults Study that included adults 70 years or older, community-living, English-speakers, and has access to a reliable telephone. An initial survey collected demographics, health diagnoses, cognitive, mobility, and physical function,

mobility, and medication data. Cognitive function was measured by the telephone interview for cognitive status (TICS), ranging from 0-40. Monthly telephone surveys collected medication, healthcare encounters, and reassessed cognitive, mobility, and physical function. A multivariate longitudinal generalized linear model was used to assess the cognitive function across time, and the changes associated with a hospitalization. Approval was obtained from the OHSU IRB.

Results

Of the 19 participants, 17 (89%) were female, the mean age was 74 (SD: ±8.5) years, and 2 (11%) experienced a hospitalization during follow-up. Baseline cognitive function was not significantly different between those with a hospitalization during follow-up and those that did not. Cognitive function declined by 5.6 (95% CI: 3.8, 7.4) points in the month immediately following the hospitalization. No cognitive recovery occurred during the 4 or 5 months after the hospitalization, but is likely due to the limited observations.

Conclusion

Cognitive decline was observed after a hospitalization and significant recovery was not observed up to 5 months later. This study suggests that significant cognitive decline occurs in the months following a hospitalization and may have long-term cognitive impairment, potentially leading to dementia and disability. The current participants will continue to be observed and more participants will be enrolled.

A120

Concordance Between Obese BMI and Obesity Documentation in Old Vs. Young Veterans

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Background: Obesity has been associated with myriad chronic comorbidities including type 2 diabetes, hypertension, and heart disease. The risk of multimorbidity increases with BMI. In 2017, Wisconsin was rated as having the 21st highest adult obesity rate in the USA at 32%, with a rate of 29% in adults over 65. Despite significant health implications, a small but growing body of research has shown that obesity is under-documented on patient problem lists by 52-79%. This study aims to identify trends in obesity documentation in a VA-based primary care clinic.

Methods: Cross-sectional chart review of patients enrolled at a VA Medical Center Outpatient Primary Care Clinic (total N=6375) for 2017-2018. All patients with a recorded BMI ≥ 30 had their electronic medical record searched for provider type (e.g. MD, NP), age, race and ICD 10 codes for obesity. Other variables abstracted were ICD 10 codes for obstructive sleep apnea (OSA), other chronic medical conditions, medications, referrals for obesity treatment.

Results: A total of 2317 patients (36.3% of the clinic population), mean age 61.9 ± 14.8 (range 24-97), had a mean BMI 35.1 ± 4.6 (range 30-64.6). Over 99% were men, 76.6% Caucasian and 21% African American. Those <65 years (N=1125, 49.7±10.7 years) had a mean BMI of 35.6 ± 5 vs. 34.7 ± 4.2 for those ≥ 65 (N=1192, 73.4±6.7 years; t=5.02, p<.0001). Only 37.1% of all obese patients had a corresponding ICD10 code on their problem list. These patients had higher BMIs than those missing a code, 37.3 ± 5.3 vs. 33.8 ± 3.5, p<.0001. 29.1% had OSA on their problem list. Patients of MD providers were more likely to be missing obesity from their problem list than those of NP providers (72.8% vs. 49.8%, χ^2=129.03, p<.0001), with no difference by race.

Conclusions: Similar to prior research, this analysis showed that < 40% of a general VA primary care clinic population has obesity listed on the problem list in spite of BMI > 30.0. Prevalence of OSA was lower than the recently reported 47% among all veterans. NPs, though more likely to include obesity in their patients' problem list, did this only about half of the time. Paucity of documentation may reflect less likelihood of counseling and intervention/treatment plans for obesity. Further analysis will assess associated co-morbidities, obesogenic medication, and referrals for dietary counseling and formal exercise programs.

A121

Validity, normative data, and adaptability of cognitive testing in Caribbean and Latin American older adults: a systematic review

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Background

The number of people over the age of 65 in Latin America and Caribbean continues to grow, which has increased the number of those diagnosed with dementia. Early detection and diagnosis of dementia is important in delaying and improving symptoms, function and quality of life. It is unknown what type of cognitive screening tools are used within this population, and whether they are culturally sensitive and valid. The purpose of this systematic review was to review normative data for current cognitive screening instruments, determine whether they are culturally sensitive, valid, and if there have been adaptations to the instruments specific to this population.

Methods

A literature search was performed using multiple electronic databases via OVID Medline, Embase, PsychLit, Global Health and Scopus. Studies included were published between January 1, 1990 to December 31, 2017, with focus on Latin American and Caribbean ethnic groups. Additional inclusion criteria included reporting of normative data, validity and/or adapted versions of cognitive assessments and/or neuropsychological tests utilized within these groups.

Results

Seventeen articles were identified as meeting inclusion criteria. Several cognitive assessments (e.g. Addenbrooke's Cognitive Examination, Abbreviated Mental Test) have been adapted for use in this population, which demonstrated better psychometric properties in comparison to established screening tools such as MMSE. Reasons for the superior psychometric validity of these instruments were posited to be accounting for cross-cultural and educational differences from the population from which norms were developed. However, most tests were not generalizable across Latin American/Caribbean countries. Due to these limitations, there may be differences in interpretation and scoring of cognitive test performance across Latin American/Caribbean populations.

Conclusion

Culturally sensitive and valid cognitive screening instruments are needed to accurately diagnose cognitive impairment in Caribbean/Latin American older adults. This will be imperative for early detection in order to improve quality of life for this population. Further studies need to be done to develop cognitive screening instruments that are valid, culturally sensitive, cross-culturally adaptable that is both sensitive and specific.

A122

Food Insecurity Predicts Incident Functional Limitations in Low Income Older Adults

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Background: Food insecurity is defined as uncertain or limited access to nutritionally adequate and safe foods. Whether food insecurity predicts incident functional limitations is unclear.

Methods: We used the 2013 Health and Retirement Survey (HRS) Health Care and Nutrition Survey linked to the 2012 and 2014 core HRS interviews. HRS is a longitudinal nationally representative survey of community-dwelling older adults. We restricted analysis to participants with household incomes <300% of the federal poverty line who reported no difficulty in activities of daily living (ADLs) or instrumental activities of daily living (IADLs) in the 2012 HRS. Food insecurity status was assigned based on a score of 2+ on the 6-item US Household Food Security Survey Module. We defined incident functional limitations as newly reported difficulty of any ADLs or IADLs

in the 2014 HRS. We used weighted logit models to obtain odds ratios (OR), both unadjusted and adjusted for age, sex, race/ethnicity, marital status, employment, education, wealth, housing status, insurance, number of chronic conditions, BMI, smoking, alcohol use, health status and living alone.

Results: We included 2376 low income HRS participants (mean age=67, 59% women, 14% African American). Table shows the incidence and ORs for functional limitations by food insecurity status.

Conclusions: Among low income older adults, food insecurity significantly predicts the development of functional limitations, particularly ADL difficulties, complementary findings to a recent similar analysis. Screening for food insecurity followed by appropriate referral to food resources in the primary care of older adults may mitigate the development of functional limitations.

	No food insecurity (n=1788)	Food insecurity (n=588)
Unadjusted incidence,%		
Any ADL difficulty*	8.6	16.0
Any IADL difficulty^	8.2	13.1
Any ADL or IADL difficulty*	13.1	23.1
OR for any ADL difficulty		
Unadjusted (95% CI)	1 (ref)	2.13 (1.48-3.07)
Adjusted (95% CI)	1 (ref)	1.72 (1.12-2.66)
OR for any IADL difficulty		
Unadjusted (95% CI)	1 (ref)	1.76 (1.25-2.47)
Adjusted (95% CI)	1 (ref)	1.31 (0.78-2.21)
OR for any ADL/IADL difficulty		
Unadjusted (95% CI)	1 (ref)	2.00 (1.47-2.71)
Adjusted (95% CI)	1 (ref)	1.69 (1.14-2.50)

*p value < 0.001 or ^p value=0.006

A123

The Association of Ageist Attitudes with Hospitalizations and Mortality in Older Veterans.

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Background: Ageism is "a process of systematic stereotyping and discrimination against people because they are old." Explicit biases involve deliberate or conscious controls, while implicit bias involves unconscious processes. Studies suggest that negative aging stereotypes may contribute to adverse health outcomes in older persons. The aim of this study was to determine whether ageist attitudes within older Veterans are associated with hospitalization and mortality.

Methods: This is a retrospective cohort study of 381 Veterans 50 years and older who completed the Kogan's Attitudes towards Older People Scale to assess explicit ageism and the Implicit Association Test (completed by 339 participants) to assess for implicit ageism July 2014-April 2015 and were followed for up to 3 years. At the end of the follow up, we aggregated data on hospitalizations and mortality and compared patients with higher or lower explicit and implicit ageism divided by median split. After adjusting for age, race, ethnicity, education, history of previous hospitalizations and comorbidities, the association of ageist attitudes with hospitalizations was determined with the Andersen-Gill model, accounting for repeated hospitalizations whereas the association with mortality was determined using a Cox regression model.

Results: Patients were 89% male, 48% White, 88% non-Hispanic and the mean age was 60.5 (SD=7.2) years. Over a mean follow-up period of 3.2 years (SD=.3), 581 hospitalizations and 35 deaths occurred. Explicit ageism was found to be significantly associated with reduced hospitalizations after adjusting for covariates, hazard ratio (HR) .571 (95%CI:.451-.723), p<.0001. Implicit ageist attitudes were not significantly associated with reduced hospitalizations adjusted HR .944 (95%CI:.742-1.203), p<.642. Neither explicit nor implicit ageist attitudes were associated with mortality at 3 years, unadjusted HR 1.45 (95%CI:.731-2.879), p=.288, and unadjusted HR 1.373 (95%CI:.673-2.803), p=.383 respectively.

Conclusions: Explicit ageism was unexpectedly associated with reduced hospitalizations in this group of older Veterans. Neither explicit nor implicit ageist attitudes were associated with mortality at 3 years. Future studies should confirm these findings.

A124

The Association of Frailty with Hospitalizations and Mortality in Veterans.

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Background: Frailty is a state of vulnerability to stressors resulting in higher morbidity, mortality and healthcare utilization in older adults. The aim of this study was to determine how frailty impacts hospitalizations and mortality in older male Veterans.

Methods: This is a retrospective cohort study of 470 cognitively intact, non-depressed, male Veterans 22 years and older who completed evaluations as part of a health literacy study on January-February 2012 and followed for up to 6 years (September 2018). A 43-item frailty index (FI) was constructed as a proportion of all potential variables (demographics, comorbidities, number of medications, laboratory tests, and activities of daily living) present in 2012. At the end of follow up, we aggregated data on hospitalizations and mortality and compared robust (FI≤ .10), prefrail (FI=>.10, <.21) and frail (FI≥.21) patients. After adjusting for age, race, ethnicity, education, history of hospitalizations and comorbidities, the relationship of frailty with hospitalizations was carried out according to the Andersen-Gill model, accounting for repeated hospitalizations and the association with mortality was determined using the Cox regression model. We repeated the analysis according to age (≥ 60 and < 60 years old).

Results: Patients were 39.8% White, 82.7% non-Hispanic and the mean age was 56.83 (SD= 9.63) years. Over a mean follow-up period of 2,268 days (SD=499), 1081 hospitalizations and 63 deaths occurred. The proportion of robust, pre-frail and frail patients was 10% (n=47), 61.3% (n=288) and 28.7% (n=135) respectively. Compared with robust patients, those with frailty and prefrailty had a greater risk for hospitalizations, adjusted hazard ratio (HR) 2.013 (95%CI: 1.352-2.997) and HR 2.085 (95%CI: 1.367-3.180), both p=<.001, respectively. After adjusting for covariates, frailty was not associated with mortality, adjusted HR 4.098 (95% CI: .972-17.270), p=.055. There were no age-related differences in mortality or hospitalizations.

Conclusions: This study shows that frailty was associated with a greater risk for hospitalizations but was not associated with mortality in community dwelling male Veterans. Age was not a factor. Studies with larger sample sizes and longitudinal follow up may be needed to confirm these findings.

A125

Is Inadequate Health Literacy Associated with Hospitalizations and Mortality in Male Older Veterans?

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Background: Health literacy (HL) is the capacity to obtain, process, and use basic health information and services needed to make health decisions. Inadequate HL is associated with poor function, worse clinical outcomes, and higher healthcare utilization among Veterans. The aim of this study was to determine whether inadequate HL is related to hospitalizations and mortality in younger and older male Veterans.

Methods: The study involve a retrospective cohort of 470 male Veterans 22 years and older who completed evaluations of HL (Newest Vital Sign) from January-February 2012 and were followed

for up to 6 years (September, 2018). At the end of this period, we collected data on hospitalizations and mortality. HL was categorized into inadequate (0-3 points) and adequate (4-6 points). After adjusting for age, race, ethnicity, education, history of previous hospitalizations and comorbidities, the association of inadequate HL with hospitalization was determined according to Andersen-Gill model, accounting for repeated hospitalizations; whereas the association with mortality was determined using the Cox regression model. The analysis was also performed according to age groups (≥ 60 and < 60 years old).

Results: Patients were 39.8% White, 82.7% non-Hispanic and the mean age was 56.8 (SD= 9.6) years. Over a mean follow-up period of 2,268 days (SD=499), 1081 hospitalizations and 63 deaths occurred. Inadequate HL was observed in 54.9% of this group of Veterans. Inadequate HL was associated with a an increased risk for hospitalizations after adjustment for covariates, hazard ratio (HR) 1.213 (95% CI: 1.001–1.469), p=.0485. There were no age-related differences in hospitalizations. Inadequate HL was not associated with mortality at 6 years follow up, adjusted HR 1.304 (95% CI:.753-2.259), p=.343. There were no age-related differences in mortality.

Conclusions: Inadequate health literacy was associated with a greater risk for hospitalization but no higher risk for mortality in Veterans. Studies with larger sample sizes may be needed to confirm these findings.

A126
Do Health Assets Improve Mortality for Frail Older Inpatients?

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Background: The Frailty Index (FI) has predictive validity in the inpatient setting but does not account for all variation in outcomes. Health assets are factors associated with wellbeing that are positive in their own right, such as social engagement, financial resources and education. The Health Asset Index (HAI) was created to measure the impact of these in the acute setting.

Methods: This prospective cohort study examined the relationship between health assets, frailty and outcomes for 298 patients aged 70 and older with unplanned admission to hospital. Frailty and health assets were measured at the time of recruitment, outcomes were mortality, functional decline and length of stay.

Results: Mean HAI was 10.86 (SD 2.87), with mean (SD) FI was 0.38 (SD 0.12) with a significant inverse correlation with the HAI (p<0.001). 6% of participants died and median length of stay was 19 IQR(9,35). 57% of participants left hospital with a new disability in activities of daily living. In a logistic regression model that accounted for interaction between the FI and HAI, a higher number of health assets was protective for those who were more robust, but this association was reversed for the most frail.

Conclusion: Health Assets are associated with a decreased risk of mortality for robust inpatients, but not for those who were already frail. It is possible that those who are already frail do not benefit from these protective factors due to loss of physiological reserve.

Health Assets, Frailty and Mortality
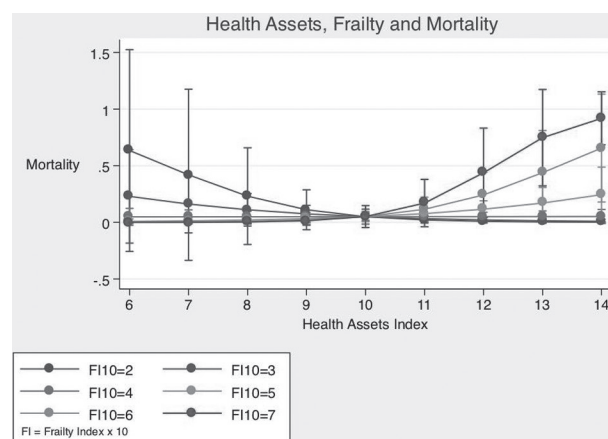
A127
Nasopharyngeal carriage of *Streptococcus pneumoniae, Haemophilus influenzae* and *Staphylococcus aureus* in outpatient elderly in Brazil

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Background: Scarce information is available on nasopharyngeal colonization (NPC) by *Streptococcus pneumoniae* (Spn), *Haemophilus influenzae* (Hi) and *Staphylococcus aureus* (Sau) on the elderly population. The objectives of this study were to estimate nasopharyngeal carriage rates of these bacteria in the elderly population and assess the demographic factors associated with NPC.

Methods: Two carriage cross-sectional studies were conducted from April-December 2017 in outpatients aged ≥60 years who attended the Geriatrics Division of the Clinics Hospital of the University of São Paulo Medical School, a public tertiary referral hospital located at São Paulo municipality. Nasopharyngeal (NP) swab was collected; microbial culture and identification techniques were used to detect the presence of Spn, Hi and Sau. NP specimens were submitted to qPCR for Spn and Hi identification and genotyping. Sau, MRSA (*mec*A), toxins (PVL; STT1) and staphylococcal enterotoxins (SEA-SEE) genes were detected by qPCR, and SCC*mec* elements were characterized by classic PCR.

Results: 776 elderly were included, with a mean age of 81 years (range 60y to 102y old). NP carriage prevalence to Sau, Hi and Spn was 15.9%, 2.5% and 2.2%, respectively. MRSA was identified in 2.3% of participants. The pneumococcal serotypes were 6C, 9N, 15B, 20, 22F/22A, 23A, 28A, 34, 35B and all Hi were non-typeable. The production of toxins was detected in 21.1% of Sau and among MRSA strains four SCC*mec* types were identified: II/IIb, VIII (HA-MRSA) and IVa, VI (CA-MRSA). Among the potential factors for carriage, we found previous use of antibiotics for Sau and MRSA carriage, and the presence of respiratory disease (COPD) for Hi colonization. Frailty was not associated with carriage.

Conclusion: In conclusion, this study showed low rates of *S. pneumoniae* and *H. influenzae* carriage and a greater rate of *S. aureus* in a well-attended population in a geriatric outpatient clinic in São Paulo. This is one of the few studies conducted in Brazil that could be used as basis for future colonization studies among elderly.

A128

Pain in Australians Seeking Aged Care Services

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Background: Australian estimates of pain in aged care recipients are from small studies on residents of long-term aged care only, leaving the segment of the population who receive home care support. This study: (1) determined the prevalence and changes in pain in the cohort of Australians who received aged care services (2005-2014); (2) characterised the people with reported pain; (3) determined the association of pain with choice of long-term care or home care.

Methods: A population-based trend analysis, cross-sectional evaluation, and cohort analysis were conducted using data from the Australian Commonwealth on people accessing long-term or home care services. The main exposures of interest were aged care seekers' socio-demographic, limitations, health conditions, assessment characteristics. The main outcomes were pain reported and aged care service type received. Logistic regression models were employed.

Results: Of the 519,891 people evaluated 62% were females, 34% received home care and 66% long-term care. The prevalence of pain increased from 4.3% (95%CI 4.1-4.6%) in 2005 to 15.6% (95%CI 15.1-16.2%) in 2014. Younger age (odds ratios(OR)=0.93, 95%CI 0.93-0.94, per 5-year increment), being female (OR=1.17, 95%CI 1.14-1.19), and limitations with domestic tasks (OR=1.19, 95%CI 1.13-1.25), walking (OR=1.13, 95%CI 1.11-1.15), and social (OR=1.11, 95%CI 1.08-1.15) activities were associated with a higher likelihood of pain. Unhappiness (OR=1.67, 95%CI 1.55-1.81), back problems (OR=1.64, 95%CI 1.59-1.68), and arthritis (OR=1.57, 95%CI 1.54-1.60) were associated with higher likelihood of pain, whereas dementia (OR=0.50, 95%CI 0.49-0.51) and cerebrovascular diseases (OR=0.65, 95%CI 0.63-0.67) were associated with lower likelihood. Reporting pain was associated with higher likelihood of starting home care instead of long-term care (OR=1.12, 95%CI 1.10-1.14).

Conclusions: A 3.6 fold increase in pain prevalence between 2005 and 2014 was observed, demonstrating that pain is increasingly pervasive among older Australians. The profiles of aged care users who report pain and their preference for home care services can be used for targeting of pain management interventions and by providers planning care for this vulnerable population.

A129

Pre-estimating subsets, a new approach for unavailable predictors in prognostic modeling

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Background: Clinicians can utilize many prognostic models available as easy-to-use web-based calculators to estimate risk to identify older patients who are most likely to benefit from therapy. Despite the potential benefits of clinical prediction models to inform individualized decision making, physicians may be unable to apply these tools due to a lack of availability of certain predictors required for the model. Several approaches to deal with unavailable predictors have been proposed (set to zero, impute the mean, multiple imputations). Previous work has highlighted the potential superiority of the multiple imputations' method, but this may be infeasible to implement in web calculator settings. Therefore, we investigated a new approach for unavailable predictors in prognostic modeling using pre-computing a number of submodels each missing one or more predictors.

Methods: Our innovative statistical method consisted of pre-computing a number of submodels each missing one or more predictors but which maintain a level of discrimination near to that of the original model. Performance diagnostics for the reduced models, which included measures of discrimination and calibration, would be reported side-by-side with the original model performance. To demonstrate the utility of our approach, we applied the method to the Lee index, a validated prognostic index for 4- and 10-year mortality. We used the original dataset of the nationally representative Health and Retirement Study that developed this prognostic index (11701 individuals of the 1998 wave; mean age=67 years; 57% women). Our primary outcome was 4-year mortality, confirmed with the National Death Index.

Results: In situations with up to three unavailable predictors, we found that the reduced Lee index achieved good discrimination (c-statistics between 0.814 to 0.838 compared to 0.839 for original model) while preserving acceptable calibration (p-values for Spiegelhalter Z-test 0.33 to 0.80 compared to 0.43 original). Reclassification indices were relatively low as well (net reclassification index between 0.01 and 0.12 and integrated discrimination improvement between 0.002 and 0.036).

Conclusion: This method can be used in other prognostic indexes and, consequently, facilitate the application of prediction models to support clinicians in offering better decision-making even in the context of unavailable predictors.

A130

EFFECTS OF CHRONIC HEPATITIS C ON THE AGING AFRICAN POPULATION

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INTRODUCTION

Chronic hepatitis C (CHC) in Nigeria has a prevalence of 2-4% compared with chronic hepatitis B,(CHB)14% prevalence. Consequently, more interest has been on CHB, especially with early malignant transformation in the African population. CHC runs a more indolent course so the effects of chronic liver disease are expected to become more evident as the population ages.

This study aims to highlight the effects of CHC, estimate burden of disease in elderly Nigerians and identify differentials in treatment response.

METHODOLOGY: Records of the patients who attended the gastroenterology and geriatric clinics within a 6-month period(January-June 2018) were obtained. Those with CHC were divided into 2 groups-18-50yrs and over 50yrs. Evidence of active liver disease was identifeid using transaminase levels and ultrasound findings. HCV viral load and genotype, treatment and outcome also documented.

RESULTS: Eight hundred and forty-nine patients attended the two clinics within the study period, forty one positive for Hep C and of these 15 (36.5%) were over 50yrs. The mean Alanine Aminotransferase(ALT) levels in the older group was significantly higher than in the young group (49.16 vs 25.75. P=0.019). Forty percent of patients over 50yrs had ultrasound evidence of cirrhosis compared to 7% in the younger group(P=0.04). The difference in mean viral load between the two groups was not statistically significant. Genotype 1 was the most prevalent genotype with only 2 patients having genotype 4. Only 16 of the 41 patients received treatment. Treatment was mainly with DAAs, Sofosbuvir/ Ledipasvir being the most common drug combination. Two patients had treatment with pegylated interferon and ribavirin three years prior. Other drug combinations used were Sofosbuvir/Daclatasvir, Sofosbuvir/Velpatasvir all with Ribavirin in cirrhotics.

Treatment with DAAs was for 12weeks in all instances. No side effects were noted. Relapse was noted in 3 of the 9 patients over 50 yrs. This was seen in cirrhotics and in a patient who had used

interferon previously. No relapse noted in the younger group (7 treated). The difference in relapse rate was statistically insignificant(P=0.08).

CONCLUSION:Older patients with chronic hepatitis C more likely to develop cirrhosis, present treament difficulties(high relapse rate.and comorbidities). Though the prevalence of hepatitis C is relatively low in our environment, it is suggested that earlier detection and treatment would offer better outcomes in the elderly.

A131
Drug classes associated with prevalent delirium in a Geriatric Emergency Department.

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Background: Many older adults arrive at the Emergency Department (ED) with delirium and potentially inappropriate medications probably contribute to its occurrence. We aimed to identify drug classes more commonly associated with prevalent delirium in a Geriatric ED. **Methods:** We completed a cross-sectional study including patients who visited the Geriatric ED of a private tertiary hospital, in Brazil, from 2017 to 2018. The Geriatric ED cares for +70-year-old patients who have medical complaints and are clinically stable on arrival. Prevalent delirium was diagnosed using CAM criteria and we explored its association with the pre-hospital use of the following drug classes: anticholinergics; antiemetics; antihistamines; benzodiazepines; nonbenzodiazepine sedatives; opioids; proton pump inhibitors; and psychostimulants. **Results:** We included 2732 visits to the Geriatric ED, and delirium was detected in 243 (9%) of them. Patients had a mean age of 81 years, and 57% were women. After adjusting for possible confounders, we found delirium to be independently associated with anticholinergics and proton pump inhibitors (Table 1). **Conclusions:** One in five patients who arrived with delirium to a Geriatric ED had been using anticholinergic drugs. Surprisingly, the use of proton pump inhibitors was also clearly associated with delirium. Clinicians should increase their efforts to avoid potentially inappropriate medications in older adults to prevent delirium outside the hospital.

Pre-hospital medication use and adjusted association with prevalent delirium in a Geriatric Emergency Department.

Drug classes	Total (%) N=2,732	No Delirium N=2,489	Delirium N=243	p-value	Adjusted* PR (95%CI)	Adjusted p-value
Anticholinergics	196 (7)	150 (6)	46 (19)	<0.001	1.64 (1.07-2.54)	0.024
Antiemetics	249 (9)	207 (8)	42 (17)	<0.001	1.04 (0.61-1.79)	0.882
Antihistamines	144 (5)	124 (5)	20 (8)	0.031	1.27 (0.54-3.02)	0.585
Benzodiazepines	404 (15)	359 (14)	45 (19)	0.086	1.04 (0.69-1.56)	0.601
Non-BDZ sedatives	142 (5)	133 (5)	9 (4)	0.272	0.76 (0.28-2.09)	0.585
Opioids	37 (1)	31 (1)	6 (2)	0.115	1.73 (0.63-4.76)	0.292
Proton pump inhibitors	942 (35)	809 (33)	133 (55)	<0.001	1.61 (1.10-2.34)	0.014
Psychostimulants	13 (0.5)	9 (0.4)	4 (2)	0.005	2.49 (0.60-10.3)	0.207

PR= prevalence ratio; BDZ= benzodiazepine; *Poisson regression model adjusted for drug classes, age, sex, dementia, and number of medications.

A132
Associations between exercise and cognitive function of community-dwelling oldest old in Okinawa, Japan.

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Background— Adults 80 years and older are the fastest-growing segment of the Japanese population and face a high risk of cognitive decline. Yet, wellness programs to prevent cognitive decline suitable for this age group has not been well examined. We analyzed the associations between types and intensity of exercise and cognitive function among community-dwelling non-demented oldest old to aid in developing exercise-based prevention approach against cognitive decline.

Method—Data came from the Keys to Optimal Cognitive Aging (KOCOA) study; an ongoing cohort of relatively healthy volunteers aged over 80 years old, living in Okinawa, Japan. In 2017,145 non-demented (Clinical Dementia Rating (CDR) < 1) subjects completed a questionnaire about their daily life including exercise, diet, and living arrangement (74% female, mean age 84.9 years old, SD 3.9). We categorized subjects into low and high cognitive function groups using MMSE scores with 28 as a cutpoint and also cross-validated the results using Montreal Cognitive Assessment (MoCA) Test scores with 25 as a cutpoint. Logistic regression models were used to examine the association between cognitive functions and self-reported types and amount of exercise. The amount of exercise was calculated using data from the Japanese Ministry of Health, Labour and Welfare.

Results—More exercise was associated with better cognitive function among women, after controlling for age, education and other potential confounders (Geriatric Depression Score, CDR, Grip strength and walking speed). Specific types of exercise such as dance and ball games (ground golf, table tennis and tennis) were associated with better cognitive function ($p \leq 0.05$), while other exercise were not.

Conclusion—Our findings suggest that not only intensity or frequency of exercise but specifically exercise with a group or social aspect could be effective to maintain cognitive function. Exercises that include a social component should be considered for programs aimed to prevent cognitive decline among the oldest old.

A133
Co-Creating Audiovisual Fall Prevention Messages with Older People

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Background: Falls are the leading cause of serious injury and death among older adults and these injury rates continue to rise worldwide. However many older adults do not proactively access fall prevention information. The aim of the study was to design audio-visual (AV) fall prevention messages in cooperation with community-dwelling older adults and explore their effect on knowledge, awareness and motivation to take action regarding fall prevention.

Methods: An exploratory community-based participatory study. Three prototype AV fall prevention messages were designed collaboratively with six older people. Subsequently, community-dwelling older adults' perspectives regarding the messages were explored using focus groups. Thematic analysis was used to identify and interpret participants' responses.

Results: Responses to the AV messages elicited strong divergent (positive and negative) perspectives. Participants' (n = 54) viewpoints appeared to be influenced by their personal stereotypes of aging. Some participants expressed positive emotions or a personal connection to the messages. They suggested messages were motivating and helped reduce aging-related stigma. Other participants expressed strongly opposing views, identifying implicit negative messages about aging, which reduced their motivation to identify with the messages. Overall there was a sharp increase in fall awareness and knowledge. Suggestions to improve message persuasiveness included adding more drama and tailoring messages to appeal to multiple age groups.

Conclusions: AV fall prevention messages cocreated with older adults elicited divergent reactions from their peers. Public campaigns targeting falls prevention may need to be designed to target older adults' differing perspectives about aging.

A134 Encore Presentation
Perspectives from the Field: Designing the Driving Cessation in Dementia Intervention Toolkit (DCD-IT)

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Background: Decision-making about driving cessation and transitioning to non-driving is a very challenging issue faced by drivers diagnosed with dementia and their families. To address the gap in evidence-based interventions that support individuals in the driving cessation process, we developed the Driving Cessation in Dementia Intervention Toolkit (DCD-IT). Our objective in this study was to further develop and refine the DCD-IT content, design and mode of delivery to facilitate its effective implementation in settings that support older adults with dementia.

Methods: This qualitative study included 15 representatives from Alzheimer Society organizations in four provinces who reviewed the DCD-IT and provided feedback via a webinar, questionnaire and in-depth interviews. Data analysis techniques included thematic coding and inductive analysis.

Results: Participants emphasized the lack of accessible and trusted driving cessation resources specific to meeting the needs of PWD and their families. Gaps and areas of focus they identified to inform the DCD-IT's development included: materials directed separately to PWD encompassing appropriate content, language and design; resources geared to helping healthcare providers engage in discussions with PWD and their families; information for PWD, their families and healthcare providers about region-specific driving regulations and alternative transportation options.

Conclusion: Alzheimer Society representatives identified areas for improvement in the content and design of the DCD-IT. Next steps include evaluating the implementation process of the DCD-IT in Alzheimer Society organizations with the aim of informing widespread implementation and adaption.

A135
Goals of care in the progression of illness in older adults with heart failure and their family caregivers

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Background: Many older adults with heart failure (HF) experience multimorbidity, frailty, and uncertainty in the illness trajectory. These factors contribute to the challenge and lack of end-of-life (EOL) communication in HF. One way to bridge the gap between HF management and EOL care is to align care plans to the goals of older adults and caregivers earlier in the course of illness until the EOL. However, this is an uncommon approach to care in HF. This study explores what older adults and their family caregivers identify as important goals during HF management.

Methods: This qualitative study recruited 19 older adults (age 64+) with HF (NYHA Class III/IV) and family caregivers from an outpatient HF clinic in Toronto, Canada. In-person semi-structured interviews were conducted to ask about understanding of illness, goals of care, and EOL discussions. Data on goals of care from transcripts were analyzed using qualitative content analysis to inductively generate codes and categories.

Findings: Participants' goals were categorized as 'day-to-day goals' or 'goals for the future'. Day-to-day goals reflected participants' wish to preserve basic functions such as being able to taste, see, walk, and have energy in order to enjoy activities such as eating, reading and spending time with family. Goals for the future related to participants' hope to maintain cognition and independence throughout the progression into late life; patients described their wish to 'no longer exist' in the absence of these capabilities. Patients and caregivers had similar goals; however, caregivers also wished to enhance the quality of life of their loved ones beyond managing health issues (e.g. finding foods and activities that fit their diet and capacity). Participants had not discussed goals with physicians but had discussed them with family.

Conclusions: The findings suggest that older adults and caregivers place greater value on ordinary aspects of life that bring pleasure and meaning to each day above health. As participants had not discussed goals with their physicians an opportunity exists to explore goals of care to address potential shortfalls in care. With an increasing presence of interdisciplinary teams in healthcare, future research can explore the role of allied health professionals to discuss goals of care with older adults and caregivers.

A136
MEDPHOTAGE study: relative cerebral blood flow(rCBF) and oxygenation in older adults with and without Mild Cognitive Impairment(MCI) using near-infrared(NIRS) and diffuse correlation spectroscopy(DCS)

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BACKGROUND. The dysfunction of frontal and prefrontal(PFC) brain regions has an impact on cognitive impairment. Optical techniques, such as NIRS/DCS (non-invasive, relatively cheap and allow measures during motion) might add information about PFC function. Cerebral vasoreactivity during Head-of-Bed(HOB) positioning have been studied using these techniques in different pathologies, such as stroke and sleep apnea. MEDPHOTAGE study assesses PFC hemodynamics in older adults with and without MCI using NIRS/DCS during HOB as part of a larger protocol with cognitive, motor and dual-tasks. We aim to describe preliminary results of HOB tests from the MEDPHOTAGE study.

METHODS

We enrolled ≥65years well-functioning community-dwellers with MCI [amnestic single domain(SD-MCI) vs multidomain(MD-MCI)] and cognitively normal older adults as control group. We collected demographical, comprehensive geriatric, cognitive and physical performance variables. We used an hybrid NIRS/DCS device to assess prefrontal oxygenation and rCBF during HOB positioning from 0 to 30degrees (5min each). Descriptive statistical analysis and Wilcoxon Test were used to study intra-group differences from 0 to 30 and between group differences.

RESULTS

In 33 subjects (7 SD-MCI, 15 MD-MCI and 11 controls), mean age±SD:78.1±7.5(57.5%women) with Barthel±SD:99.2±2.3, Lawton±SD:7.1±1.5, Mini-Mental State Exam±SD:26.3±2.3, Gait Speed±SD:4.1±1.3 and Short Physical Performance Battery±SD:9.1±3.1, changes in HOB from 0-30 were associated with a decrease in rCBF and oxygenated hemoglobin (HbO2) on

both hemispheres(p<0.05). Subjects with MD-MCI showed a lower decrease in HbO2 levels on left hemisphere during 0-30degree changes compared to healthy old(p=0.02). No other significant differences were found in rCBF or HbO2 between both MD-MCI and SD-MCI and healthy old.

CONCLUSIONS

Our results confirm that diffuse optics techniques are able to detect changes in PFC areas of the brain during HOB changes in well-functioning older adults with and without MCI.

We found a slightly different oxygenation pattern comparing healthy old with MD-MCI. The difference might be related to cerebrovascular alterations, but further studies need to confirm these findings.

A137

A real culprit behind lifestyle-related diseases: ω-6 vegetable oil

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Although excessive consumption of deep-fried foods is regarded as the most important epidemiological factor of lifestyle-related diseases, its underlying mechanism remains unknown. This paper is to study whether the oxidized cooking oil may cause lifestyle diseases.

Deep-frying by ω-6 oil generates hydroxynonenal by peroxidation. Hydroxynonenal promotes carbonylation of Hsp70.1, with the resultant impaired ability of cells to recycle damaged proteins and stabilize lysosomal membrane. Although the 'calpain-cathepsin hypothesis' has been documented as a cause of hippocampal neuronal death in 1998, its relevance to cell death of the hypothalamus, liver, and pancreas, being related to the appetite/energy control, is unknown. As overactivation of fatty acid receptor GPR40 in response to oxidized fatty acids may lead to disruption of Ca^{2+} homeostasis, it should be evaluated whether GPR40 overactivation contributes to diverse cell death.

To elucidate whether GPR40 overactivation in response to hydroxynonenal can really induce diverse cell death in vivo, 5mg/week of synthetic hydroxynonenal were injected in 5 young monkeys intravenously for 24 weeks. Such doses and serial injections were designed to imitate blood concentrations of hydroxynonenal in humans around 60's. Surprisingly, the accumulative amount of 120 mg of hydroxynonenal induced diverse cell death/degeneration (Figure) in all monkeys.

Here, I describe the molecular implication of vegetable oil-derived hydroxynonenal for the lysosomal destabilization in diverse cell injury for lifestyle diseases.
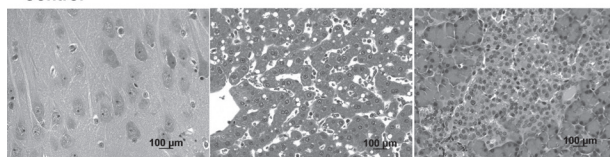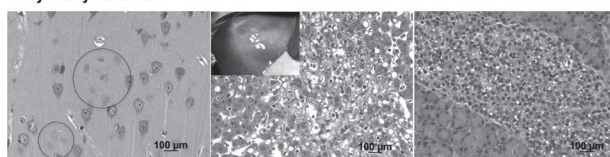
A138

The Role of NO in the Progression and Regression of Atherosclerosis via Endothelial Senescence

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Back ground and Objectives: Nitric Oxide(NO) bioavailability is known to be limited in senescence. We have studied it, and now certificated in human umbilica venous endothelial cells(HUVECs).

Methods and Results: NO donor and transfection with endothelial NO synthase(eNOS) into HUVECs each decreased SA-beta-galactosidase positive cells, increased telomerase activity and preserved telomere length. 17-beta estradiol decreased SA-beta-galactosidase-positive cells and caused cell proliferation. L-arginine(L-Arg) or L-citrulline(L-Cit) partially inhibited, and combination of L-Arg and L-Cit(LALC) strongly prevented, high glucose-induced senescence. Following 3-day stimulation of HUVECs under high-glucose with L-Arg or L-Cit or LALC, endothelial senescence and functions were evaluated. These amino acids were also administered to dyslipidemic type 2 diabeteic(ZDFM) rats fed a high-cholesterol diet for 4 weeks. L-Cit and LALC retarded HG-induced endothelial senescence, and restored telomerase activity. p22-phox activity was not altered, but L-Cit dicreased ROS. Under HG, L-Cit and LALC increased NO, and eNOS and phosphorylated eNOS were decreased. In ZDFM rats, SA-beta-galactosidase on the aortic surface was reduced by L-Cit and LALC application with food for 4 weeks. LALC for 4 weeks increased plasma NO. Thus, L-Cit and LCLA inhibited HG-induced endothelial senescence and NO-cGMP pathway. The delay in endothelial senescence through NO and eNOS may have clinical utility in the treatment of atherosclerosis in elderly.

A139

Geriatric Scaffolding – A Novel Approach to Teaching Geriatrics

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BACKGROUND

With the rapidly aging population comes a pressing need for physicians and other healthcare workers to be trained in geriatrics.[1] Despite this demographic imperative, there remains inadequate geriatric training across the professions. We developed a novel method to teach key geriatric principles to medical students through a train-the-trainer approach.

METHODS

The Geriatric Scaffold (GS) is an organizational framework to facilitate the understanding of geriatrics. The scaffold outlines the five major domains (Medical, Cognitive, Functional, Psychosocial and Complexities) so that the learner will appreciate how these domains impact the care of individual patients. One-hundred-eighty-five Year 2 medical students were divided into twelve small groups assigned to five clinical care sites in October 2018. Each student group was exposed to the GS curriculum and completed a post-workshop survey of their experience (Likert scale 1 [Not effective] to 5 [Very effective]). Surveys were compared to other learning experiences in Cardiology, Vascular and Ophthalmology.

RESULTS

184 out of 185 (99.46%) students who participated in the curriculum completed the survey. The students' overall rating of the workshop's effectiveness was 4.15 out of 5 with 93 students (51.4%) rating the workshop a 5. In comparison, the overall ratings of other workshops during the same curricular block were 4.17 (Cardiology), 4.02 (Vascular) and 3.83 (Ophthalmology).

A random sampling of students (N=21; 100% response rate) completed a survey on the achievement of workshop goals; they rated the workshop highly in increasing their confidence in performing a

geriatric assessment (3.89), enhancing their knowledge of medical care for older patients (4.05), and teaching them skills that will be valuable for their future clinical practice (4.32). Furthermore, the workshop scored highly in organization and delivery of content measures (4.21).

CONCLUSIONS

Geriatric Scaffolding is an effective and engaging method of teaching key principles of geriatric medicine in the undergraduate medical curriculum.

REFERENCES

1 Retooling for an Aging America: Building the Health Care Workforce. Institute of Medicine. Washington, DC: National Academies Press, 2010. Available at http://www.nap.edu/openbook.php?record_id=12089&page=R1

A140

Geriatrics in Social Media: An Instagram Explorative Analysis

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Background:

The utility of teaching older adults to become technology users has been demonstrated. There are over 1 billion active monthly users on Instagram as of June 2018. Of these active users, 61% are ages 18-34, with only 6% ages 65 or older. Will the realization of how they are portrayed on social media sites become a deterrent for continued use?

Objective:

To examine how older adults are portrayed on Instagram.

Methods:

Instagram was searched using hashtags #oldpeople and #elderly. Two reviewers collected images from a 1-week period. A 10% random sample of images were included. Duplicate images and non-English posts were excluded. Images were coded by user type (e.g., personal, healthcare organization), post type (e.g., picture, drawing, or video), description (infographic; selfie; image of another person, place, or thing), content (e.g., socialization, romance, advertisement/promotional, humor), purpose (e.g. personal, organizational, educational, or inspirational), and relevance. Chi-square analyses compared data between and within hashtags.

Results:

Of 220 posts, 206 met inclusion criteria and were analyzed (#oldpeople n=78; #elderly n=128). User type, content, purpose, and relevance differed across hashtags (p<.001). Most users of #oldpeople were personal users (84.6%), while #elderly users varied by user type (39.1% personal, 45.3% healthcare organization, 15.6% non-healthcare organization), c^2=41.1. Content for #oldpeople was primarily socialization (58.7%) and humor (17.3%), while #elderly was advertisement (48.8%) and socialization (45.7%), c^2=34.9. Similarly, most #elderly was for non-personal purposes (91.4%, of these 88.4% were organizational) while most #oldpeople was personal (84.7%), c^2=103.3. Posts relevant to healthcare were more likely with #elderly (85.9%), c^2=30.1.

Conclusion:

While discovery of new resources continues to expand, it is important to examine how older adults are portrayed in social media to encourage its use rather than hinder it. Search terms like #oldpeople are frequently used to encourage socialization while #elderly is used for healthcare or advertisement. Future studies may examine the use of Instagram hashtags to increase social media use among older adults and caregivers.

A141

Educating Nursing and Caregiver Workforces Through a Unique Pilot Program

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Background:

The Orange County Medi-Cal based In-Home Support Services (IHSS) program serves 14,000 caregivers of clients over 65 years of age. Although IHSS workers receive limited training, there is a need for practical training such as how pressure ulcer prevention, medication management, and safe transfer techniques. The UCI School of Nursing (SON) designed a pilot training program benefiting both IHSS workers and undergraduate and graduate students.

Method:

A collaborative pilot program was integrated into the curriculum of our Undergraduate Research Opportunity Program (UROP) and Master's Entry Program of Nursing students (MEPN). This program allowed students to build upon classroom didactics by applying their knowledge by teaching IHSS caregivers in the community. Training topics were decided upon with IHSS administrators and became mandatory training sessions for a core group of paid IHSS workers. Nursing students developed interactive workshops to demonstrate and teach needed nursing aid skills. Students collected pre and post surveys and developed analysis from the collected information.

Results:

Over the course of 4 years, 40 nursing students conducted 17 two-hour training sessions and trained over 250 IHSS caregivers on topics such as diabetes care, catheter care, pressure sore prevention, and transferring clients. .90% of the students engaged in the program were satisfied or very satisfied with their experience and felt it to be valuable to their nursing education. 96.7% of students felt prepared and comfortable or very comfortable with teaching the IHSS caregivers. After the first pilot year, 100% of the UROP students recommended this activity for subsequent nursing classes. In response, the SON has integrated this program into the course curriculum of the MEPN students. Pre and post surveys showed that the IHSS workers who attended the classes rated the training very highly, many even attending multiple presentations.

Conclusion:

A successful training program utilizing nursing students to train IHSS caregivers is a successful way to enhance caregiving for older and disabled adults, and to bridge university and community based programs. This unique model is now an intergral part of both the SON and the social services administration of IHSS. This pilot has proved valuable in the development of our nursing students and our IHSS workforce.

A142

Focus Group Valuation of an Alternative Pathway to Geriatrics Fellowship for Practicing Physicians

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BACKGROUND: Graduate family and internal medicine trained physicians currently in practice who desire advanced geriatrics certification have few options if they cannot commit to a standard one-year fellowship. Alternatives to standard fellowship training have been permitted by both the ABFM and ABIM but occur infrequently. Nationally, the number of geriatricians has not been rising to mirror the demography of the population. An alternative pathway pilot has been underway at Swedish Medical Center since September 2017, whereby a mid-career physician is completing a fellowship over an extended period of time while concurrently maintaining a nursing home practice.

METHODS: A 90-minute focus group with 13 stakeholders was conducted in Seattle, WA in November 2018 as a quality improvement initiative for the pilot program. Focus group participants included: geriatricians (5; including three program directors), geriatrics fellows (2), leadership from outside organization concurrently employing the pilot fellow (2), family medicine residents (2), community physician with an interest in alternative training options (1), GME manager from sponsoring institution (1). Participants were queried about the perceived value of the alternative pathway and challenges to sustainability. The semi-structured interview was recorded and transcribed for analysis to identify themes.

RESULTS:

Thematic analysis of the transcribed comments demonstrates robust support for the alternative pathway as an innovative solution to expand the geriatrics workforce. Three key themes relate to the value of an alternative pathway to fellowship: 1) Mid-career physicians bring professional maturity and unique skills; 2) The alternative option can stimulate recruitment to fellowship programs and employment opportunities within sponsoring institutions; 3) Fellow perquisites include financial advantages, scheduling flexibility, and board certification. Themes identified as challenges to the sustainability primarily affect the sponsoring institution, and relate to the logistics of credentialing, contracting, and scheduling.

CONCLUSION:

A geriatrics fellowship alternative training pathway for practicing physicians is feasible and vital for programs to consider as one solution to strengthen the geriatrics workforce.

A143

Learning Outcomes of a New Interprofessional Geriatrics Curriculum

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Background: To prepare students for interdisciplinary team care for older adults, a one-year Geriatrics Interprofessional (IP) Educational Fellowship Program for resident, nurse practitioner, clinical nurse specialist, and social work master's learners was developed. Program goals were to prepare the health care workforce to effectively assess and address the needs of older adults and families/caregivers through IP geriatric clinical experiences in an integrated primary care delivery system.

Methods: Faculty developed an intensive IP curriculum including online learning modules, geriatric clinical experiences, and monthly case conferences supported by learners' review of "real de-identified cases" in a teaching electronic medical record. Two cohorts (N=20) participated in the program. Satisfaction, learning, and self-reported intentioned impact on practice outcomes using Core Competencies for IP Collaborative Care were assessed.

Results: We conducted an outcomes-based program evaluation using qualitative analysis. Data were organized into four levels of Kirkpatrick Training Evaluation. Fellows reported highest satisfaction when working directly with IP teams, preceptors, and older adults. The experiences identified as most valuable included working one-on-one with a preceptor; clinical application of geriatric knowledge; and working within an IP team. Suggested changes for improvement included increased rotations in different clinical settings and opportunity to work with more than one preceptor. Postgraduate response rate was 70%. Among graduates, 71% reported working within their graduate degree scope of practice; 100% agreed the Fellowship experiences contributed to their current job performance. Other fellows noted the importance of the IP approach to care, working within teams, and a focus on dementia assessment and management. All Fellows agreed the Fellowship experience met or exceeded expectations.

Conclusion: The new geriatrics curriculum was successful in terms of learner satisfaction and increased knowledge and skills in interprofessional team care for older adults. Based on these program outcomes, the model may have relevance to others.

A144 Encore Presentation

Using a Jigsaw Education Technique to teach Geriatrics Palliative Care principles to an Interprofessional Team

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Background: Interprofessional education is crucial to prepare clinicians to care for an aging population; interactive teaching techniques provide an opportunity to model and learn from each discipline's expertise and promote collaborative learning, with an ultimate goal of team-based patient-centered geriatrics palliative care.

Methods: We piloted an interactive workshop using the "jigsaw" education technique, led by interprofessional faculty to teach interprofessional trainees about palliative management of non-pain symptoms in older adults, using a blended medical and nursing framework. The learners then divided into 'jigsaw' groups to delve into strategies for symptom management, using a interprofessional approach. Each group was assigned a symptom (Anorexia, Nausea, and Insomnia) and engaged with interprofessional resources including Palliative Care Fast Facts, AAHPM and AGS Choosing Wisely Guidelines, AGS Geriatrics and Evaluation Modules, and AGS Beer's List of Potentially Inappropriate Medications in Older Adults. Each small group worked together to develop 'best practices' for geriatric symptom management using the framework, tools and interprofessional collaboration, and then presented their results to the larger group, completing the 'jigsaw' by teaching each other their newly gained knowledge and approach.

Results: 30 trainees from multiple professions (Geriatric Medicine Fellows, Geriatric Psychiatry Fellows, Internal Medicine Residents, Nurses, Palliative Medicine Fellows, Pharmacists) completed the 2 pilot sessions. Participants completed an optional, anonymous post-session program evaluation with qualitative comments indicating high learner satisfaction. Learners appreciated the opportunity to collaborate with different professions in an interactive cased based setting, and highlighted new knowledge gained regarding the general approach to non-pain symptom management in older adults, as well as specific tools to help improve care for geriatric palliative care patients.

Conclusion: The Jigsaw technique offers a powerful interactive educational technique for interprofessional education and an efficient method to promote learning about resources for a geriatric approach to palliative management of non-pain symptoms in older adults.

A145 Encore Presentation

Improving Care for Rural Tribal Older Adults through Interprofessional Education

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Background: The U.S. geriatrics workforce shortage is worse in rural areas, particularly in underserved settings such as Native American reservations. Our objective was to improve geriatrics knowledge and skills among an interdisciplinary primary care team at an Indian Health Services clinic in rural South Dakota through a geriatrics inter-professional education (IPE) curriculum.

Methods: We employed the Kern Model for curriculum development to design and implement the geriatrics IPE curriculum. For a needs assessment, we surveyed primary care clinicians and allied health professionals at our pilot site. Based on the needs assessment,

the curriculum was organized into 5 interactive teaching modules: Pain Management in Older Adults, Falls Screening and Prevention, Polypharmacy and Medication Management, Cognitive Impairment and Depression, and End-of-life Care. The curriculum was delivered in five 60-80 minute sessions from October 2017-June 2018. We used the following educational strategies to increase learner engagement: Pre-Module brainstorming with key participant stakeholders, case-based learning, guided team exercises and multi-modal teaching techniques including video demos and enduring source materials. We asked participants to provide open-ended feedback on the utility of the curriculum for their practice and professional development and to compare their self-perceived geriatrics competency and frequency of using evidence-based guidelines before and after the curriculum using Likert scales.

Results: Participants in our geriatrics IPE curriculum reported it was relevant and valuable to their practice and described a positive impact on professional development and teamwork. Evaluation of learner outcomes found increases in self-rated geriatrics knowledge and skills in each of the 5 content areas. A subset of learners reported increased frequency of using evidence based geriatrics guidelines. The curriculum organically led to the development of micro-QI initiatives to improve patient safety at the clinic.

Conclusion: Our curriculum represents a practical model for implementing geriatrics IPE for interdisciplinary primary care teams in rural and underserved areas. The curriculum can improve geriatrics knowledge and skills, increase teamwork and drive QI projects that may ultimately improve care for older adults in these settings.

A146
Development and Implementation of a longitudinal integrated medical student curriculum using the Geriatric 5Ms Framework

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Background: Medical student training in geriatrics and palliative care is critical to care for older adults and those facing serious illness. In the wake of curriculum reform at Harvard Medical School, we created an integrated longitudinal geriatrics curriculum using the Geriatric 5Ms framework of Mobility, Mind, Medications, Multicomplexity & Matters Most developed by Drs. Tinetti, Molnar & Huang (JAGS 2017).

Methods: A working group of geriatrics & palliative care educators generated a list of learning objectives for graduating medical students, based on two published lists (Leipzig et al, 2008; Schaefer et al, 2014). We then surveyed course & clerkship directors to determine existing geriatrics content and partnered with these leaders to develop a total of 20 hours of new content using the 5Ms Framework.

Results:

For Mobility, a clinical reasoning case on falls risk reduction was added.

For Mind, a session on dementia, delirium and depression, led by clinicians from geriatrics, neurology and psychiatry laid the foundation for a small group session on preventing hospital delirium.

For Medications, an interactive pillbox activity on principles of safe prescribing was added.

For Multicomplexity, students performed home visits to older adults precepted by a geriatrics fellow or faculty, learning about their support networks, and priorities in managing multimorbidity, as well as a session on transitions of care.

For Matters Most, students participated in a ½ day session on Palliative Care including a skills session.

The curriculum includes flipped classroom learning with a newly developed Geriatrics 5Ms concept video and Pocket Card.

487 medical students from 3 classes (2015-2018) participated in the geriatrics curriculum. Student satisfaction with the first year curriculum was high with 88% reporting very good or excellent on a 5 point Likert scale in an anonymous post-session program evaluations.

Conclusion: The Geriatric 5Ms Framework offers a memorable way to teach geriatrics topics in a longitudinal integrated curriculum for medical students, to prepare graduates to care for an aging society with competence, knowledge and compassion. Future directions include development of a longitudinal OSCE with an 'aging' standardized patient to evaluate student skills in implementing the Geriatrics 5Ms.

A147
Human Flourishing and Integrated Care Models

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BACKGROUND:

Meeting the needs of older adults with multiple chronic conditions (MCCs) has been addressed by integrated primary care and community-based models of care that focus on coordination across health care and social service sectors with the goal of reducing barriers and improving health outcomes. These models are complex and demand measurement indicators that reflect their complexity.

Flourishing represents living within an optimal range of human functioning, presence of mental health, freedom from psychopathology, with high levels of emotional, psychological, and social well-being. The Flourish care coordination model (FM) was developed as part of the HRSA Rural Geriatric Workforce Enhancement Program. The FM uses community health navigators to connect clinical health care plans with community care plans.

The objective of this study was to evaluate the effectiveness of the FM to promote flourishing in all determinants of health: biological, individual health behaviors, environmental, health services access, psychological and social. For this purpose, the Flourish Index (FI) was developed. The FI gives insight into the fundamental challenges of aging that can provide guidance to members of an interdisciplinary team for the application of their expertise with each patient.

Methods

A repeated measures design was used to evaluate the FM in 9 rural counties serving 15 different primary care sites. To date 125 older adults with MCCs were served. The FI measured how patients improved during their enrollment. The FI assessed patients on 38 indicators in the 6 determinants of health. Patients in the program were assessed every 6 months.

Results

A repeated measures MANOVA showed significant improvements on all determinants of health ($F(6,124)=90.15$, $p=.0001$, $\eta^2=.96$). It was also effectively used as a predictive tool for rehospitalizations after an acute event while in the program. Finally, the FI showed how the FM team was effective with older adults who have dementia, but less effective with older adults with mild cognitive impairment.

Conclusions

This study proposed the determinants of health framework as the ideal method for assessing the presence of flourishing in older adults with MCCs. It is important that we reconsider how we operationalize outcomes for older adults by evaluating success as the ability of older adults to flourish when they can maintain current functioning, access resources and have sufficient support systems in place.

A148 Encore Presentation
Changing Health Professional Students' Attitudes and Knowledge in Geriatrics Through Interprofessional Education

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Background: Patient-centered and team care are two core concepts for the care of older adults. Interprofessional education (IPE), where students learn together, is essential for better care

outcome for older adults. Thus, IPE is an ideal training vehicle for improving health care for older adults. **Objectives:** 1) Describe three separate IPE programs, Student Senior Partnership Program (SSSP), Interprofessional Geriatric Curriculum (IPGC), and Geriatric Assessment Program (GAP), that involve students from 8 health professional programs (dentistry, occupational therapy, medicine, PA, pharmacy, physical therapy, psychology and social work) at one university; 2) Identify areas of improved knowledge and attitudes about aging that can be achieved from IPE; 3) List barriers that limit development of IPE in health professional training programs. **Methods:** All student participants were surveyed 1-week prior to their participation and 1-2 weeks after. Data was available on a total of 330 students, and response rates across programs ranged from 80% to 98%. Students self-reported their experiences with IP work and training, familiarity with the roles of various professions involved in IP work, capability to do assessments with older adults, and attitudes towards working with older adults (using the Geriatric Attitudes Scale). **Results:** Students overwhelmingly reported positive perceptions of IP training and work at baseline and did not significantly at follow-up. Students in IPGC reported greater familiarity at follow-up with the roles of 7 out of 8 professionals, while students in GAP and SSPP reported greater familiarity with 2 and 1 profession(s), respectively. Students in all programs reported improved capabilities to conduct assessments with older adults, with a count of the number of assessments (out of 9) that students reported being "very" or "extremely" capable increasing from 1.27 to 2.78 (p<0.001) for GAP, 2.42 to 5.34 (p<0.001) for IPGC and 2.72 to 4.33 (p<0.001) for SSPP. Attitudes towards working with the elderly improved for students in IPGC (total GAS score of 3.82 to 3.91, p<0.001) and SSPP (3.88 to 4.05, p<0.001), but not for students in GAP (3.83 vs. 3.81, p=0.607). **Conclusion:** IPE through these programs can prepare the healthcare workforce of tomorrow with the knowledge, attitudes, and behaviors needed to treat older adults.

A149

Self-reported gain in knowledge: can it improve efficacy of a geriatric rotation?

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Background: As the population is aging, more specialties are getting involved in the care of elderly. Including geriatric education is becoming crucial for trainees as part of their learning especially since there is already a shortage of geriatric providers.

Objective: Assessment tool to measure efficacy of geriatric rotation for Medical students and internal medicine residents.

Methodology: At HackensackUMC, a 775 bed academic research institution in NJ, USA, third year internal medicine residents and third year medical students complete four weeks of geriatric rotation in inpatient and outpatient setting. Multiple academic sessions focusing on geriatric syndromes are conducted during these rotations. The trainees were asked to submit self-reported improvement(SRI) in three areas of geriatric medicine they learned weekly during their rotation from June 2018 till October 2018.

Results: We received 32 evaluations from 11 medical residents (72.72%) and 46 evaluations from 16 medical students (71.8%). Significant SRI was seen in multiple areas. For medical students, Geriatric assessment was highlighted in 26 (56.5%), Dementia 15 (32%), Medications/polypharmacy 15 (32%), Preventive care 13 (28%) and falls—9 (19.5%). For residents, SRI was in Geriatric assessment— 18 (56%), Palliative/hospice care—12 (37%), Polypharmacy—9 (28%), Advance directive 8 (25%) and falls—6 (18%). Topics that showed lower SRI included delirium, incontinence, osteoporosis and mood disorders.

Conclusion: As per our results, a four-week geriatric rotation does have significant impact on trainee's understanding of various geriatric syndromes. This may help to improve comfort levels of the trainees when they are taking care of the vulnerable elderly. The trainees were confident at the end of rotation in assessing a geriatric patient, reviewing their medications (reducing polypharmacy), fall assessment and discussing advance directive. This process also helped the trainees to be more enthusiastic and involved in learning about geriatric syndromes. For faculty it aided in recognizing the gaps in the didactics and target sessions accordingly. Self-reported gain in knowledge can make geriatric rotation more effective and increase involvement of trainees in geriatric education.

A150

Alzheimer's Virtual Interprofessional Training (AVIT)

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Background: The Alzheimer's Virtual Interprofessional Training (AVIT) program is an innovative virtual simulation program that uses the free virtual world platform, Second Life® to enable interprofessional health professions students to: 1) gain an in-depth understanding of the causes and consequences of Alzheimer's disease (AD); 2) learn effective strategies to address the physical, social, and behavioral health needs of individuals with AD, and their caregivers; 3) work effectively in interprofessional teams to address health needs of individuals with AD. This study explored the impact of the AVIT program on student participants, including changes in student knowledge, attitudes, skills, and behavior in relation to AD and interprofessional teamwork. Interprofessional teams comprising 3-4 students participated in the virtual case simulations. Students on each team were assigned the role of provider, patient, caregiver, or observer. Prior to participating in the virtual simulation, students reviewed a comprehensive selection of learning materials that included readings, online tutorials, detailed case descriptions and a guide to performance of each role.

Methods: Students completed a pre- and post-training survey, pre- and post-training oral interviews, the Jefferson Teamwork Observation Guide (JTOG) survey, and participated in guided oral debriefings following case simulation,

Results: 15 students participated in virtual simulations, divided into 4 interprofessional teams. Health professions represented among the student teams included medicine (4), pharmacy (4), physical therapy (5), and occupational therapy (2). Mean pre and post test scores increased from 14.57 to 16.29 in the first pilot and from 16.5 to 17.1 in the second. Students reported increased confidence in identifying the potential signs of dementia, ability to effectively communicate with someone with possible dementia, administering a cognitive screening tool, describing strategies to further assess for dementia, and describing different health disciplines' contributions and role of the interprofessional team. Team performance was rated highly (mean 3.7/4) by students.

Conclusions: AVIT is an innovative, virtual training program for interprofessional health professions students that enhances education about AD and interprofessional teamwork.

A151

Bridging the Divide: Partnership of an Academic Geriatrics Program and Community LGBT Program

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Background: LGBT individuals face discrimination in the healthcare setting and as a result, may be reluctant to seek medical care or communicate openly with their healthcare provider. Older LGBT adults have a heightened risk of drug and alcohol abuse, are disproportionately at risk for certain cancers, obesity and depression and have unequal access to healthcare compared to their heterosexual

peers. The LGBT Elder Initiative is a community-based organization that aims to reduce these disparities and advocate for services and resources that are inclusive and responsive to the needs of LGBT elders. The goal of this project was to create an educational program through an academic-community partnership addressing the unique needs of this vulnerable community.

Methods: An on-line survey was administered to members of the LGBT Elder Initiative through email that asked members to identify and rank health care topics that they were interested in learning more about. Survey results were de-identified and compiled. Monthly education sessions were evaluated through paper evaluations administered to participants at the end of each presentation.

Results: There were a total of 80 respondents. Of the respondents, 63.3% were over the age of 60, 90% identified their orientation as LGBT, 61.25% male, 33.75% female and 5% as transgender. The topics most highly ranked were: advance care planning, stroke prevention, dementia and cognitive impairment, exercise and physical activity, depression and anxiety. Other suggested topics included caregiving, culturally sensitive resources for homecare and long-term care, domestic violence, and dental issues.

Conclusions: Based on the results of this needs assessment, we created a monthly education program called "The Doctor Is In" which focuses on the needs and wants of this vulnerable community. This academic-community partnership has laid the groundwork for future research, education and collaborative opportunities to create a more inclusive healthcare setting.

A152

"Brown Bag" medication reconciliation simulation improved self-efficacy and knowledge in geriatric medication management for second year medical students

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Introduction: Medical students must care for aging patients with growing medication lists and need training to address these challenges. We created an innovative simulation activity to teach safe medication management to second year medical students.

Methods: We developed the "Brown Bag" medication reconciliation simulation to improve self-efficacy and knowledge for trainees and clinicians working with complex older adults. The case example was an older patient presenting with his "brown bag" of medications and pre-filled pillbox. Learners identified management errors and determined strategies for resolution. We piloted the simulation in 32 learners from 6 professions, finding significant improvements in self-efficacy (p <0.05) and that learners were satisfied. We implemented the simulation in a class of second year medical students, pairing it with an interactive presentation and pocket card, including principles on medication reconciliation, physiology of aging, and high risk medications with tools for deprescribing using the Geriatrics 5M's Framework (Tinetti et al JAGS 2017). Learner self-efficacy, knowledge, and satisfaction were evaluated using anonymous pre and post surveys and compared using chi square tests.

Results: A class of 137 second year medical students completed the "Brown Bag" simulation activity. Of the 34% of learners who provided feedback on self-efficacy, the percentage of learners with high self-efficacy in medication management in older adults increased from 34% pre-intervention to 88% post-intervention (+54%, p <0.001). 96% of learners completed the knowledge questions. The percent correct significantly increased from 85% on the pre-test to 92% on the delayed post-test (p = 0.009). Via open-ended feedback, learners expressed high satisfaction with the "Brown Bag" medication reconciliation simulation and found the session clinically useful.

Conclusion: The "Brown Bag" medication reconciliation simulation increased medical student self-efficacy and knowledge related to medication management for older adults. Interactive simulations like this should be considered for inclusion into health science curricula

to improve medication management for older adults. Future directions include focus groups and delayed assessment of the impact of the session on medical student practice during clinical rotations.

A153

Interprofessional education curriculum in the health sciences: Development and testing of a Framework

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Background: Interprofessional educational (IPE) competency frameworks have been developed by health science professional programs, universities and accreditation bodies in different countries. Given the variation among these frameworks, we sought to create a robust and updated IPE taxonomy tree that will facilitate the development and comparison of curriculum maps within and across professional programs in the future. We tested this framework in two health sciences faculties to identify distribution of competencies through the curricula and to address challenges in applying the framework.

Methods: An environmental scan revealed five leading international IPE frameworks, one pharmacy specific framework, and one locally developed University of Alberta framework. For Canadian context, the competency domains or themes from the Canadian framework were extracted as level 1 of the proposed IPE taxonomy tree, with other frameworks reviewed to extract functional statements relevant to level 2 and 3 competencies. Level 3 competency indicators of the taxonomy tree were developed from along a continuum of experience (exposure, immersion and integration). The course syllabi required courses in the Faculties of Pharmacy and Physical Education at the University were mapped to the framework by 2 trained research assistants.

Results: The research team developed an IPE taxonomy classifying interprofessional competencies into six level 1 competency domains, seventeen level 2 functions and seventy nine level 3 competency indicators. The pharmacy course syllabi demonstrated highest inclusion of Role Clarification, and lowest for Conflict Resolution. The mandatory IP course for students included the most competencies; other didactic and experiential courses, including geriatrics, did not have extensive listing of IPE competencies The physical education syllabi had low levels of all IP competencies documented.

Conclusions: A robust IPE taxonomic structure was developed with competencies defined for up to three hierarchical levels. Application of the framework identified gaps in IP competencies documented in course syllabi across multiple disciplines.

A154

A Brief Intervention to Demonstrate Relavance of Postoperative Delirium to the Orthopedic Resident

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Background: Postoperative delirium (POD) is common among hip fracture patients with rates as high as 53%; however, orthopedic training focuses more on other less prevalent and less impactful complications (i.e., asymptomatic VTE 30-35%, symptomatic VTE 4%). In collaboration with an orthopedic champion, we developed and delivered a POD curriculum for orthopedic residents and evaluated resident knowledge.

Methods: We developed a case-based, 30-minute presentation focusing on the relevance of POD to a practicing orthopedist ("Why Should I Care" section). This section focused on the cost implications of delirium in the context of Medicare bundled payments, mortality, and long term cognitive impairement. Content also included the use of a short validated tool to identify delirium (i.e., the 4AT), common risk factors, delirium prevention, and treatment. The curriculum was

co-presented at orthopedic grand rounds by an orthopedic PGY-5 and internal medicine chief resident. Orthopedic residents completed a pre and post 6-item knowledge test, compared using McNemar's test (categorical items) or paired t-tests (continuous scores).

Results: 25 of 30 orthopedic residents in the program completed pre- and post-tests. Items addressing delirium screening, prevention, and cost burden showed improvement in knowledge. The mean pre-test score was 3.84 out of 6 possible, while the mean post-test score was 5.16 (p<0.0001). (Table) Improvement in scores were similar across post-graduate year.

Conclusions: A brief educational intervention improved orthopedic resident knowledge about POD. Co-development and co-delivery of the curriculum with an orthopedic champion may improve perception of relevance and receptiveness to the material among orthopedic trainees. Future work will collect learner qualitative feedback, reassess learners with a mini-CEX 6 months post-intervention, and assess resident delirium management using chart review.

Table 1: Post-Operative Delirium Knowledge Test Results, N=25

Question Content	Pre N (%) correct	Post N (%) correct	P-value
1. Delirium Screening	8 (32%)	24 (96%)	<0.0001
2. Delirium Diagnosis	24 (96%)	24 (96%)	1.00
3. Delirium Prevention	20 (80%)	25 (100%)	<0.0001
4. Operative Risk Factors	2 (8%)	5 (20%)	0.38
5. Clinical Risk Factors	24 (96%)	24 (96%)	1.00
6. Cost Burden	13 (52%)	23 (92%)	0.002
Total Score, mean (SD), range 0-6	3.84 (0.69)	5.16 (0.55)	<0.0001

A155

Partnering with NICHE: Importance of a National Collaborative to Drive Excellence in Geriatric Care

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Background: Nurses Improving Care for Health-system Elders (NICHE) is an international nursing education and consultation network of over 710 organizations. It provides evidence-based educational resources and access to collaborative networking via webinars, listservs and conferences. Struggling to enhance our care of the older adult, we report on our institution's recommitment to NICHE as a means to drive quality improvement

Methods: In 2015, UTMB initiated its recommitment to NICHE for staff development, geriatric-specific processes, and quality improvement. After securing a NICHE coordinator/nurse educator, the institution began incorporating NICHE principles into nurse training (i.e. new nursing graduates and new staff hires), geriatric assessment (through EMR optimization), and interdisciplinary rounds. Opportunities for best practice sharing through regional and national collaboration were sought.

Results: We incorporated evidence-based NICHE guidelines into our Electronic Medical Record (EMR) to include critical geriatric assessments and reports with a focus on functional and cognitive status amongst other geriatric syndromes. Functional assessment rates increased from <10% to 86%. We implemented a structured daily interdisciplinary team huddle called Progression of Care Rounds (POCR). After 14 months, length of stay decreased an average .23 days/month (p=0.0117), with a final average stay of 2.7 days. Falls decreased on the Acute Care of Elders (ACE) Unit, from 28 in 2015 to 10 in 2017, saving an estimated $120,042 in one year. NICHE resources provided structured education to 139 new nurse interns and 184 experienced new hires. Collaborative conversations and best practice sharing lead to local implementation of delirium activity aprons as well as the PureWick external drainage system. We have presented at every NICHE conference since 2015 (posters, podium, round tables), and were invited in 2018 to co-present a plenary on disaster management.

Conclusions: Benchmarking through NICHE provides a framework for geriatric excellence, including crosswalks with Magnet and Joint Commission programs. Our participation in NICHE is effective in engaging staff on the evidence-based care of the older adult, allowing us to drive quality improvement efforts for many geriatric syndromes. It also serves as an ideal platform for academic scholarship, networking, and best-practice sharing.

A156

An Interprofessional Simulation: Improving Transitions of Care and Reducing Medical Errors Across the Spectrum of Care

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Background Transitions of care from hospital to home are fraught with opportunities for error, particularly with medications. Accreditation bodies recognize the importance of instilling skills of identifying and communicating errors across the professions in order to address this public health concern.

Methods A simulated educational experience for pharmacy and medical students to emphasize the importance of interprofessional (IP) collaboration in error disclosure was developed and implemented using standardized patient actors (SPA). Students completed pre-learning regarding medical error disclosure. Medical students also completed a hospital discharge simulation while pharmacy students completed a medication reconciliation based on a recorded SPA and community pharmacist encounter with the provided discharged patient's medical information. Pharmacy and medical students communicated via a telehealth conference encounter to correct errors and optimize medications during the care transition. Faculty debriefed students regarding their IP experience following the simulation. Quantitative data from a student completed pre- and post-simulation 5-point Likert scale survey were evaluated. Qualitative data from the simulation debriefs were evaluated for thematic findings.

Results Pharmacy and medicine students completed the pre-simulation survey (N=173) which was compared to a pilot group of students who completed the post-simulation survey (N=27). Students reported statistically significant improvements in their confidence with disclosing medical errors and in use of telehealth technology to communicate with other professionals (p<0.005). Students did not report a significant change in their perception of the role of the community pharmacist as a member of the IP team, but did report improved understanding of what medication therapy management (MTM) is as performed by the pharmacist (p<0.005). Themes of team structure, leadership, and communication emerged in the qualitative review.

Conclusion This simulation afforded pharmacy and medical students the opportunity to increase their confidence in communicating an error, gain insight into telehealth as an alternative form of IP team communication, and increase their understanding of MTM provided by community pharmacists.

A157

Sustainability for Veteran's Dementia Resource Fair

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Background: Since 2013, the Veterans Affairs Palo Alto Health Care System has hosted an annual Dementia Resource Fair. This one-day event connects Veterans, caregivers & VA staff with VA and community dementia care resources. Attendance trends, resource table participation, and the annual attendee survey responses across five years were analyzed to investigate factors that contributed to the fair's sustainability.

Methods: An interdisciplinary team of VA staff organized each Dementia Resource Fair. Attendees completed an anonymous survey, asking 'how useful was the fair' and 'was the fair worth your time,' using a 5-point satisfaction scale. Qualitative data was collected, including suggestions for improvement. The planning committee met

post-fair to debrief and review results of survey. The committee then implemented changes for the following year.

Results: 881 individuals attended the fairs and 581 completed surveys (response rate – 72%). Substantial growth in attendees occurred between the first and second fairs, and then remained stable. The number of vendors increased across fairs, from 12 vendors in 2013 to 36 vendors in 2018. Growth occurred despite changing committee leadership. Survey responses showed that 99% of participants thought the fair was useful and worth their time.

Discussion:

After analyzing data from the past five Dementia Resource Fairs, there were five reoccurring themes that led to its sustainability. **1. Innovation**. The Dementia Resource Fair targets the veteran population meeting their unique needs. Veterans are at risk for suicide by firearm, gunlocks were provided for safety. **2. Standard work process.** Extensive notes, planning calendar and vendor contact list was utilized from year to year. 3. **Returning committee members**. Many who participated in the planning committee were involved with previous fairs. This led to efficiency and high satisfaction rate of the fair. 4**. Quality Improvement Methods**. Satisfaction data from participants was collected and reviewed annually resulting in continuous improvement. For example, barriers such as space limitation and patient privacy were addressed the following year. **5. Support from leadership.**

With these identified themes, the replication of the Dementia Resource Fair is achievable. Furthermore, to build a sustainable resource fair, the satisfaction rate from participants, continuous improvement, and vendor contracts are all vital to a successful fair.

A158
Education and Systems Intervention to Improve Screening of Geriatric Patients for Dementia and Falls in Primary Care Practices

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Background: Achieving best practice principles for the care of older adults in the current workforce is needed. These principles include screening for geriatric syndromes in primary care centers (PCC) and providing professional development for primary care professionals.

Methods: Education interventions were delivered by an interprofessional (IP) faculty group to IP primary care teams within 8 underserved PCC. The interventions were consisted of active case-based in-services with experiential learning, brief didactic presentations, and system-based practice improvement projects. Activities were designed to ensure all members in primary care teams had foundational knowledge of geriatric syndromes, appropriate screening criteria, and fields for documenting and to make appropriate referrals in the electronic medical record (EMR). To support the educational interventions, an older-adult specific screening flowsheet was developed, in which a two-item screener for falls and dementia was imbedded within the EPIC EMR. The flowsheet was designed to prompt screening of the syndromes automatically for patients ≥ age 65 during the patient rooming process. Program participants included providers and staff of the 8 PCC affiliated with a major Midwest Health System. They were (average over 4 sessions) 30 physicians, 10 nurse practitioners, 42 nurses, 14 social workers, 84 medical assistants, 5 patient navigators, and 14 site administrators, who in all served 9,447 geriatric patients during the 3-year study period. Changes of screening rates for geriatric syndromes over time were modeled and compared between pre- and post- interventions for all PCC sites together and for individual PCC site using linear piecewise spline regression models.

Results: The model for all PCC sites together demonstrated that there were no significant change in screening rates over time before the start of the intervention program, and the screening rates significantly increased overtime after the kick-off the intervention program

(p<.0001). Models for the individual PCC site showed the similar significant trends in screening rates pre- and post- intervention at most of the 8 PCC.

Conclusions: A combined education-systems intervention directed toward primary care IP teams can substantially improve screening patients for key geriatric syndromes.

A159
Medical Student Reflections After a Skilled Nursing Experience – Words to Grow On

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Background

Curricular changes recently shifted Geriatric content from a dedicated clerkship to an embedded longitudinal format. A required skilled nursing facility (SNF) experience focused on care of the post-operative patient is now included in the surgical clerkship. Each student spends one half day at a SNF with a Geriatric physician preceptor. The student performs a routine SNF visit that includes discussing the patient with the interprofessional team, writing a progress note and rounding on the patient. We sought assurance that this hands-on SNF experience was relevant to the students' ongoing education.

Methods

We evaluated the SNF experience using an open-ended reflection that asked about differences between SNF and hospital care and how the SNF visit may impact their care of future patients. All reflections were de-identified and coded individually by three faculty geriatricians. Coding categories include positive or negative valuation by the student; interprofessional roles(IPR); systems analysis(SA); transitions of care(TC); healing process(HP); medication management(MM); self-reflection by the student(SR); patient education(PE) and value of patient contact time(VT). The three geriatricians created a consensus document of the coded reflections based on the agreement of at least two of the three and final codes were entered into a spreadsheet.

Results

Reflections from two clerkships were reviewed (n=43 students). Forty-two students (97.7%) identified the experience as positive. The most common themes were self-reflection (42, 97.7%), systems analysis (40, 93%) and the healing process (32, 74.4%). The theme least commonly experienced was medication management (7, 16.3%). Others were as follows: transitions of care (29, 67.4%), interprofessional roles (22, 52.4%), patient education (17, 39.5%), and the value of patient contact time (15, 34.9%).

Conclusion

The SNF experience has been positive for students and should be maintained. The experience has led to self-reflection, systems awareness, and a better understanding of the healing process. This format of feedback from students can be used longitudinally to assess the quality and impact of the SNF experience.

A160
Integrating Geriatrics Education in Family Medicine Clerkship

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Background:

Most medical students have very limited experience in geriatrics education and training. Llack of exposure to patients in long-term care facilities often increases their anxiety about caring for and limits their understanding of managing clinical problems in nursing home residents. This presentation describes a brief pilot curriculum that was integrated into a Family Medicine clerkship. Students rotated with geriatricians for two, half-days during which they were oriented to

the long-term care facility, interviewed patients and team members (e.g., nurses), presented patients to their attendings, and participated in bedside rounds with other learners, including Family Medicine residents. The presenters will describe this curriculum and discuss how it was implemented in the clerkship.

Study objectives: (1) Increase student comfort with caring for patients in LTC facilities. (2) Increase student knowledge about managing clinical problems of patients in LTC facilities compared to patient in the community. (3) How to identify and manage common conditions seen in LTC patients.

Methods

A team that included the clerkship director, a family physician, and several geriatricians conducted a needs assessment in which they identified that clerkship student exposure to patients in long-term care facilities was sporadic. The team designed a pilot that ensured consistency of experiences with LTC residents for all students in the clerkship with a two, half-day rotation for all clerkship students in one of two LTC facilities. The pilot curriculum consisted of guided, pre-rotation readings, a half-hour orientation, a review of the LTC facility's electronic health record, interviews with team members (e.g., nurses) and patients, beside rounds with the team, two patient presentations, and a debriefing.

Results

Outcomes measured were student comfort with caring for patients in LTC facilities and performance on the NBME Family Medicine Modular Subject Examination. NBME subject were higher by .05 points than the national average and 0.1 point higher than last year, prior to implementation of the nursing home curriculum.

Conclusions

Integrating geriatrics education and training is possible by integrating a structured LTC experience for medical students in the primary care clerkship.

A161
Interprofessional Education for Team-Based Geriatric Care

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Background: For health professionals, practicing patient care as part of a collaborative team is an important part of a healthy work environment and quality patient outcomes. Geriatric care is especially suited for interprofessional (IP) collaboration due to the multifaceted and interrelated issues that are common in this population. Teamwork and collaborative practice are not inherent, but requires purposeful and effective education. Education models that teach IP teamwork skills across a continuum of care for geriatric syndromes are needed.

Methods: We designed and implemented an interactive geriatric curriculum of didactic and simulation to build IP collaborative competencies for practicing health professionals. Didactic topics include medications, geriatric syndromes, elder law, emotional intelligence, and TeamSTEPPS. Building on didactic, we follow with an IP tabletop geriatric case simulation with a standardized patient playing caregiver. Teams review the case and develop a plan of care while integrating the caregiver, concluding with facilitator-guided debriefing. We collected data on demographics, education evaluation, and progression of IP competencies with the Interprofessional Collaborative Competencies Attainment Survey (ICCAS) pre and post education.

Results: 362 professionals participated from nursing, medicine, pharmacy, social work, paramedic, counseling, speech therapy and chaplaincy. Participants provided positive quantitative and qualitative feedback regarding evaluation of the education design, such as 94% agreed that the training was a valuable learning experience. Results showed a high pre-education ICCAS total score, and a non-significant decrease following the training (pre x=122.4, post x=115.5, p=0.19).

There were subscale increases on both the conflict management/resolution and team functioning (p=0.29, p=0.08, respectively).

Discussion: Based on evaluation feedback on the education, participants confirmed that an active learning pedagogy such as simulation is valuable. Our education model could easily be adapted in other care settings where interprofessional collaboration is lacking. By offering these training sessions to care providers, we can influence current work environments by creating a healthy team approach.

A162
Qualitative Impact of a Novel Inpatient Geriatric Curriculum

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Background: Older adults are more likely to be admitted to the hospital and more likely to experience negative hospital outcomes than younger adults. Successful care of older patients requires exposure to geriatric principles that guide the care of these vulnerable patients. Adult learners are purpose driven and internally motivated, and knowledge-based assessments have limited value. Properly executed, andragogy may represent a pathway to improve education, patient care, and interest in geriatrics.

Methods: At our institution each PGY2 Internal Medicine resident has a four-week rotation in Geriatrics. Starting in July 2018, one week is dedicated to the inpatient setting on a busy hospitalist teaching team. Prior to the inpatient week, learners receive an email containing expectations, orientation to team structure, and a self-guided, interactive, case-based geriatrics curriculum. Residents are expected to review each day's topic in advance and apply it to patient care. Teaching sessions are led primarily by the resident, who discusses application of the day's topic in the context of actual patient care. This facilitates targeted teaching by the geriatric fellow and/or attending to clarify questions and solidify knowledge. At the end of the week, the resident submits a commitment to change document. Completed forms were collected and analyzed for themes, motivation for change, and anticipated difficulty in implementing change.

Results: Eighteen commitment to change documents were eligible for analysis. Function was the most common theme, ranging from probing about baseline independence, assessing at the bedside, to prescribing early mobilization. Close behind was delirium screening, prevention, diagnosis, and/or treatment. Residents also had a healthy respect for early discharge planning and improving care transitions. Learners indicated that their motivation to change was high and anticipated barriers to change were generally low.

Conclusion: Applying adult learning theory in a case-based curriculum helped facilitate a successful one-week inpatient geriatrics teaching rotation. Qualitative feedback allows a data-driven approach for learners to participate in curriculum design and evaluation, as well as assess how curriculum goals are being achieved. Our learners have particular interest in improving functional assessments and preventing delirium, and they express confidence in their ability to change behaviors to meet the needs of hospitalized older adults.

A163
Using Maintenance of Certification to Promote Advance Directives: A Comparison Between Practicing Family Physicians and Their Resident Counterparts

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Background: Physicians and patients agree that primary care visits are the appropriate place to discuss advance directives (AD). This normalizes AD discussions and builds the patient-physician relationship. Yet AD completion rates are low. What barriers do family medicine physicians (FMPs) and residents (FMRs) perceive? How

do the two groups differ? Can a workshop focused on initiating AD discussions with geriatric patients address the barriers?

Methods: An inter-professional team designed and implemented a Maintenance of Certification (MOC) Part IV activity for FMPs and FMRs to meet ABMS requirements. The 90-minute, interactive workshop focused on the "whys" and "hows" of physician initiated <2-3 min AD conversations with geriatric patients using a quiz, video analyses, and facilitated role-plays. The same workshop was subsequently presented to FMRs (PGY 1-3). Retrospective "pre-post" evaluations of workshop processes and outcomes were analyzed with FMPs and FMRs comparisons.

Results: Eight FMPs and 38 FMRs completed the AD workshop and a post workshop evaluation. Pre-workshop, 25% of FMRs vs 0% FMPs reported that "discomfort in having AD conversations" was not a barrier. Post workshop both groups showed: 1) improvement on 4 literature-based barriers to AD discussions; 2) increased likelihood to initiate conversations with patients about ADs and more comfort re: "knowing what to say" and "competency"; and 3) likelihood to recommend the session to a colleague [FMPs were more positive]. Time was less a barrier to FMPs post vs pre-workshop.

Conclusion: FMPs and FMRs perceive AD discussions as fraught with barriers. A brief interactive AD workshop minimized perceived barriers and increased FMP and FMR commitment to initiate AD discussions with geriatric patients.

A164
Seniors As Teachers: What Students Actually Learn

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Background: Medical schools increasingly use home visits to a volunteer senior to teach geriatrics.[1] This has been required for students at the University of Minnesota since 2000 (for 20 class years). This model has previously demonstrated high satisfaction, improved self-confidence in geriatric assessment, attainment of competencies, and improvement in attitude scores, but has not been evaluated for students' description of key learnings.

Methods: Pre-clinical medical students complete a 1-hour on-line and 1-hour small group orientation and then perform a 1.5-hour structured home visit focused on geriatric assessments (e.g. life history, function, medication management, environment, mental status and spirituality). Following the visit, students reflect upon what they have learned and then have a 1.5-hour faculty facilitated small group discussion. Three investigators, including one volunteer senior, used formal qualitative methodology to abstract, code and analyze 97 randomly selected written reflections across three years, from 2016-18.

Results: Six themes about learning were recognized in the reflections: (1) how to perform an interview and exam in a home setting, (2) how life for seniors is different than students expected, (3) the value of physical infrastructure and amenities in senior housing, (4) the importance of senior's community, including family, neighbors, spiritual community, (5) challenges with aging, and (6) strengths among seniors in coping with such challenges while maintaining individual agency. Excerpts from reflections will be presented for each theme.

Conclusions: As a result of this experience medical students describe:

-Overcoming pre-conceived ideas about age-related disability and function

-Appreciating firsthand the challenges faced by seniors

-Recognizing the value of family, neighbors and housing environment

-Understanding the importance and methods of various forms of geriatric assessment

-Offering empathetic listening, including understanding the context of a seniors' statements from their living environment

The group debriefing allows students to appreciate the wide diversity among seniors, even on a single campus. A structured home visit experience is a model for geriatrics medical student education that is sustainable for 20+ years and effective to positively affect attitudes, skills and knowledge.

A165
Integrating Health Literacy into Healthcare Student Curriculum and Its Impact on Delivery of Care to Older Adults

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Background: Adults over the age of 60 are at an increased risk for low health literacy, with more than 60% at below basic levels. Because this population is susceptible to unique needs, the ability to effectively communicate health information is crucial for positive patient outcomes. To combat this issue, UNT Health Science Center (UNTHSC), Center for Geriatrics, has made it a priority to enhance communication capabilities with older adults by integrating health literacy principles into health professions students' curriculum through the Seniors Assisting in Geriatric Education (SAGE) program and Sr. Health Education Literacy Program (SR. HELP).

Methods: The SAGE program grouped first and second year health professional students (n=1067) from seven disciplines at the UNTHSC and Texas Christian University (TCU) into interprofessional teams (n=345) and were assigned an older adult mentor (n=116). After being trained on health literacy techniques, teams were tasked with creating a presentation covering a health topic requested by their mentor. In addition to the SAGE program, UNTHSC students (n=94) from three disciplines later participated in SR. HELP, which required teams to research a health topic and present to older adults (n=535) at local senior centers (n=8), further reinforcing health literacy strategies. Participants from the SAGE program, including students and older adults, were surveyed using a post-only, semi-structured Likert scale and results were evaluated for effectiveness.

Results: Among SAGE responses, 73% of students agreed the training was helpful in understanding how to effectively communicate using health literacy strategies. Additionally, 77% reported more confidence in their knowledge of healthcare needs for older adults. Analysis of mentor responses revealed 96% (n=107) felt better informed on the subject following the presentation and 91% (n=100) believe they can apply information learned to their health, with 81% (n=90) reporting to have already made changes in daily living.

Conclusion: Integrating health literacy strategies into health professional students' curriculum and applying techniques in an experiential setting can improve confidence and the ability to effectively communicate with older adults regarding health related issues.

A166
A New Geriatrics Interprofessional Curriculum for Advance Practice Nurses, Social Workers and Third Year Medical Students

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Background: Interprofessional (IP) collaboration is essential to the care of older adults as collaborative care models have been shown to improve health outcomes for patients.

Methods: To prepare students for IP team care for older adults, an innovative geriatrics curriculum for advanced practice nurses, master's level social work, and medical students was developed. The experience included four hours of pre-clinical and 16 hours of clinical work. Pre-clinical content included voice-over power points on five geriatrics content areas with pre- and post-knowledge multiple choice tests. We used paired t-tests to compare pre- and post-knowledge scores. Learners also completed pre- and post-attitude surveys toward geriatric patients and IPE team care. Linear mixed effect models were used to compare the difference of means between pre- and post-surveys. Comments on the surveys were categorized into themes.

Results: A total of 220 IP learners completed the curriculum. There were statistically significant differences between post- and pre-test scores by discipline for each content area and for all content areas together (p<.0001). The mean of attitudes toward older adults and quality of care as provided by an IP team was significantly higher in post- survey than pre-survey, respectively (p=0.03, <.0001) for all disciplines. Qualitative analyses about what new concept or skill trainees learned during their clinical experience found the most common themes were professional skills (e.g. communication), assessment skills, diagnoses and treatment, and resources. Leaners' comments addressed the length or timing of the experience.

Conclusion: A new geriatrics IP experience was developed. Pre- and post-test knowledge assessments showed significant improvement in scores for all disciplines and content areas. There were significant improvements in attitudes toward caring for older adults and the role of IP teams. Qualitative analyses found learners were positive expressing an appreciation for the preceptor, team, or environment.

A167
Mock Computerized Admission Order Set for a Simulated Patient with Pneumonia Improved Fourth-Year Medical Students' Knowledge of Writing Admission Order: A Pilot Curriculum of Entrustable Professional Activities (EPA) 4

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Background: Writing admission orders is a daily activity and critical skill for residents in majority of specialties and included in EPA4 (Enter and discuss orders and prescriptions). Previous data showed that medical students desired to place 100% of orders for their patients and believed placing orders helps learn what test and treatment patients need. Unfortunately, very few medical students are well prepared for this skill. Fourth-year students (MS4) could be at an ideal stage to learn this skill. This pilot was to test whether mock computerized admission order set for a simulated patient and ADCA VAN DIMLS (**A**dmit to, **D**iagnosis, **D**ischarge, **C**ondition, **C**ode status & level of care, **A**llergies, **V**ital Signs, **A**ctivity, **N**ursing, **D**iet, **IV** orders, **M**edications, **L**abs and imagine, **S**pecial orders) mnemonic could improve MS4's knowledge of writing admission orders.

Methods: This curriculum used flipped classroom approach and was unfolded as following three phases. 1) Pre-classroom phase.

Students were recommended to review online PowerPoint slides on the topic 2-3 days prior to coming to the classroom; 2) Classroom phase included the following three steps. Step 1: pre-test and brain storm (5-10 min); Step 2: Briefly highlight the background knowledge (20-25 min); Step 3: Case study in pairs. Students were offered a simulated case for admission. Multiple questions related to admission were asked and discussed in pairs (2-3 students) and then in big group (6-7 students) (30-40 min); Step 4: Each student completed mock computerized admission order set with the instructor's demonstration and instruction (50-60 min). 3) Evaluation phase. Online feedback given by students was collected. Pre- and post-tests of knowledge of ADCA VAN DIMLS were conducted before the workshop and at the end of geriatrics rotation respectively.

Results: This pilot EPA 4 curriculum was offered to 80 of 158 MS4 from Class 2017. The workshop was graded as 4 (1-5). Students' feedback was positive. Knowledge of 13 out of 15 ADCA VAN DIMLS was significantly improved.

Conclusion: This pilot EPA 4 curriculum using a flipped classroom approach has significant improved medical students' knowledge of writing admission orders for older adults. However, it is unknown whether students' admission orders in real patients were improved.

A168
Fourth Year Medical Students' (MS4) Perception of Goal Priority of Drug Therapy for Older Patients and its Association with Recommendation for De-Prescribing

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Fourth Year Medical Students' (MS4) Perception of Goal Priority of Drug Therapy for Older Patients and its Association with Recommendation for De-prescribing

Background: older patients often take multiple drugs for comorbidity and for different goals. This study was to explore MS4' perception of goal priority of drug therapy for older patients and its association with the number of drugs recommended for de-prescribing by MS4.

Methods: A curriculum of patients' and families' value- and preference-based prescribing and de-prescribing was offered to teach all MS4 how to integrate value- and preference-based prescribing and de-prescribing with practice guidelines and other factors. MS4 were asked to rank the importance of five goals of drug therapy when treating older adults i.e. relieving symptoms, preventing diseases, prolonging life, reducing hospitalization, and improving or maintaining independent function from the most important (n=1) to the least important (n=5) in the beginning (pretest) and the end (posttest) of geriatrics rotation. MS4' chart review was used to count the number of drugs recommended for de-prescribing by students. Nonparametric test was used to examine the differences of perceiving goal priority of drug therapy between pretest and posttest. Person correlation was used to test the association between the perceived importance of goal priority of drug therapy and the number of drugs recommended for de-prescribing by each student. P< 0.05 was defined as statistically significant.

Results: 305 MS4 from Class 2016-17 participated in this study. MS4 perceived goal priority of drug therapy on reliving symptoms and improving and maintaining function more important than prolonging life, preventing diseases and reduce hospitalization as 1.64, 1.75, 3.63, 3.93, and 2.84, which became more significant at the end of geriatrics rotation. The perceived importance of goal priority of drug therapy and the number of drugs recommended for de-prescribing by each student was not significantly associated.

Conclusion: MS4 perceived goal priority of drug therapy on reliving symptoms and improving and maintaining function more important than prolonging life, preventing diseases and reduce hospitalization before and after the curriculum. However, this was not associated with practice behavior on de-prescribing.

A169

Chaplain Role on Health Care Interprofessional Teams

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Background: Clinical pastoral care serves a critical need for older adults and their caregivers who are faced with chronic medical illness and functional decline. Chaplain students seeking board certification must amass 1600 clinical hours. Little training exists on chaplain integration in the healthcare team. This investigation presents findings from interprofessional (IP) training simulation that embeds clinical pastoral students with healthcare students.

Methods: Students were recruited to participate in a progressive, active learning experience related to geriatric care and falls prevention. Preassigned didactics established baseline knowledge in geriatric principles and TeamSTEPPS® concepts. The live training consisted of 2 parts: interactive posters to review didactic concepts and an IP case discussion that included a patient and family with spiritual care needs facilitated by trained faculty. We collected demographics and evaluation of training effectiveness using pre and post team valuation scores with the Interprofessional Socialization and Valuing Scale (ISVS) as well as satisfaction feedback.

Results: 542 students from medicine, pharmacy, nursing, PT, OT, SW, speech, PA, EMS, APN, dietetics and chaplaincy participated. Chaplain students (n=15) scored 109.2 (SD 12.4) at baseline on the ISVS and increased to 120.5 (SD 6.9) after the training (p=.1211). Of the three ISVS subscales (ability, value and comfort), the chaplaincy participants had the greatest increase in self-perceived ability to work with others (44.9 baseline to 50.3 post education, p=.0768). Overall ISVS summary score for all students at baseline was 118.1 and increased to 124.8 post educational intervention (p<.0001).

Discussion: Healthcare professions, including pastoral care, need training in IP teamwork. Patients value the integration of spirituality into their medical care as a means to being treated as a person. Studies demonstrate that improved relations between chaplains and the healthcare team is needed including increased participation in the IP care teams. Training alongside students of other health care disciplines increases chaplain confidence while normalizing the esoteric language of spiritual care for other team members. We have presented a model that successfully integrates pastoral care students as members of the IP team in simulation.

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A170

Adaption of Geriatric Education Model Across Sites: Does Group Size Matter?

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Background: Quality healthcare of older adults requires interprofessional (IP) collaboration. Students entering the workforce will need to possess collaborative practice skills. Accrediting bodies for higher education now require purposeful IP education. Programming IP education requires coordination of student, educator, and institutional needs making implementation of a single model difficult. We describe a successful IP geriatric education curriculum that can be implemented either as a large or small scale event.

Methods: An IP team of educators, clinicians, and community representatives designed an interactive geriatric curriculum. Students had preparatory online didactic covering geriatric syndromes, medications, community resources, and TeamSTEPPS. The in-person events consisted of interactive skill stations followed by an IP simulation with a standardized patient portraying the caregiver. A facilitator-guided

debriefing followed. Educators recruited students to participate either voluntarily or as a required course experience. Two implementation models arose based on institutional needs: 1) one large session off >100 per semester, or 2) multiple small sessions of <50 per semester. Data included demographics, education satisfaction, and pre/post Interprofessional Collaborative Competencies Attainment Survey (ICCAS). Paired t-test evaluated the change in pre/post scores between groups. The IRB approved this study.

Results: There was no different between large group (n=700) and small group (n=313) sessions in pre or post ICCAS scores. Large groups (n=278 paired) demonstrated increased ICCAS mean change in score of 8.7 (SD = 24.4) (p<0.0001). Small groups (n=133 paired) demonstrated increased ICCAS mean change in score of 7.0 (SD=39.5) (p=0.043). Both groups rated the sessions as effective.

Discussion: We demonstrated that a single curricular model could be implemented in either large or small scale to best meet the needs of students and faculty. Large group sessions require more intensive organization, and greater recruitment of students and faculty for a single day. Small group sessions may be easier to organize, offer flexibility for students, but require more frequent educator commitment. Regardless, students found the education effective and enjoyable.

A171

A Novel Educational Experience for Internal Medicine Residents incorporating principles of Post-Acute Rehabilitation, Transitional Medicine, and Communication Skills

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Background: Transitions of care to and from SNF settings are increasingly common for older adults, yet remain high risk periods for medical errors and functional setbacks. Transitions are also highly stressful times for patients, necessitating empathic communication from medical teams. Mentored experiences in transitional medicine, nursing home medicine, and patent communication remain underrepresented in residency education. With this in mind we developed an educational experience with the goal of improving competency in transitions of care, nursing home medicine, and patient-centered communication.

Methods: This experience is embedded within a 2 week Geriatrics rotation for Internal Medicine Interns. One patient is observed on 2 sessions, allowing the intern to establish rapport and observe functional changes within the rehab setting. Intake to SNF rehab is completed under supervision of an attending physician and the patient is observed in physical and occupational therapy. The intern critically appraises the hospital discharge with a form that asks about adequacy of the discharge summary, appropriate anticipatory guidance to the accepting SNF rehab team, whether medical plans were tailored to the SNF environment, and whether any medication errors occurred during the transfer process. In a second interview with the patient and under the guidance of a psychology fellow, medical communication skills are emphasized and content focuses upon the patient's perspective of functional abilities, setbacks, and psychosocial stressors.

Results: Interns who completed this experience were surveyed about skills gained. 90% of respondents felt this experience improved their communication skills with older adult patients. 90% also perceived an improvement in their ability to perform high quality discharges for older adults. All respondents felt the experience increased their knowledge of the SNF rehab setting, and all felt better attuned to the risks facing older adults during transitions from hospital to SNF rehab.

Conclusion: This model is a practical and effective introduction to the nursing home environment, transitions of care, and patient-centered communication for Medicine Interns.

A172
Barney 3.0: A Bicampus Interprofessional Hospital Discharge Simulation

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Background:

Interprofessional (IP) education is a core competency across all healthcare disciplines and educators continue to seek innovative ways to engage IP learners. Barney 3.0 is an IP simulation during which teams of medicine, physical therapy (PT), occupational therapy (OT), and pharmacy students practice collaborative patient care in a hospital discharge encounter followed by a simulated community pharmacy encounter. The patient, Barney, is an older adult who is ready to discharge home from the hospital with home health.

Methods:

The simulation occured in the Neis Clinical Skills Lab with nearly 100 students each session. All students were on site except pharmacy learners. On-site learners performed a group chart review followed by a discharge encounter with standardized patient actors as Barney and his wife. This was followed by the community pharmacy encounter using video conferencing, and then a debrief session with all students and faculty. Data was collected using a five-point scale ranging from strongly agree to strongly disagree via a post-encounter REDCap survey with questions focused on IP collaboration perceptions following the simulation.

Results: Since February 2018, 247 students participated, including Medicine (118), PT (60), OT (37), and Pharmacy (32). The overall response rate was 52%. Of survey respondents, 95.4% reported Barney 3.0 would improve future patient care, 88.5% felt more equipped to communicate with other professions because of the simulation, 81.6% reported they learned something new about the roles of their IP team members, and 99.3% felt it was important to trust other healthcare professionals on the IP team.

Conclusions: Barney 3.0 was a meaningful, IP activity to practice IP skills and encourage collaborative practice for the future.

A173
Intern Bootcamp: Differentiating Level of Intervention Code Status Orders

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Background: The University of Kansas Health System recently adopted new code status designations that specify discrete levels of intervention (LOI) desired by the patient in the event of health status decline. They expand the previous options of Full Code and DNAR to further delineate the patient's goals of care in a concise and accessible way. These LOI are based on the Transportable Physician Orders for Patient Preferences (TPOPP), which is the regional adaptation of the POLST paradigm. Rolling out new language related to code status designations requires education at all levels and this project sought to design and evaluate education presented to incoming residents as a pilot for future broader education.

Methods: As part of the required Intern Bootcamp, all incoming residents attended a large group session focused on an overview

of the LOI, TPOPP, and illness trajectory. Those in fields other than ophthalmology and dermatology participated in small group sessions led by Geriatric and Palliative Medicine faculty which used rapid-fire case studies to highlight distinctions between LOI designations. This was integrated with a demonstration of how to input and locate this information in the Electronic Medical Record (EMR). Participants answered a REDCap survey prior to the initial session and after the small group discussion focused on comfort and knowledge.

Results: 108 residents participated in the small group session. Response rate was 80.5%. Resident-rated understanding of the LOI increased for "most situations" from 21.3% to 95.4%. Confidence interpreting LOI in the EMR increased from 35.9% to 94.3% and inputting the order increased from 24.3% to 86.2%. 87.4% felt the smaller session was more helpful than the larger session. Knowledge assessment post-intervention indicated accurate interpretation (Full Code 100%, DNAR-Full Intervention 94%, DNAR-Comfort Measures Only 97%, DNAR-Limited Intervention 98%).

Conclusion: Incoming residents had improved understanding, confidence and knowledge of a unique code status designation system following this educational intervention. More opportunities exist to expand this education to other members of the healthcare team.

A174
Long Term Impact of a Peer-Led Health Promotion Program Offered to Older Adults with Fear of Falling

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Background: Several studies indicate that fear of falling (FoF) can impede on older adults' social participation and quality of life and increase their fall risks. However, few fall prevention programs include FoF among their intervention targets. A peer-led group intervention targeting FoF (*Vivre en Équilibre-VEE*) was developed in Quebec (Canada) based on a cognitive-behavioral program that had previously shown its efficacy. A pragmatic effectiveness study was conducted to estimate the impact of *VEE* when it is offered in independent-living facilities for older adults.

Methods: 135 participants aged 65 years or older and presenting with FoF were recruited in independent-living facilities for older adults. Seventy-four of them participated in *VEE* and 61 participated to control groups (receiving a fall prevention pamphlet). Fall-related psychological variables, activity restriction, physical activity, social participation and falls were measured before and after *VEE*, as well as 5 months post-program. The impact of the program was measure using multilevel regression models controlling for age, sex, perceived health, falls, and baseline scores for outcome measures.

Results: Five months after the intervention, results showed a positive impact of *VEE* on older adults falls control, perceived ability to prevent falls, knowledge about falls and their prevention, activity restriction and social participation. FoF was lower among *VEE* participants, but the difference among experimental and control groups was not statistically significant ($p = 0.055$). No significant impact of the program was found on falls incidence.

Conclusions: This study showed that *VEE* can lead to positive psychological outcomes and improve seniors' level physical activity and social participation. Such program is promising, as its peer-based approach recognizes the important contribution of older adults as active members of their community.

A175

Using a 12-Step Process to Assess Appropriateness of Medications and Polypharmacy Among Older Adults: a Four Year Patient Safety Longitudinal Curriculum

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Background

Almost 60% of U.S. adults take a prescription drug, and 15% take five or more. Polypharmacy can potentially be unsafe among older adults and may lead to serious adverse events. Student medical training should focus more on adverse drug events and side effects, and not just on medication indications.

Methods

At the FIU Herbert Wertheim College of Medicine, we have developed the following 12 step systematic approach to evaluate medication safety among older adults. When assessing polypharmacy and medications, students are required to: 1) List all medical conditions; 2) List all medications, including over-the-counter medications (OTC) and nutraceuticals; 3) Do a comprehensive review of systems; 4) calculate GFR/ Creatinine/ Creatinine Clearance; 5) Assess if any of the medications are included in the Beers' list; 6) Check if all medications, including OTC are indicated for the patients' medical conditions; 7) Use Epocrates/Micromedex (E/M) to review drug-drug interactions; 8) Use E/M to determine if all the medications dosages are acceptable for the patient's kidney function; 9) Use E/M to review contraindications and cautions with the patients' other conditions; 10) Use E/M to review adverse reactions and match it with patient's Review of Symptoms; 11) Use E/M to review safety and monitoring of each medication and 12) Use Natural Medicine Database/ Epocrates/ Micromedex to review OTC and Nutraceuticals and their safety and evidence.

Students are required to complete ten (10) of these assessments during the 4 years of the medical school curriculum as part of the patient safety curriculum. During the first year, students complete two (2) assessments as part of the evidence based and integrative medicine course. During the second year, students complete 7 (seven) graded exercises about medications and their side effects as part of clinical skills geriatrics course; and during the fourth year: 1 (one) clinical online assessment case about polypharmacy.

Results

The curriculum has been implemented and evaluated since 2015. One hundred percent of the students have completed the assignments. Ninety eight percent (98%) of all students have passed the final exam evaluating this method during the 4th year of medical school since 2017.

Conclusions

A patient safety curriculum is an effective way of integrating polypharmacy management among older adults.

A176

Changing Attitudes of Geriatric Care Among Interprofessional Healthcare Teams

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Background: Care of older adults is multi-faceted, which requires an interdisciplinary approach. Training individuals in knowledge of geriatric care alone is insufficient to affect primary care practice of the aging population.

Methods: Four 2-hour educational intervention sessions were developed by an inter-professional (IP) faculty group for primary care professionals. Primary care teams in 8 community health centers (CHC) received the intervention. Participants included (average over 4 sessions) physicians (30), nurse practitioners (10), nurses (42), social workers (14), medical assistants (84), patient navigators (5), and site administrators (14). Participants were introduced to geriatric principles and syndromes, principles of care coordination, and IP team skills through didactic presentations. Additionally, case-based small group work facilitated by the IP faculties involved team members to adopt simulated roles different from their own professional roles. Surveys regarding attitudes toward older adults (Reuben) and towards inter-professional care (Heinemann) were sent electronically to all participants prior to the first 2-hour session and 3 months after the final 2-hour session. Rueben survey was a single scale of Geriatric attitude, and Heinemann survey were consisted of two subscales: quality of care (QOC) and physician centrality. Pre- and post-intervention surveys results were compared for all sites together and for each individual site using linear mixed effect regression models.

Results: In total, 176 completed surveys were completed across the 8 CHC. For all sites together, the scores of the Reuben and the QOC subscale were significantly higher post-intervention than pre-intervention (p<.0001; 0.0005). There were no significant pre-post differences in the physician centrality subscale scores.

Conclusions: Multi-faceted inter-professional, experiential geriatric educational intervention directed toward primary care teams can significantly improve and sustain attitudes towards working in teams and the impact of working in IP teams with older adults.

A177

Are Medical Students Well Trained for Interdisciplinary Format of Medical Education?

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Background/Objective: Better medical education models based on an interdisciplinary format are needed. Senior medical students get limited exposure to the complexities of geriatric medicine, especially that of dementia, and need better training models. Complex comorbidities, cognitive decline, financial and other stressors in older adults, necessitate an interdisciplinary team (IDT) approach for optimal clinical and functional outcomes. The objective for curriculum development was to provide senior medical students an overview of IDT assessment of dementia and to improve perceptions and care of patients with dementia.

Methods: The curriculum consisted of didactics, clinical experience, and team based learning (TBL): i) overview of dementia, with the roles of various disciplines in dementia assessment, ii) observation of a patient assessment performed by each team member, and iii) students present case using TBL format, and discuss differential diagnosis and management with a geriatrician. Pre- and post-evaluations were obtained (rated Poor (1) to Excellent (5)) to assess the students' perception of their ability to assess dementia and IDT members' roles.

Results: Of the 50 student participants, 50% were female and 48% reported they had not previously attended an IDT assessment of dementia. There was a significant change in the students' self-efficacy ratings pre- to post-assessment (p<0.05). Only 10% rated their ability to assess for dementia as 'very good' or 'excellent' in pre- compared to 92% in post-assessment. Similarly, the ability to assess behavioral problems, caregiver burden, and cognition improved from 6% to 78%; 6% to 75%, and 18% to 86%, respectively. Students' perception of the impact of behavioral problems on dementia care improved significantly (36% to 96%, p<0.05).

Conclusion: Senior medical students are not routinely exposed to IDT assessments. Providing an interdisciplinary format of education not only improved their perception of their ability to assess for dementia, but also their perception of the roles of IDT members in dementia assessment.

A178 Encore Presentation

Understanding context in collaborative decision making at Geriatrics multidisciplinary rounds (MDRs)

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Background:

MDRs provides an important platform for the interprofessional team to come together to discuss patients with multifaceted needs and formulate a care plan. However, leading a MDR discussion is a complex task which healthcare professionals seldom receive training in. The Cynefin framework helps leaders determine the prevailing context to facilitate decision making in different situations. The aim of this project is to evaluate the communication strategies used in Geriatric medicine MDRs and how collaborative decision making is carried out using the Cynefin framework.

Methods:

Tape-recorded MDR sessions chaired by 6 different Geriatricians were transcribed and analysed qualitatively to identify what communication strategies were used in patient case discussions in relation to the complexity of the prevailing context. The complexity were gauged by the interplay of medical, functional and social issues in each patient case and were divided into simple, complicated, complex and chaotic according to the Cynefin framework.

Results:

Team leaders used communication strategies such as focused discussion, story-telling, framing core issues and sense making. Leaders who were able to adapt communication strategies to manage the prevailing context were more effective in collaborative decision making. For complex and chaotic cases, repeated MDR discussions over 2 or more weeks were necessary to sort out the complex medical, functional or social issues.

Conclusion:

Without structured training, healthcare professionals are often tasked to lead in MDR discussions and decision making which will impact significantly on patient's care. The Cynefin framework provides a feasible model for team leaders to appraise the prevailing context in MDRs so that communication strategies can be tailored to improve team decision making.

Cynefin Framework	Factors	Outcomes	Process	Communication strategies
Simple	Known, clearly defined	Known, predictable	Structured, more directive, less time consuming	Focusing the discussion on a particular issue with a specific team member
Complicated	Known, less defined, issues often inter-related	Unknown, somewhat predictable	Less structured and directive, more time required to come to a decision	Creating a narrative through story telling to bring everyone on board
Complex	Unknown, often includes interacting medical, social and functional issues	Unknown, somewhat unpredictable	Less structured, more iterative multiple rounds of discussion	Framing core issues by identifying patterns that enable shared decision-making among team members
Chaotic	A lot of uncertainty, often involves issues beyond immediate team purview	Unknown, unpredictable	Iterative with repeated discussions usually necessary	Sense-making to get team members on the same page; empowering team members to do what is required

A179

Building Capacity for Older Adult Care: An Innovative Approach to Education

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Background: The healthcare workforce is not well prepared to manage the care of older adults.

Formed as a collaborative partnership leveraging existing educational courses offered online and in-person in southern Ontario, Canada, with new courses developed to fill existing education gaps, the Geriatric Certificate Program (GCP[TM]), is aimed at providing continuing education for practicing health care professionals working with older adults. The presentation describes the GCP and evaluates its impact on knowledge, skills, and clinical practice.

Method: All GCP graduates (N = 238; N = 100%) completed an online evaluation survey upon program completion. Using 5-point scales (strongly disagree – strongly agree), graduates rated the impact of the program on acquisition of new knowledge and practical skills, enhancement of quality of care, increased career opportunities. Graduates also rated changes to comfort, confidence, and competence in providing care for older adults (5-point scale: much less now – much more now), and identified the ways in which their clinical practice had changed as a result of the program

Results: Graduates included 208 regulated professionals and 31 non-regulated health professionals. The majority of graduates agreed that the program provided new knowledge (95%) and practical skills (88%), and increased the quality of care they provided (92%) and career opportunities (78%). As a result of the program, the majority of graduates reported being more confident (90%), comfortable (88%), and competent (91%) to provide optimal care for older adults. Self-reported practice changes included: improved assessment and management of responsive behaviours, increased use of standardized tools, improved communication, advocacy, education and support to clients, and improved staff education. Opportunities for improving the program were identified.

Discussion: Collaborative partnerships among existing educational programs to create the GCP represent an innovative and effective method of improving access to education that has the potential to improve care for older adults.

A180

To pee or not to pee: Prevalence of Acute Urinary Retention in a Geriatric Population

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Background:

Acute urinary retention (AUR) is a commonly encountered inpatient problem in the elderly. The standard of care in treatment of AUR includes urinary catheterization, which can be associated with significant patient discomfort, hematuria, urethral trauma and urinary tract infections. We were unsure of the prevalence of urinary retention seen by our Mobile Acute Care for Elders geriatric consult team, and its impact on older adults in our hospital.

Methods:

We undertook a retrospective chart review of all patients seen by the Mobile Acute Care For Elders geriatric consult team at our institution over 3 months. Urinary retention was defined as patient discomfort with distended bladder, inability to void, inability to void with ultrasound bladder volume greater than 500 cc, patient discomfort or palpable bladder with volume of urine greater than 400 cc. We excluded patients with spinal cord injury, neurogenic bladder, chronic indwelling catheter, patients with indwelling catheters placed in critical care settings in whom urinary retention could not be ascertained and those on hemodialysis.

Results:

108 patients were seen Mobile Acute Care For Elders geriatric consult team over the time period. Of those, 50 patients met the inclusion criteria. The age range of patients was 69-99 years. Of those 8 were post-operative patients and 42 did not undergo any surgery or procedure. AUR occurred in 13 out of the 50 patients (26%). All 13 patients were managed with urinary catheterization – 7 (54%) of these patients had an indwelling catheter placed for urinary retention and 6 (46%) underwent intermittent catheterization. Only 1 of 13 patients with AUR was discharged home with an indwelling catheter after failing a voiding trial.

Conclusion:

Acute urinary retention was common among patients seen by the seen Mobile Acute Care For Elders geriatric consult team. Patients were exclusively managed urinary catheterization. Management of urinary retention of with non-invasive techniques such as hot water bags is a promising area for study to reduce urinary catheterization at our institution.

A181

Vitamin D deficiency and its impact on geriatric trauma patient's outcomes

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Background: Trauma in geriatric patients is a major cause of long-term disability with variable recovery. Preclinical studies suggest that vitamin D status influences the recovery after geriatric trauma. Purpose of this study was to assess the impact of Vitamin D deficiency in Geriatric trauma patient's outcomes.

Methods: We analysed retrospective electronic data of patients admitted to geriatric trauma service from 1st January 2016 to 31st October 2018 at HackensackUMC, a 775 bed level two trauma center in NJ, USA. We collected data on demographic factors (Gender, Age); initial strength testing (level of assistance); severity of Injury scale (ISS), nosocomial complications (DVT & Pneumonia); length of stay (LOS); disposition (Home vs Acute rehab vs Subacute rehab), readmissions and Vitamin D levels on admission. Serum vitamin D (25-Hydroxy-Cholecalciferol) was categorised as deficient (< 20 ng/ml); insufficient (20-30 ng/ml) and normal (>30 ng/ml). Patients with ISS>25, admitted to Geri-trauma service for less than 48 hrs and those who died or were on comfort care protocol were excluded from the study.

Results: Of the 936 patients admitted to geriatric trauma service, 562 patients had Vitamin D levels drawn on admission. 116 patients were deficient (20 %), 117 patients were insufficient (20%) and 148 patients had normal levels (26%). MANOVA Pillai's trace, showed a significant effect of Vitamin D levels on ISS and LOS, p =0.039. The chi-square test showed non-significant relationship with the frequency of 30 day re-admissions (χ^2 (2) = 1.07, p = .586) Discharge destination (χ^2 (6) = 6.40, p = 0.381) Mortality (χ^2 (2) = 0.582, p = 0.748) level of assistance (χ^2 (4) = 2.30, p = 0.682) and frequency of complications χ^2 (4) = 1.86, p = 0.762).

Conclusions: Our study recorded vitamin D insufficiency and deficiency in 40% geriatric trauma patients. Significant impact of vitamin D deficiency was seen on injury severity and LOS. Though there was no statistical impact on function and nosocomial complications, further research studies with a larger cohort population will give us a better picture about relationship of Vitamin D levels and its effect on patient outcomes.

A182

Survival of patients following percutaneous endoscopic gastrostomy (PEG)

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Background: Dysphagia can be due to neurological, structural (including malignancy) or functional disorders. The prevalence increases with age; as all components of the swallowing mechanism are affected by age and older people are more at risk to have diseases that affect swallowing. Aspiration pneumonia is a potentially serious complication of dysphagia. Percutaneous endoscopic gastrostomy (PEG) is a therapeutic option to secure enteral access and reduce the risk of aspiration in such cases. 30-day mortality in patients undergoing (PEG) insertionhas previously been estimated at 16-30% but long-term survival data are limited. We therefore aimed to assess survival in this patient cohort.

Method: In this single-centre retrospective study, we identified patients undergoing PEG insertion between Jan 2010 and Dec 2013. Vital case ascertainment was performed using a real-time informatics software (Oasis). Retrospective follow-up was performed until Jan 2017. Indications for PEG were broadly grouped into categories of: neurological, learning difficulty, carcinoma and other. Continuous variables were compared using the Kruskal-Wallis method. Time-to-event analyses were performed using the Kaplan-Meier method, and multivariable analyses conducted using the Cox-regression method.

Results: Over the four-year study period, 276 PEGs were performed for the indications of: neurological (N=147; 53%), learning difficulty (N=17; 6%), carcinoma (N=61; 22%) and other (N=52; 19%). The median age of patients varied by indication (neurological: 78y, learning difficulty: 29y, carcinoma: 64y, other: 70y; p<0.001). 30day mortality was 10.5%. The Kaplan-Meier estimates for1y and 5y survival rates for the overall cohort were 64.3% and 40.9% respectively. On univariable analyses, mortality increased with each increasing quartile of patient age (p<0.001), but not by indication (p=0.077). On multivariable analysis (Figure) considering age and indication, the hazard ratio (HR) for mortality was 1.03 (95% CI: 1.02 to 1.04; p<0.001) for each incremental year of patient age, with no difference in age-adjusted survival by indication (p=0.977).

Conclusion: In this case series, one-year and five-year post PEG survival rates were 64% and 41% respectively. Survival following PEG was influenced by the age of the patient (with shorter survival in older patients), but not the indication for PEG.

A183

Community Living Center Admissions Flow Study: An Observational Study of Nursing Home Referral Patterns

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Background: The Community Living Center (CLC) at the Oklahoma City Veteran Affair (VA) Health Care System is a Short-Stay Nursing Home attached to the main hospital. It provides post-hospital care including rehabilitation, skilled nursing care, and geriatric evaluation and management by way of comprehensive and interdisciplinary team approach. In effort to assist with hospital flow and initiatives to reduce the hospital length of stay, an evaluation of CLC Consultation patterns was requested to improve acceptance rate and timeliness to CLC admissions.

Methods: A retrospective review of the last 100 referrals to the CLC in Fiscal Year (FY) 2017 was conducted for both inpatient and outpatient referrals. We identified the time frame that these referrals were received and completed. Then we evaluated percentage of the referrals admitted to the CLC. The most common reasons for "not being admitted" were further reviewed. Of these, those in which, "needs higher than can be met on the CLC" were chart reviewed to see what patterns could be observed.

Results: Majority of consults are from inpatient setting with more than of half of them admitted to the CLC. Most referrals were completed within 48 hours. Most common reason for "not being admitted" to the CLC is: "Needs higher than can be met on the CLC" (42%).

Conclusion: More than 90% of the "needs higher than can be met on the CLC" were composed of multiple exclusions including medical, and nursing matters. Efforts have been made to decrease the completion time for CLC referral and increase the percentage of admission to the CLC which in turn would help decrease the hospital length of stay at VAMC. The CLC information sheet, comprising of a short description of the CLC function and services it offered, was updated and is distributed to different services. CLC consult revision has been made to the Computerized Patient Record System to reduce common reasons for not being admitted to the CLC found during this review. Meanwhile, the Nurse Manager and Social Worker have been

actively involved in the evaluation for the admission to the CLC. Further studies have been conducted since then: Review re-admission trends in comparison with other dispositions and re-evaluate the efficiency and flow of Veterans referred to the CLC, especially from inpatient services, 6 months and one year after the implementation of the above measures

A184
Successful implementation of gait speed as a "6th vital sign" in a Nephrology clinic

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Introduction: Gait speed represents a feasible way for high volume subspecialty clinics to screen for patients who may be frail. This QI project integrated gait speed measurement into an outpatient Nephrology clinic and explored its use as a tool to support clinical decision making.

Methods: We began measuring gait speed in a once-weekly VA Nephrology clinic following an educational session to the interprofessional QI team by a Geriatrician, introducing gait speed as a frailty screen. The QI team included Nephrology providers, pharmacists, and a Geriatrician. Gait speed was measured once over a 4-meter distance marked on the clinic hallway wall after 2 meters for acceleration, as a patient walked from the waiting area to the clinic room. Gait speed results were entered in the electronic medical record as a vital sign. Changes in clinical decision making as a result of the gait speed assessment were recorded in real time.

Results: There were 106 patient visits in the once-weekly clinic over the 4-month pilot period. 69 patients (65%) completed the timed 4m walk, 16 (15%) were unable to ambulate and 21 (20%) were unintentionally missed by the QI team due to personnel constraints. The median gait speed was 0.93 m/sec. Of the 69 patients whose gait speed was measured, 33 patients (48%) had a gait speed >1 m/sec, 11 (16%) had a gait speed between 1—0.8 m/sec, and 25 (36%) had a gait speed ≤0.8m/s. 18 (26%) ambulated with an assistive device. Results of the timed 4 m walk led to 15 changes in clinical decision making. These changes included 8 referrals to Geriatrics, 2 reductions in antihypertensive medications, and 6 referrals to additional services (Home Care=1, Physical Therapy=2, Audiology=1, Optometry=1).

Conclusions: An interprofessional QI team successfully integrated gait speed as a "sixth vital sign" into the workflow of an outpatient Nephrology clinic. 36% of our population had a gait speed ≤0.8m/s, excluding the 16% who were wheelchair-bound and unable to ambulate, concerning for frailty. Gait speed was a feasible screening tool for frailty that impacted clinical decision making in real time.

A185
Preoperative Frailty and Postoperative Delirium Affect 6- and 12-month Functional Status after Cardiac Surgery

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Background: Preoperative frailty and postoperative delirium (POD) may affect patients' functional status after cardiac surgery. We compare four groups of cardiac surgery patients (with preoperative frailty only, with POD only, with frailty and POD, and without frailty or delirium) on 6- and 12-month postoperative functional status. Main and interaction effects of frailty and POD were investigated.

Methods: This cohort study prospectively evaluated consecutive adult patients (≥ 20 years) undergoing cardiac surgery. Preoperative frailty (meeting three of five Fried's frailty criteria) was assessed at admission. POD was assessed daily by trained nurses for 10 days after surgery using the Confusion Assessment Method. Functional status (6-minute walk distance, 6MWD in m and hand grip strength, HGS in kg) was assessed preoperatively and 6 and 12 months postoperatively.

Results: Of 305 participants scheduled for cardiac surgery, frailty presented in 29.5% (n=90) and POD developed in 13.3% (40/301). Frail participants were at increased risk of POD (odds ratio=4.34; 95% confidence interval=2.18-8.65). Classifiable participants (n=298) fell into four groups: comparison (no frailty/no POD), frailty only, POD only, frailty-POD. Independent of age and cardiac risk (defined by the EuroSCORE II), frailty was significantly associated with lower 6- and 12-month 6MWD (β= -97.0, P<.001; β= -133.2, P<.001) and 6- and 12-month HGS (β= -9.5, P<.001; β= -7.6, P<.001) than in the comparison group. POD was significantly associated with lower 6-month 6MWD (β= -80.8, P=0.02) and 6- and 12-month HGS (β= -7.1, P=0.01; β=-6.5, P=0.016). Interactions between frailty and POD were found in all models with positive parameter estimates.

Conclusion: Preoperative frailty led to a 4.34-fold increase in POD risk. Both frailty and POD were risk factors for impaired functional status 1 year after cardiac surgery, but the sum of these effects were not additive. Frailty may be used as a pre-surgical screen to identify patients who might benifit from delirium prevention and functional recovery programs to maximize functional outcomes.

A186
Prognostic Awareness and Palliative Understanding Among Caregivers of Patients with Dementia

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Background: Dementia accounts for one of the leading causes of debility and death. These patients often have significant cognitive deficits and functional limitations, requiring substantial caregiver assistance. Unfortunately, patients with dementia compared to those without are less likely to be referred to palliative care and hospice, and often receive fewer palliative medications. Thus, the goal of this project was to survey caregivers of patients with dementia and to assess their prognostic awareness and palliative care understanding.

Methods: Cross-sectional study. Surveys were mailed to 200 primary caregivers of patients with the diagnosis of either mild cognitive impairment (MCI) or dementia in 2012 and then this survey was sent out to 40 new primary caregivers in 2018 to assess if there were any changes over time. Questions were directed toward caregivers asking demographic information, disease understanding of dementia, prognostic awareness and palliative care understanding.

Results: A total of 128 responded (53%) with the mean age of caregivers being 71.7 years. Only 39.5% of caregivers felt the diagnosis of dementia was terminal compared to 42% in 2018. Only 25% stated that their doctor had talked to them about prognosis without statistical significance between years. Surprisingly in 2012, 42% compared to only 28% in 2018 felt their loved one had less than 10 years to live. 83.3% had talked to their loved one about advance care planning (ACP) without statistical significance between years, but only 33% stated they talked to their physician about ACP. 36% compared to only 15% in 2018 felt that they were knowledgeable about palliative care, though the majority felt they understood the difference between palliative care and hospice.

Conclusions: Dementia is a progressive neurodegenerative disease with high morbidity and mortality. There still appears to be significant misunderstanding that dementia is a terminal diagnosis and poor prognostic awareness among caregivers. In addition, even though caregivers seem to state they have good understanding of the difference between hospice and palliative, there appears to be a large knowledge gap in the understanding of palliative care. Additional work is needed to improve prognostic awareness and palliative care understanding among caregivers of dementia patients.

A187

In house General Inpatient hospice (GIP) care model and its impact on referral and acceptance of hospice

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Background: Hospice is designed to give supportive care to people in the final phase of a terminal illness and focuses on dignity, comfort, and quality of life rather than cure. The GIP option focuses on meeting the needs of those patients that require more intensive management of uncontrolled symptoms. Impact of having access to GIP in the acute care setting has not been well studied.

Objectives: Analyze the impact of GIP at Hackensack University Medical Center (HackensackUMC) on referral and hospice enrollment.

Methodology: A retrospective review of the electronic medical record database of all adult patients admitted to HackensackUMC, a 775 bed academic hospital in New Jersey was done for years 1/1/2011 to 4/30/2013 (no GIP); 5/1/2013 to 9/10/2016 (GIP cluster bed) and 9/11/2016 to 11/2018 (GIP scatter bed). Data was collected on eligible candidates for demographics (age, diagnosis) and quality metrics (days of admission till referral for Hospice, number of Hospice referral (HR), hospice enrollment (HE) and hospital 30 day readmission during this period). All analysis was performed using SPSS software, version 24, for Windows.

Results: 8424 hospice referrals were made during the study period. Diagnosis for HR included malignancy (21.59%), heart failure (5.47%), lung disease (4.36%) and other (dementia, CVA and sepsis 72.97 %). ANOVA showed a statistically significant reduction p=0.000 on the time when HR was placed from the day of admission to hospital after initiating GIP in the acute care setting. Mean number of days of admission till referral placed for no inpatient hospice was 9.35, for GIP cluster 7.64, and for GIP scatter bed 7.38. A chi-square test of independence showed a statistically significant increase in HE (χ^2 (2) = 732.86, p = .000) with initiation of GIP. 30-day readmissions showed steady decline across Hospice care, 12.25% in 2011 to 10.92% in 2018.

Conclusion: Our data suggests that implementation of GIP care in the hospital premises may increase and expedite hospice referrals, facilitate hospice acceptance and impact 30 day readmissions for the hospital. Further studies are needed to confirm these findings in a multicenter model with larger patient cohort.

A188

Nutritional Assessment of Older Adults with Hip Fracture: A Systematic Review

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Background: Hip fractures are associated with increased mortality, disability, dependency, and rehospitalization. Identifying best practices for recovery from hip fracture surgery is of great importance. Poor nutritional status is a modifiable risk factor for not only fracture but also poor recovery from fracture. The purpose of this review was to catalogue the types of assessments used to determine the nutritional status of inpatient hip fracture patients as part of the overall clinical assessment.

Methods: We conducted a systematic review of randomized controlled trials including inpatient adults ≥60 years admitted for hip fracture. The primary intervention was nutrition assessment. We recorded who conducted assessments, time point of assessments, and types of assessments.

Results: Thirty randomized controlled trials met inclusion criteria. Assessments were performed by various clinical staff, but most commonly by a nurse (37%). Half of the studies conducted the assessment at admission, but assessments occurred at various time points up to two weeks post-operative. Over 20 different nutrition assessments were performed. Included studies reported using multiple types of nutritional assessments, which were categorized by laboratory tests, anthropometric measures, validated questionnaires, and other. Nineteen studies (63%) utilized a validated questionnaire for assessment purposes. Fourteen (47%) utilized the validated Mini-Nutritional Assessment questionnaire.

Conclusion: While nutritional assessment in the inpatient setting is standard, this review indicates there are currently no best practices and there is a lack of consistency in the types of nutritional assessments performed on inpatient hip fracture research volunteers. To determine whether nutritional status affects outcomes in hip fracture patients, we must first consistently assess and document baseline nutrition status. The Mini Nutritional Assessment is a commonly used nutritional assessment tool and could serve as a consistent assessment method in the research setting.

Nutritional Assessment Categories

Laboratory Tests, N (%)	Anthropometric Measures, N (%)	Other, N (%)	Validated Questionnaires, N (%)
Protein, 4 (13%) Prealbumin, 6 (20%) Albumin, 20 (67%) Basic metabolic panel, 6 (20%) Liver function tests, 4 (13%) Complete blood count, 7 (23%) Lipids, 3 (10%) Insulin like growth factor, 5 (17%) Vitamins, 5 (17%) Transferrin, 2 (7%) Minerals, 6 (20%) Miscellaneous tests, 5 (14%)	Body mass index, 26 (87%) Height, 28 (93%) Weight, 29 (97%) Muscle arm circumference, 21 (70%) Calf circumference, 14 (47%) Bicep skin fold, 2 (7%) Tricep skin fold, 8 (27%) Dual-energy x-ray absorptiometry, 5 (17%) Bone mineral density, 3 (10%) Fat free or lean body mass, 3 (10%) Fat mass, 3 (10%)	Energy balance, 4 (13%) Food/fluid intake, 27 (90%) 24 hour recall, 2 (7%) Food records, 3 (10%) Daily calorie counts, 10 (33%) Sarcopenia, 1 (3%) Hand grip strength, 5 (17%) Interdisciplinary care team, 9 (30%)	Mini Nutritional Assessment, 14 (47%) Food Frequency Questionnaire, 2 (7%) Subjective Global Assessment, 2 (7%) Modified Norton Scale, 1 (3%)

A189

The functional comorbidity index and disability after cardiac surgery

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Background: The presence of multiple chronic conditions in older adults undergoing cardiac surgery is associated with worse outcomes. While prior research has focused on cardiovascular comorbidities and their impact on mortality, we examined geriatric comorbidities and their impact on postoperative disability.

Method: Post hoc analysis of the prospective multicenter FRAILTY cohort study. Patients were included in this analysis if they were at least 60 years of age and had undergone cardiac surgery between 2012-2017. The primary predictor variable was the Functional Comorbidity Index (FCI), which is a score of 18 chronic conditions developed to predict incident disability in older adults. The composite endpoint was all-cause death or worsened disability defined as institutionalization or increase of two or more dependencies on the 14-item Older Americans Resources and Services scale for basic and instrumental activities of daily living. Multivariable logistic regression was used to determine the association between the FCI and the composite endpoint after adjustment for age, sex, surgery type, and the Society of Thoracic Surgeons risk score encompassing traditional comorbidities and cardiac parameters.

Results: The cohort consisted of 1,009 patients undergoing coronary artery bypass surgery (N=427), valve surgery (N=289), or combined surgery (N=293). The mean age was 74.0 ± 6.6 years with 22% octogenarians, 30% females, and 22% having at least one baseline dependency. The mean FCI score was 3.8 ± 2.1 with 35% of patients having a score of five or more. One year after surgery, the incidence of our composite endpoint was 19% with 89 deaths and 98 patients suffering worsened disability. After adjustment, the FCI remained independently associated with death or worsened disability such that each additional comorbidity conferred a 9% increase in risk (OR 1.09, 95% CI 1.01 to 1.19). The Charlson comorbidity index was

not associated with death or worsened disability in this model (OR 1.07, 95% CI 0.98 to 1.16).

Conclusions: The FCI is predictive of death and disability in older adults undergoing cardiac surgery, adding incremental prognostic value above cardio-centric risk scores. Geriatric conditions should be evaluated and optimized preoperatively to promote functional recovery and improve patient-centered outcomes.

A190
Disentangled: An Institutional Analysis Comparing Differences in End Of Life Patterns And Resource Utilization In Acute Leukemia And Bone Marrow Transplant Units

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Background: Northwell's Palliative Medicine service at North Shore University Hospital developed a co-management model to address the needs of hematology patients admitted to the acute leukemia (ALU) or bone marrow transplant (BMTU) units.

Methods: The primary outcome was the time from admission to initial consult. The secondary outcome was length of stay in a goal concordant setting to receive end of life (EOL) care, namely our inpatient palliative care unit (PCU).

Results: There were 106 new consults in twelve months [45 acute leukemia/lymphoma (55% ≥ 65 years old) and 61 bone marrow transplant (28% ≥ 65 years old)]. The average time to consult for the ALU decreased from 18.8 days at six months to 8.8 days at twelve months. For the BMTU, it decreased from 10.2 days at six months to 4.6 days at twelve months. The mortality rate of patients seen from the ALU and BMTU was 40% and 12%, respectively. Of the ALU deaths, 83% were 65 or older, compared to 29% of the BMTU deaths. Deaths in the ICU were greater for BMTU patients (43%) relative to ALU patients (11%). Fifty percent of the ALU inpatient expirations received EOL care in our PCU, while the remaining deaths were on the ALU (39%). Despite comparable numbers of PCU transfers during the pre- and post-intervention periods, the average LOS in the PCU increased from 1.1 to 5.7 days. Of the ALU patients electing DNR prior to death (83%), the average DNR-to-death days was 10.6 days, whereas, BMTU patients who elected DNR prior to death (50%) had an average of 6.5 DNR-to-death days.

Conclusion: Given the large percentage of geriatric patients and deaths in the leukemia/lymphoma cohort, additional investigation is warranted to explore end of life care needs in this population.

A191
Association of age, pain intensity and comorbidities with physical performance in older adults attending a Pain Management Centre: an exploratory cross-sectional study.

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Background: Chronic pain and burden of multiple comorbidities are commonly encountered in older adults. Achieving good physical function is a key goal. However, it is uncertain if pain intensity or comorbidities has a bigger influence on physical performance. The aim of the study was to identify potential factors associated with poor physical performance.

Methods: Older adults ≥65 years old referred to the Pain Management Centre in our institution may be seen by one or more clinicians including geriatrician, anesthetist and allied health clinician. We collected demographic data, rating of pain intensity using the Numeric Rating Scale (NRS) and Charlson Comorbidity Index (CCI) from consecutive patients who attended physical therapy. Physical performance was measured using the Timed Up and Go Test (TUG), gait speed and Five times Sit-to-Stand Test (STS). Independent-samples

t test was done to compare age, NRS and CCI scores for groups with physical performance below and above the median cutoff.

Results: 26 patients participated in the study. The mean age was 79.2 (range 69-94) and 21 (80.8%) of the participants were female. The mean NRS was 5.23 (range 3-9) and the mean CCI was 5.7 (range 3-10). For the physical performance tests, mean TUG was 20.34 sec (SD 13.87); mean gait speed was 0.66m/s (SD 0.33) and mean STS was 20.49 sec (SD 11.53). There was a trend towards poorer physical performance with older age, higher NRS and CCI. However only age and CCI had statistically significant correlation with TUG and gait speed: age with TUG r=0.53 (p=0.007); CCI with TUG r=0.56 (p=0.005); age with gait speed r=-0.54 (p=0.01); CCI with gait speed r= -0.49 (p=0.03). Correlation of NRS with STS was not statistically significant. Difference in CCI mean between patients with good and poor physical performance was statistically significant for all 3 parameters. Age difference was only statistically significant for TUG and gait speed while NRS difference was only statistically significant for STS.

Conclusion:

Optimization of comorbidities, may be equally, if not more important than pain reduction when addressing poor physical performance in older adults with chronic pain.

A192
Prevalence of erectile dysfunction and its association with sarcopenia in community-dwelling older adults: Aging Study of PyeongChang Rural Area

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Backgrounds: Both sarcopenia, defined as loss of skeletal muscle mass and function, and erectile dysfunction (ED) are common conditions that are associated with poor health and quality of life in older men. We aim to investigate the association between sarcopenia and severe ED in community-dwelling older men. **Methods:** In this population-based prospective cohort study, we assessed sarcopenia and ED in 519 community-dwelling older men (mean age 74.0) in PyeongChang County in Korea in 2016-2017. Sarcopenia was determined based on muscle mass, grip strength, and gait speed according to the consensus criteria from the Asian Working Group guideline. Severe ED was defined as the 5-item International Index of Erectile Function (IIEF-5) questionnaire score under 8. Severe ED was reassessed at one year in 407 participants. A logistic regression was used to estimate the odds ratio (OR) and 95% confidence interval (CI) of incident severe ED associated with sarcopenia and its components after adjusting for age, cardiovascular risk factors, depression, and polypharmacy. **Results:** The prevalence of severe ED was 52.4% and that of sarcopenia was 31.6%. At baseline, the prevalence of severe ED was higher in men with sarcopenia than those without (73.2% vs 42.8%; adjusted OR, 1.89; 95% CI, 1.18 to 3.03; p=0.008). Among individuals without severe ED at baseline, sarcopenia was not statistically significantly associated with incident severe ED (44.1% vs 22.7%; adjusted OR, 1.87; 95% CI, 0.79 to 4.43; p=0.155). Of the three components of sarcopenia, gait speed (adjusted OR, 2.60; 95% CI, 1.12 to 6.02; p=0.027) and muscle mass (adjusted OR, 2.29; 95% CI, 1.02 to 5.13; p=0.045) were independently associated with incident severe ED, while grip strength (p=0.654) was not. **Conclusions:** Two components of sarcopenia--slow gait speed and low muscle mass--were independently associated with incident severe ED in community-dwelling older men. Further research is needed to examine whether an intervention targeting these components can effectively prevent severe ED.

A193

Systematic review of Pre-Operative Electroconvulsive Therapy (ECT) Protocols

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Background: The objective of this review is to survey current pre-operative ECT evaluation guidelines and determine what can be done to facilitate their implementation.

Methods: PubMed/MEDLINE, ERIC, COCHRANE and NIH databases were searched from January 1950 to November 2018. We looked for articles with the key words "Electroconvulsive therapy", "ECT", "Guidelines" and "protocols". We included English and non-English language articles for review. Relevant articles were considered. We also included the AHA/ASA guidelines for pre-operative evaluation of non-cardiac procedures as well as the APA and New York state guidelines for ECT therapy. Studies were included with patients of all ages but special attention was placed on studies including geriatric patients (age 65 and older). The majority of patients had depression as the main impetus for their needing ECT. Risk of bias was assessed regarding blinding, allocation sequence concealment, randomization, incomplete outcome data and other biases.

Results: The office of Mental health in the State of New York has recently updated guidelines with regards to ECT therapy and Pre-ECT evaluation, as does the American Psychiatric Association. Changes to medication and anesthetic used during ECT may impact and improve ECT outcomes. A thorough Pre-ECT evaluation may help determine which medications used during ECT will be most beneficial or what additional work-up may be necessary.

Conclusion: While protocols exist for the pre-operative ECT evaluation of older adults, these should be individualized to meet individual needs and current ECT practices. Currently, guidelines for preoperative anesthesia clearance in the geriatric population follow an amalgam of guidelines through multiple regulating bodies. Streamlining a single guideline to be followed will help protect patients and improve outcomes following ECT treatment.

A194

Home-Based Rehabilitation Improves Functional Recovery After Hospitalization for Critical Illness

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BACKGROUND: Older intensive care unit (ICU) survivors experience marked loss of physical function. Yet, little is known known about outcomes of restorative intervention such as rehabilitation following hospital discharge for older ICU survivors. Thus, the purpose of this project is to evaluate whether home-health (HH) rehabilitation is associated with functional improvement for older adult ICU survivors.

METHODS: This was an analysis of 2012 Medicare claims. Older ICU survivors discharged with HH and remaining alive at home for 30 days were included (85% of home discharges). Number of activity of daily living (ADL) dependencies (of 8) and rehabilitation visits (physical or occupational therapy) were extracted from claims. Patients were classified as receiving any rehabilitation (yes/no) during HH. Univariable and multivariable logistic regression using inverse probability weighting evaluated the association between rehabilitation use and ADL improvement between evaluation and discharge. Rehabilitation use was then split into quartiles (0; 1-3 visits, 4-8 visits, and 9+) to evaluate dose-response.

RESULTS: Overall, 6424 critical illness survivors (mean age 76.0 (11.6) years; 56% female) were included in the analysis. The median length of ICU stay was 4 days (IQR: 2-6 days). Survivors entered home health with a median dependency in 7 of the 8 (IQR: 5-7) measured ADL tasks. Over an average 38-day episode of home health care, 66% of patients received 1 or more rehabilitation visits (mean: 5.6 visits). In bivariate analysis, those who received rehabilitation had 29% (15%-44%) greater odds of improvement in 1+ ADLs. In multivariable regression, those who received rehabilitation had 68% greater odds (54%-82%) of improvement. The largest magnitude of improvement was seen for 4-8 visits of rehabilitation; this group had a 30% greater ADL recovery relative to those who received no rehabilitation (adjusted mean difference 0.63, 95% CI 0.28-0.96, p<.001).

DISCUSSION: The results suggest that use of home-based rehabilitation positively alters disability progression for older ICU survivors. Referrals to home-based rehabilitation, for 4+ visits, may be an important component in post-discharge management of older ICU survivors.

A195

Innovative Electronic Care Path Supports Geriatric Care in an Orthopaedic Service

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Background: Hip fractures contribute greatly to morbidity and mortality in the elderly population. Key challenges have been in timely rehabilitation, restoring function and preventing further fractures. In this, comprehensive Ortho-geriatric care following a hip fracture surgery has shown remarkable success worldwide. The present study reports findings from an Ortho-geriatric service in an Asian public hospital. Orthopaedic and Geriatric clinicians co-led a combined multidisciplinary team representing both acute and step-down facilities, enabled by a common Electronic Medical Records(EMR) system. Care was organized through an electronic clinical care pathway and augmented by daily independent geriatrician ward rounds and weekly multidisciplinary meetings.

Methods: Between December 2016 to December 2017, 313patients (Mean age = 79.8 years; 69.6% female) 60 years and above underwent surgery for a solitary hip fracture andsuccessfully discharged from the hospital's Hip Fracture Integrated Care Pathway programme. Outcome measuresincluded length of stay (LOS), compliance to care indicators, improvement in Modified Barthel Index (MBI), 30-day readmission and 6-month mortality rates. Data were enteredby the multidisciplinary team and extracted via the Epic EMRsystem.

Results: During admission, compliance rates for antibiotic andthrombo-prophylaxis were at 99.7% and 100%, with fall risk and osteoporosis assessments at 100% and 99.7% respectively. The median LOS was 7 days (IQR=6–10), with 84.3% of patients discharged by the 10th post-operative day.39 (12.5%) patients required a readmission within 30 days. Most (265; 84.7%) were transferred to a partner step-down facility, for a median of 24 days (IQR=19–33). There, 225 (84.9%) patients were able to achieve an MBI increase of ≥10 points. At 6 months' post-discharge, 19 (6.1%) patients had passed away.

Conclusions: The findings lend support to the Ortho-geriatric model of co-managing hip fracture patients, with resultssurpassing many similar programmes worldwide. This is in part due to the electronic pathway, regular geriatric care with a focus on delirium and pain management, and early involvement of the step-down team; ensuring care goals are communicated and maintained across the rehabilitative journey. Comprehensive multidisciplinary input and a robust mode of documenting and sharing care plans are recommended.

A196

Predictors of prolonged length of hospital stay in older adults: 12-month results from a Geriatric Emergency Department

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Background: Unplanned visits to the emergency department (ED) can be problematic experiences for older adults and are associated with increased hospital admissions, length of stay (LoS), and mortality. However, if high-risk patients were swiftly identified, measures could be implemented to prevent these outcomes. We aimed to identify predictors of prolonged LoS in acutely ill older adults admitted to the hospital from the ED. **Methods:** We completed a retrospective cohort study including patients who visited the Geriatric ED of a private tertiary hospital, in Brazil, from 2017 to 2018. The Geriatric ED is staffed with geriatricians who care for +70-year-old patients that have medical complaints and are stable on arrival. The patients were evaluated according to a standardized assessment model, which included the Charlson Comorbidity Index (CCI), the Identification of Senior at Risk (ISAR) tool, the FRAIL scale, and the Confusion Assessment Method (CAM). Our primary outcome was prolonged LoS, defined as the upper tercile of LoS in the sample of hospitalized participants. The associations between prolonged LoS and several independent variables of interest were explored in multivariate logistic regression models. **Results:** We included 2766 visits to the Geriatric ED, of which 692 (25%) resulted in hospital admission. Patients had a mean age of 80 years, 57% were women, and the upper tercile of LoS was >7 days. Characteristics independently associated with prolonged LoS included: age ≥90 years (adjusted risk ratio, aRR=1.48, 95%CI=1.12-1.96); male sex (aRR=1.35, 95%CI=1.10-1.67); frailty (aRR=2.49, 95%CI=1.65-3.74); hospitalization in the previous 6 months (aRR=1.64, 95%CI=1.29-2.09); ISAR score ≥2 (aRR=2.06, 95%CI=1.38-3.07); and prevalent delirium (aRR=1.57, 1.24-1.99). **Conclusions:** Older age, male sex, frailty, previous hospitalization, high ISAR scores, and delirium were independently associated with prolonged LoS in older patients admitted from a Geriatric ED. Efforts should be directed towards the prompt identification of high-risk patients in the ED with the goal of preventing adverse outcomes in this population.

A197 Encore Presentation

Practical Management of Adverse Events Using Dosing Strategies for Patients Receiving Sonidegib For Advanced Basal Cell Carcinoma

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Background: Based on long-term BOLT data, sonidegib 200 mg has demonstrated durable efficacy and consistent tolerability through 42 months, the longest follow-up of any hedgehog inhibitor (HHI) for advanced basal cell carcinoma (aBCC). In this analysis, we explored the use of dose delays, holding and reduction as a way to manage AEs and possibly reduce discontinuations. **Methods:** BOLT was a randomized, double-blind, multicenter phase 2 study (NCT01327053). Patients with aBCC not amenable to curative surgery/radiotherapy and naive to HHI treatment were randomized 1:2 to sonidegib 200mg or 800mg QD, respectively. For patients in the 200mg arm, a delay was instituted until the AE resolved to ≤grade 1. The primary endpoint was objective response rate (ORR) per central review. We compared ORR for (1) all sonidegib 200mg patients with (2) those that received ≥1 dose reduction/delay vs (3) those w/o dose reduction/delay.

Results: ORRs for patients receiving 200 mg (laBCC + mBCC) were similar for the 3 groups: 48% for all patients, 49% and for patients with no dose reduction/delay and 46% for those with ≥1 dose reductions/ delays. For patients with laBCC receiving 200 mg, ORR was 56%, for those without dose reduction/delay, 57%, and for those with ≥1 dose reduction/delay, 50% per central review. Based on the IRB-approved BOLT protocol, investigators used a specific clinical strategy for managing AEs by using dose reduction/delay protocols. For those with Grade 1-2 CK elevation asymptomatic, continue same dose; if patient was symptomatic continue same dose and monitor CK Q1W. For patients with Grade 3-4 CK elevation, hold dose, check lab values; if resolution to ≤Grade 1 occurs consider resuming at a lower dose. (In the poster, management guidelines for hematologic, renal, hepatic, cardiac AEs will be provided).

Conclusions: These data support long-term efficacy of sonidegib at the approved dose of 200 mg daily, and also demonstrates that dose reductions and/or treatment delays do not undermine efficacy and may play a role in optimizing sonidegib treatment.

A198

Development and Validation of Appendicular Muscle Mass Estimation Equation from Anthropometric Measurement in Thai Older Women

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Background: Sarcopenia is an important geriatric syndrome associated with many poor clinical outcomes. Asian Working Group for Sarcopenia (AWGS) recommends using appendicular muscle mass index (AMI) measured from bioelectrical impedance analysis (BIA) to diagnose sarcopenia in clinical practice. However, BIA machine is not widely available in Thailand community setting. We aim to develop and validate an equation to estimate appendicular muscle mass (AMM) from the anthropometric measurement.

Methods: A total of 516 older women were included, of which 346 women (67%) formed the model training set. Age, body weight (BW), height (HT), waist circumference (WC), hip circumference (HC), mid-arm circumference, calf circumference (CC), handgrip strength (HG), and gait speed were the candidates of independent variables in multiple linear regression model. Appendicular muscle mass measured with InBody 770 was used as the criterion variable.

Results: Regression equation obtained was AMM(kg) = 0.186xBW(kg) + 0.163xHT(cm) + 0.091xHG(kg) + 0.052xCC(cm) - 0.044xHC(cm) - 0.018xWC(cm) - 19.729 (R^2 0.890, SEE 0.738). Applying the model on validation set obtain Pearson correlation of 0.924 and MAPE of 0.043. When compared to BIA, AMI derived from this equation has 84.65% sensitivity and 81.53% specificity to diagnose low muscle mass based on AWGS criteria.

Conclusions: The equation developed from this study can estimate AMM adequately accurate in Thai older women. In a setting where BIA is not available, this equation may aid in screening for sarcopenia.

A199

Leveraging Exercise to Age in Place (LEAP): The Impact of Community-Based Exercise Programming on Social Isolation in Older Adults.

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Background: Social isolation and loneliness independently impact morbidity and mortality in older adults. This study aims to measure the impact of participation in community-based exercise programming on social isolation and loneliness.

Methods: In this pre-post study design the impact of an exercise class on social isolation in community-dwelling older adults (≥50 years) was measured using two validated tools: the Duke Social Support Index (DSSI) and UCLA 3-item Loneliness Scale comparing scores at baseline to scores at class completion 6 – 8 weeks later using a paired t-test. The DSSI is an 11 item questionnaire with possible scores of 11 to 33 with higher scores indicating more social connection. The UCLA 3-item scale ranges from scores of 3 to 9 with higher scores indicating increasing loneliness. Participants selected participation in the Arthritis Exercise Foundation Class, EnhanceFitness, Tai Chi for Arthritis, or the Healthier Living Workshop at one of 7 community-based locations in Los Angeles, California. This data represents the first cycle of classes with anticipated enrolment of >2000 over the next 3 years.

Results: 200 participants consented and 175 completed the baseline DSSI or UCLA 3-item questionnaires and to date 95 participants completed post-questionnaires. Average age was 76.5 years, 84% were female, 35% were White, 51% Black, 4% Asian, 3% Multiracial and 5% other or declined to state; 88% identified as having at least one chronic condition; 35% were widowed, 22% divorced, 27% married, and 15% single; 38% were low income (<$51,000); 43% lived alone; 33% of participants were categorized as lonely using a cut-off of 6 on the UCLA 3-item scale. Average class attendance was 43%. DSSI score increased from 27.2 to 27.9 (p=0.05); UCLA 3-item remained unchanged (4.4 to 4.5, p=0.4).

Conclusions: Enrollment in a community-based exercise class was associated with a statistically significant increase in social connection in older adults as based on the DSSI, but not on the UCLA 3-item Loneliness Scale. On-going enrollment over a planned additional 5 cycles of classes will enable next steps which include sub-group analyses and the development of a waitlist control group. Participants will also undergo 6 month follow-up testing of the DSSI and UCLA 3-item Scale.

A200
Nurse Decision-Making for Suspected Urinary Tract Infections in Nursing Homes: Potential Targets to Reduce Antibiotic Overuse

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Background: Antibiotic overuse in nursing homes (NHs) is a public health crisis, and urinary tract infections (UTIs) are the most common reason for antibiotic use. Providers depend on the clinical judgement of registered nurses (RNs) when making prescribing decisions.

Methods: Using a discrete choice experimental design we examined patient characteristics and clinical information most important to RN decision-making for residents with suspected UTIs (*N*=881 RNs). Each of 19 scenarios varied by 10 patient categories: urinalysis results, body temperature, lower urinary tract symptoms, physical examination, antibiotic request made by patient/family, mental status, UTI risk, functional status, goals of care, and patient type. For each scenario, RNs decided whether they would call the providers to alert them of a suspected UTI. We derived importance scores of the characteristics and odds ratios for clinical information within each characteristic.

Results: Participants were primarily female (77.3%), with an average age of 40.3 (SD = 12.0). When RNs decided to call the providers, the categories had the following importance scores: lower urinary tract symptoms (23%), temperature (22%), urinalysis results (18%), UTI risk (10%), physical examination (8%), mental status (6%), antibiotic request (5%), functional status (5%), goals of care (2%), and patient type (1%). Information about "painful or difficult urination"

was associated with highest odds (OR 4.8, 95% CI 4.1, 5.7) of deciding to contact the provider, followed by "obvious blood in urine" (OR 4.6, 95% CI 4.0, 5.4), and "change in urine clarity or odor" (OR 2.8, 95% CI 2.4, 3.2).

Conclusions: Lower urinary tract symptoms and temperature were the greatest factors influencing RN decision-making about whether to call a provider about a suspected UTI. However, suspecting a UTI because of urine clarity and odor, which also influenced decision-making, is non-evidence based, suggesting a need to support evidence-based assessment of UTIs in NHs.

A201
Thirty Day Readmissions in Geriatric Trauma Patients

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Background: Geriatric trauma patients (GTPs) suffer significant morbidity and mortality. GTPs are more likely to have complications of traumatic injury due to physiologic changes associated with aging, comorbid conditions, and the presence of geriatric syndromes including frailty and delirium increasing the risk of hospital readmission. We hypothesized that 30-day readmissions among GTPs would be associated with socioeconomic factors, comorbidities, and discharge disposition.

Methods: A retrospective observational study at a Level 1 Trauma Center identified patients aged ≥65 admitted to the trauma service between January 2013 and December 2015. Exclusion criteria included length of stay <24 hours, in-hospital mortality and survival <30 days post discharge. Data were collected from the trauma registry, administrative data, and vital statistics records. Bivariate analyses were used to assess crude associations between all collected variables and readmission, and multivariable logistic regression using stepwise selection was used to model predictors for readmission while controlling for confounding. The institutional IRB reviewed and approved this study.

Results: There were 1,200 patients admitted for a trauma who survived 30 days. Nineteen were discharged to hospice and thus excluded. Of the 1,181, 122 (10.3%) were readmitted within 30 days. In the adjusted model, comorbidities associated with 30-day readmission included heart failure (OR 2.37, 95%CI 1.20-4.70, p=0.013), insulin dependent diabetes (OR 2.80, 95%CI 1.55-5.09, p<0.001), anxiety/depression (OR 1.83, 95% CI 1.11-3.01, p=0.019), and major psychiatric illness (OR 2.17, 95% CI 1.21-3.90, p=0.010). Discharge dispositions compared to home were associated with 30-day readmissions: LTAC (OR 2.70, 95% CI 1.06-6.87; p=0.038), SNF (OR 1.81, 95% CI 1.08-3.04; p=0.025), and inpatient rehabilitation hospital (OR 3.11, 95% CI 1.85-5.23; p<0.001).

Conclusion: Conditions including heart failure and diabetes were risk factors for readmission in the adjusted model, along with behavioral health diagnoses. Trauma specific characteristics were not associated. Discharge disposition was predictive of readmissions. Discharge to inpatient rehab showed the highest odds ratio for readmission across predictive factors. It is unclear if patient factors or system factors associated with determining discharge disposition contribute. Further evaluation into the effects of discharge disposition is needed.

A202

Recent history of abuse and fear of falling in Colombian elders

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Background: Elder abuse has not been linked before with fear of falling (FOF). There is a possible causal association due to previous psychological trauma. Our objective was to explore the relationship between history of elder abuse and FOF in Colombian elders.

Methods: Data are from the SABE (Salud, Bienestar y Envejecimiento) Colombia Study, a cross-sectional survey conducted in 2015, included 19,004 community-dwelling adults aged ≥60 years. History of abuse was assessed by self-report during the past 3 months (emotional, physical, sexual, financial or neglect). FOF was classified as yes (fairly afraid or very afraid of falling) or no (no fear or somewhat afraid). Other variables evaluated include socio-demographics, comorbidity, functional status (IADLs independence score), depression (GDS), self-rated memory, and history of falling during the past year. Logistic regression analyses were used to assess the association between elder abuse and FOF adjusting for confounders (selected criteria change-in-point estimate algorithm).

Results: Subjects had a mean age of 69.3±7.2; 56.1% were women; any type of abuse was reported in 21.1%, polyvictimization (≥2 types of abuse) in 6.5%, and FOF in 70.2%. Persons with history of abuse tended to have higher percentages for FOF (table, $p<0.001$). Multivariate data analyses showed significantly higher odds for FOF in elders who reported any abuse (OR=1.11, 95% CI 1.02-1.21), and polyvictimization (OR=1.31, 95% CI 1.13-1.52). Other significant factors were female gender, history of falling, decreased functional status, higher comorbidity, and poor memory.

Conclusion: These findings are new contributions in the literature on factors associated with FOF. History of abuse should be considered into the assessment and management of FOF.

Percentage of Fear of Falling by Type of Abuse

	emotional	physical	sexual	financial	neglect
abuse	75.7	76.8	80.3	79.1	76.2
no abuse	69.2	69.9	70.2	70.1	69.6

A203

Anemia and mortality post-hospital discharge from an acute care for elders unit

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Introduction: The purpose of this study is to evaluate the association between anemia and mortality after hospitalization in patients discharged from acute care for elders (ACE) unit. Methods: Observational retrospective cohort study, between 2012 and 2015, followed until 2018. Anemia at admission was defined according to WHO criteria (<12.0 gr/dl for women and <13 gr/dl for men). Survival analyses were performed, Kaplan Meier and Cox proportional regression, comparing the presence or absence of anemia. Results: 2004 patients were included. Patients had age of 83 ± 7 years, 48, 9% women; 64% had anemia (women 58%, men 42%). Anemia was associated with female gender, low cognition, high comorbidity,

lower functional status, and longer hospital stay. Six-year mortality was higher in lower quintiles of hemoglobin (graphic, $p<0.001$). In bivariate analysis, patients with anemia showed significant lower survival compared to those without anemia (Log-Rank test p=0.0029). Multivariate analysis showed that patients with anemia had higher mortality than those without anemia (HR 1.15 95% CI 1.02-1.30). Other variables significantly associated with higher mortality were age, low functional status, longer hospital stay, and high comorbidity. Conclusion: Patients admitted with anemia to an ACE unit have a higher probability for death post-hospital discharge compared to those who were admitted without anemia.
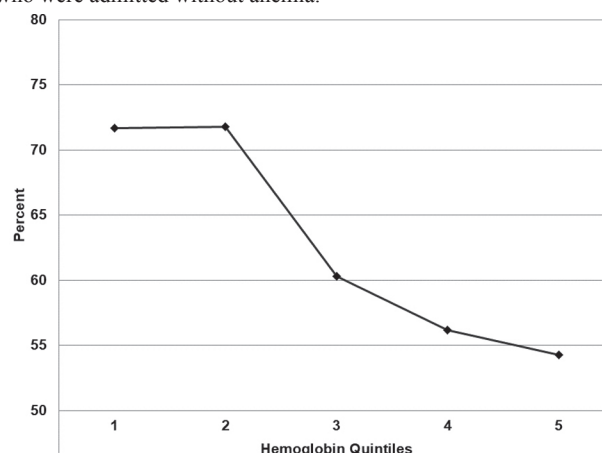
A204

Differences in the Clinical Information Most Important to Nursing Home Nurses' and Clinicians' Assessment of Suspected Urinary Tract Infection

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Background: Nurses and clinicians (i.e., physicians, nurse practitioners, and physician assistants) in the nursing home (NH) may differ in how they assess NH residents for suspected urinary tract infection (UTI). We compared how patient characteristics differed in importance to nurses' and clinicians' assessment of a suspected UTI.

Methods: We conducted a web-based discrete choice experiment survey including 19 brief clinical scenarios. Each scenario varied information about 10 patient characteristics regarding *urinalysis results*, *body temperature*, *lower urinary tract symptoms*, *physical examination*, *antibiotic request (by patient or nurse)*, *mental status*, *UTI risk*, *functional status*, *goals of care*, and *patient type (dementia status and gender)*. Participants were asked "How likely is it that the patient has a UTI?" and could respond "likely", "unlikely", or "uncertain". We derived standardized importance scores (% of total) for the characteristics and odds ratios (ORs) for specific information.

Results: The most important characteristic for the 881 nurses were *urinary tract symptoms* (27% versus 18% for the 867 clinicians), while *urinalysis results* was the most important to clinicians (38% v 24%). *Body temperature* was in the top 3 most important characteristics for nurses (14%) while *physical examination* was in the top 3 for clinicians (19%). The information of the *urinary tract symptoms*, "painful or difficult urination" (OR = 7.4, 95% CI 6.4, 8.6) was associated with highest odds of nurses' deciding the NH resident likely had UTI, while it was "positive leukocyte esterase, positive nitrates" (OR = 83.2, 95% CI 70.3, 98.5) for clinicians.

Conclusions: The importance of characteristics and individual information differs between nurses and clinicians. Given nurses' role in prescribing, interventions to reduce antibiotics for suspected UTIs will need to target multiple patient characteristics. Because symptoms are the primary diagnostic criteria for UTIs, nurses may need help communicating with clinicians.

A205

Assessment of the Relationship Between Cognitive Function and Physical Performance in Older Adults with Challenging Walk Tests: the Figure of 8 Walk Test (F8WT). Pilot Study

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BACKGROUND

Current literature supports that cognitive function and physical performance are associated. Gait is more often evaluated on a straight walkway. F8WT, involving straight and curved walking to walk a figure-of-8 around two cones, might challenge cognitive function. Our aim was to assess the relationship between physical and cognitive function (specifically executive function) using different physical performance tests in community-dwelling older adults with cognitive impairment.

METHODS

Cross-sectional study of patients ≥65 attending a Geriatric Day Hospital. Demographic, clinical and comprehensive geriatric assessment variables were collected. Cognition was assessed using Mini-Mental State Exam(MMSE), Montreal Cognitive Assessment(MoCA) and Symbol Digit Modalities Test(SDMT) and physical performance with Gait Speed(GS), Short Physical Performance Battery(SPPB) and F8WT.

RESULTS

We enrolled 74 subjects (73% women, mean age±SD 80.8±6.3years, baseline Barthel Index 91.9±11.9, MMSE 21.7±3.5, GS 0.81±0.2m/sec). Main diagnosis:MCI (43.2%) and mild dementia (56.8%). Linear regression models showed significant associations of: SDMT with GS(β=16.9,p<0.001) and SPPB(β=1.17,p=0.005); MoCA with GS(β=5.78,p=0.02) and SPPB(β=0.59,p=0.01); Phonemic verbal fluency of MoCA (VF-MoCA) with GS (β=7.23,p<0.001) and SPPB(β=0.54,p=0.002). After adjusting for age, these associations remainedsignificative(exceptfortheassociationbetweenMoCAandGS). No significant equation was found for MMSE.

CONCLUSIONS

Our findings support an association between executive function and gait performance.

Traditional linear physical performance measures appear superior to more challenging tasks to measure association with cognitive function. We hypothesize that F8WT might be more influenced by gait impairments because of the curved pathway. Hence, we need future research with larger study samples to better investigate this aspect.

A206

Patient frailty and the burden of overactive bladder

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Background: Age and frailty are risk factors for overactive bladder (OAB), but less is known about their association with OAB burden. **Methods**: The study was informed by a survey among adults with a self-reported physician OAB diagnosis or self-reported OAB symptoms. Symptom bother, impact on quality of life (QoL) and satisfaction with ability to perform daily activities and work productivity were assessed with validated surveys. Only respondents working full/part time completed questions on work productivity. Scale scores ranged from 0-100; higher scores represent greater impacts on symptom bother and work productivity and better QoL. Age was categorized as <65 and ≥65 years of age. Frailty (robust, pre-frail or frail) was examined with the Fatigue, Resistance, Ambulation, Illness and Loss of Weight Questionnaire. Mean scores were calculated for each scale in the bivariate analyses. Multivariable linear regression models tested differences in summated scores between comparative groups. **Results**: Most respondents (n=514) were <65 years (66%) and female (69%). While 10% of respondents in each group were frail, those <65 years were more likely than those ≥65 to be pre-frail (58% vs. 43%). In the bivariate analyses, symptom bother increased with the level of frailty, but not with age. Frail respondents were more likely than robust respondents to report nocturia symptom bother (score: 54 vs. 37), dissatisfaction with ability to perform daily activities (50 vs. 26) and symptom impact some/all the time (46 vs. 25). Frail respondents were more likely than robust or pre-frail respondents to report OAB symptom impact on work and non-work activities. Respondents ≥65 years were more likely than those <65 to report OAB symptom bother (50 vs. 36), dissatisfaction with ability to perform daily activities (39 vs. 28), symptom impact most of the time (39 vs. 24) and an impact of OAB on productivity (37 vs. 24). In the multivariable linear regression, being pre-frail or frail was associated with a decrease in QoL compared with robust respondents. Neither age nor frailty were statistically significantly associated with symptom bother. **Conclusion**: As patient frailty was associated with several elements of OAB burden, a measure of frailty may be a more appropriate confounder than age when assessing OAB burden.

A207

"It's not what you say, it's how you say it": Older Veterans' perspectives regarding measurement of functional status in primary care

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Background: Despite its importance to care and outcomes for older adults, functional status is seldom routinely assessed in primary care. Understanding patient perspectives is necessary to develop effective, patient-centered approaches for measuring function, yet we know little about patient views on this topic.

Methods: We recruited 28 patients ages 65 and older, and 5 caregivers of patients unable to provide consent, from primary care clinics at 1 VA medical center. We stratified sampling by patient function: independent, needs help with 1-2 activities of daily living (ADLs), and needs help with 3 or more ADLs. We conducted semi-structured interviews to explore participant perspectives about measuring ADLs and instrumental ADLs (IADLs). We analyzed transcripts using qualitative thematic analysis.

Results: We identified several themes related to measuring function in primary care. First, the majority of participants felt that talking about function showed that providers care about them as a whole person. However, a minority of those without functional impairment said that discussing function, especially IADLs, was not medically relevant. Second, most preferred face-to-face assessment by a clinician over self-assessment, because assessment by another person is more "intimate" and can prompt reflection on one's limitations. In contrast, a few felt the "impersonal" nature of questionnaires would be less threatening and lead to more accurate responses. Third, participants had varying interpretations of the meaning of assessment questions. Some felt that being asked about "needing help" with ADLs implied weakness and preferred being asked about difficulty. Others indicated that "help" was "softer and kinder." Overall, participants felt that assessing both difficulty and need for help was important for providers to fully understand their function.

Conclusions: Our findings suggest that effective approaches to measuring function must consider older adults' perspectives on

content and format, including asking about both difficulty and need for help. We are applying these findings to develop an interprofessional intervention, including training in communication strategies, to improve functional status measurement for older Veterans in primary care.

A208

Comparing US and Russian Physician Perspectives Regarding End of Life Care

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Background: Cultural circumstances may impact the provision of end-of life care. The purpose of this study is to compare US and Russian primary care physicians' understanding of, comfort with and experiences of end-of-life care.

Methods: Cross sectional survey of convenience samples of practicing community and academic physicians in Iowa and Leningrad Oblast, using self-administered, translated and back translated, questionnaire answered anonymously. Chi-square test was used to compare categorical variables.

Results: 66 US and 81 Russian physicians completed the questionnaire. More females (81% vs 47%, p <0.01) and more community physicians were in the Russian sample (85% vs 47%, p <0.01). US physicians preferred the home setting for care (83% vs 56%, p <0.01) and Russian physicians community hospice (47% vs 18%, p <0.01) weeks to months before patient's death. US physicians reported (94% vs 15%) that the patient should make end of life decisions and Russian sample reported (57% vs 6%) that the family physician should make those decisions p <0.01. Patient should be informed (US vs Russia) of terminal illness "Always" (74% vs 31%, p <0.01) and "If Asked" (9% vs 64%, p<0.01). The US physicians reported higher rates of comfort with managing symptoms except for pain management (88% vs 100%, p =0.01). Comfort with prescribing benzodiazepines (82% vs 21%), antipsychotics (61% vs 17%) and non-narcotic pain medication (94% vs 65%) all favoured US physicians with all p values <0.01. On a Likert scale (1=never, 2=rarely, 3=sometimes, 4=often, 5=always), in the last six months, the percent of "Often" (4) or "Always" (5) for US vs Russian physicians was (6% vs 73%) on made home visits, (63% vs 36%) on satisfied with care given and (83% vs 56%) on disclosed poor prognosis. All p values were <0.01.

Conclusions: The US physicians were more concerned with patient autonomy and had more comfort and satisfaction in providing end of life care. The Russian physicians made more home visits and were comfortable in managing pain at the end of life. Further studies will determine if differences are related to a combination of variations in end-of-life care training, cultural values, availability of resources for care or the uniqueness of our sample.

A209

Tube Feeding in Patients with Advanced Dementia: Knowledge and Practice of Healthcare Professionals

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Background

Feeding problems are common in dementia especially in later stages. Many healthcare professionals still advocate feeding tubes in advanced dementia. The American Geriatrics Society feeding tubes in advanced dementia position statement recommends against the insertion of feeding tubes in advanced dementia. We conducted a study on the perspectives of physicians and nurses on tube feeding among patients with advanced dementia, and examined if differences exist between nurses, residents, consultants and across physicians from different training backgrounds

Methods:

An online survey to assess healthcare professionals perspectives on initiating long-term tube feeding amongst patients with advanced dementia was conducted in an academic institution. Participating individuals included consultants, residents and nurses working in a tertiary hospital in Singapore.

Results

43 physicians and nurses responded to the survey. 4 (9.3%) were nurses, 23 (53.4%) were residents, and 16 (37.2%) were specialist consultants from Department of Medicine. 3 (75%) nurses were not comfortable at staging dementia, compared to 2 (8.3%) (n=2) residents in training and 7 (43.8%) consultants. All nurses interviewed felt tube feeding would improve nutrition, compared to almost half of residents and consultants who had the same perspective. The most commonly perceived benefit of tube feeding amongst residents was the facilitation of medication administration (60.9%, n= 14), while that of consultants was improved hydration (50%, n=8). The most commonly cited barrier to discussing feeding options among nurses and residents was the uncertainty over the appropriate time to initiate such a discussion. The most commonly cited barrier among consultants on the other hand was a lack of knowledge on alternatives that could be offered in place of tube feeding.

Conclusion

Despite evidence to refute the use of long term tube feeding in sufferers of advanced dementia – local clinicians still perceive benefits which may influence how they broach discussions on feeding options. A lack of knowledge on the staging of dementia, uncertainty over the appropriate timing to conduct discussions on feeding, and a lack of knowledge on the alternatives to tube feeding could hinder the communication process. More efforts are required to bridge the knowledge gaps that exist amongst healthcare professionals in managing patients with advanced dementia.

A210

The Relationship between Parameters of Ambulatory Blood Pressure Monitoring and Cognitive Impairment in Elderly Hypertensive Patients

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Background: Hypertension is one of the important risk factors for cognitive impairment in elderly patients, and blood pressure variability is associated with hypertensive target organ damage. Hence, our aim was to evaluate the relationship between parameters of ambulatory blood pressure monitoring (ABPM) and cognitive impairment in elderly hypertensive patients.

Methods: From April 2014 to February 2015, 346 primary hypertension patients and 72 normotensive people were selected from Fujian provincial hospital. The parameters of blood pressure variability and circadian rhythm were evaluated by ABPM. Cognitive function was estimated by Mini-mental State Examination (MMSE) and Montreal Cognitive Assessment (MoCA). *Partial Correlation Analysis* and *Ordinal Logistic Regression Analysis* were performed to investigate the relationship between parameters of ABPM and cognitive function.

Results: There are 234 males (67.6%) in 346 hypertensive patients (mean age = 74.0 ± 8.9 years). Hypertensive patients had lower MoCA (24.5±3.6 vs. 25.9±3.1) and MMSE scores (27.7±2.4 vs. 28.7±1.4) than control people (P < 0.001 and P = 0.003). The nocturnal decrease rate of systolic, diastolic and mean blood pressure (SBP, DBP, and MBP) in hypertensive patients with cognitive impairment were lower than those without cognitive impairment (all P<0.05). The nocturnal decrease rate of SBP, DBP, and MBP in hypertensive patients were positively correlated with linguistic competence, abstract ability, and both respectively (r = 0.247 for SBP, r = 0.760 for DBP, r = 0.191, 0.188 for MBP; P = 0.006, 0.015, and <0.05). As

the decline of the nocturnal decrease rate of SBP and DBP, the probabilities of linguistic competence impairment [OR (95% CI) = 3.983 (1.611~9.845); P = 0.003], abstract ability impairment [OR (95% CI) = 2.282 (1.024~5.641); P = 0.047] were greater respectively.

Conclusion: Parameters of circadian rhythm but not blood pressure variations were associated with cognitive function. Maintaining normal circadian rhythm of blood pressure may delay cognitive impairment.
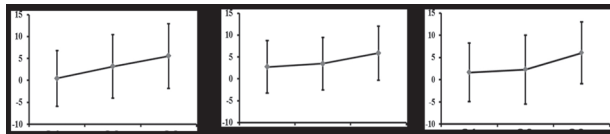
A211
The Relationship between Orthostatic Hypotension, Blood Pressure Variability and Serum MMP-9 Levels in Elderly Population

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Background: Orthostatic hypotension (OH) and blood pressure variability are both closely related to cardiovascular event risk and target organ damage of hypertension, which cannot be predicted by biological markers yet though. Hence, our aim was to evaluate the relationship between OH, blood pressure variability and MMP-9 level.

Methods: From September 2015 to January 2016, 689 patients aged 60 or above were selected from Fujian Provincial Hospital. The blood pressure of 1 min and 3 min after position changing from lying to standing was measured and blood pressure variability was calculated. Serum MMP-9 levels were measured by ELISA. *Binary logistic regression analysis* was used to evaluate the relationship between OH and Ln (MMP-9). *Multiple linear regression analysis* was applied to determine the association between MMP-9 level and short-term blood pressure variability.

Results: The prevalence of OH was 16.95% (117/689) in all subjects (mean age of 74.35±8.86 years). MMP-9 levels in subjects with OH were lower than subjects without OH (461.6±288.14 vs. 529.14±276.93 ng/ml, $P = 0.017$). Liner trend test showed that the prevalence of OH dropped with increasing MMP-9 levels within the quartiles ($P < 0.01$). MMP-9 Q1 had a 2.51-fold greater risk of OH than MMP-9 Q4 quartile (95% CI=1.39~4.54, $P = 0.006$). As the elevation of MMP-9 levels from Q1-Q4, standard deviation of systolic blood pressure (SBPSD), standard deviation of diastolic blood pressure (DBPSD), and variable coefficient of diastolic blood pressure (DBPCV) decreased (Fig. 1, all trend $P < 0.05$). For each unit increase of ln (MMP-9) level, SBPSD, DBPSD, SBPCV, and DBPCV decreased by 0.677, 0.405, 0.005, 0.006mmHg respectively ($P = 0.004, 0.002, 0.004, 0.001$).

Conclusion: The prevalence of OH and short-term blood pressure variability were associated with MMP-9 levels, which dropped with the elevation of MMP-9 levels within quartiles.
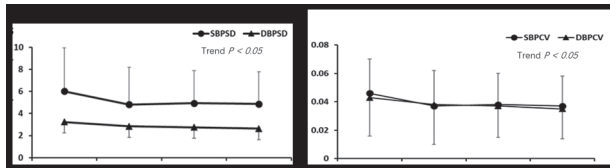
A212
The Association between Orthostatic Blood Pressure Changes and Cognitive Function in Elderly People

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Background: Impaired ability to regulate blood pressure may cause orthostatic hypotension (OH) after posture change, leading to substantially altered cerebral blood flow and reduced brain metabolism, which accounts for cognitive dysfunction. However, the relationship between orthostatic blood pressure changes and cognitive function remains ambiguous. Our objective was to evaluate cognitive function and explore its association with orthostatic blood pressure changes in elderly people.

Methods: 505 subjects aged 60 years and older (mean age 72.8±8.5 years) were selected at Fujian Provincial Hospital between December 2015 and December 2016. Global cognitive function was assessed by the Montreal cognitive assessment (MoCA) scale. For specific cognitive function, the Auditory Verbal Learning Test (AVLT), the Stroop Color and Word Test (SCWT), the Verbal Fluency Test (VFT), and the Digit Span Test (DST) were applied to determine memory, execution ability, language skills, and attention respectively. *Multiple linear regression* was used to evaluate the association between orthostatic blood pressure changes and cognitive function.

Results: The total MoCA score was 25.0 (22.0, 28.0) in all subjects, with a cognitive impairment prevalence of 53.5%. The cognitive impairment prevalence in OH subjects was significantly higher than that in non-OH subjects (85.2% vs. 40.7%, $P < 0.001$). Multiple linear regression showed that MoCA score, immediate memory, short/long delayed recall, language ability, stroop interference effects accuracy, and attention were significantly lower in subjects with OH than their counterparts (regression coefficients of -2.819, -1.177, -1.916, -2.062, -4.349, -1.158, and -0.544, respectively, all $P < 0.01$). Systolic blood pressure variability was negatively correlated with MoCA score, memory, language ability, as well as attention. Diastolic blood pressure variability was negatively associated with immediate recall score (all $P < 0.01$).

Conclusions: Individuals with OH and high blood pressure variability had more apparent cognitive decline, suggesting that interventions targeting OH may delay the occurrence and development of cognitive impairment.

A213
The Association between Anticardiolipin Antibodies and Cognitive Function in Hypertensive Patients

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Background: Anticardiophospholipid antibodies (ACA) are a class of autoantibodies that target antigens against platelets or negatively charged cardiolipin in endothelial cell membranes. ACA levels affects cognitive function, but the association between them were not fully understood. We conducted this study to determine the relationship between ACA levels and cognitive function in elderly hypertensive patients.

Methods: From April 2014 to February 2015, 346 primary hypertension patients and 72 non-hypertensive people were selected from Fujian provincial hospital. Cognitive function was evaluated by Mini-mental State Examination (MMSE) and Montreal Cognitive Assessment (MoCA). Serum ACA-IgG/IgM levels were tested by ELISA. *Multiple linear regression* was used to determine the relationship between ACA levels and cognitive function. *Ordinal logistic regression* was applied to estimate the risk factors of cognitive impairment.

Results: The mean age of 346 hypertensive patients and 72 non-hypertensive people were 67.8±8.9 and 67.4±9.6 years.

ACA-IgM/IgG levels in hypertensive patients were lower than control people, but the difference was not statistically significant ($P>0.05$). Within Ln(ACA-IgG) quartiles in hypertensive patients, MMSE scores, calculation scores and MoCA attention scores of Q2 and Q3 were higher than Q1 ($P = 0.02, 0.021, 0.042$). In hypertensive patients, Ln (ACA-IgG) levels were positively correlated with total scores, directional force and language ability of MMSE (r = 0.241, 0.243, 0.325, all $P<0.05$). In an adjusted model, Ln (ACA-IgG) levels were positively correlated with MMSE scores [β (95% CI) = 1.144 (0.040, 2.248), $P = 0.048$]. In non-hypertensive people, significant positive correlations were found between Ln (ACA-IgM) and MMSE language ability scores, MoCA scores, and MoCA delayed recall ability score (r = 0.402, 0.486, 0.450, all $P<0.05$). In an adjusted model, Ln (ACA-IgM) levels was positively correlated with MoCA scores [β (95% CI) = 3.184 (1.700, 4.688), $P = 0.001$]. Ordinal logistic regression showed that the Ln (ACA-IgM) Q1 had greater probability with low MoCA scores than Ln (ACA-IgM) Q4 quartile ($P = 0.007$).

Conclusion: ACA-IgG and IgM levels were positively correlated with cognitive function in hypertensive patients and non-hypertensive people, respectively.

A214

Trends in Emergency Department Disposition of Geriatric Syncope Patients from 2012 to 2016

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Background: Syncope is a common reason for emergency department (ED) visits, with an estimated 700,000 annual visits in the US. Syncope care is expensive, estimated at $2.4 billion annually. Prior research suggests syncope admission rates were constant prior to enactment of the Affordable Care Act (ACA) in 2014. Patients 65 years and older ("older adults")with syncope are commonly admitted to the hospital for evaluation for cardiac arrhythmias. However, the impact of the Affordable Care Act Hospital Readmissions Reduction Program on hospitalization rates for ED syncope visits is unclear. We examined the disposition pattern (i.e., admit vs discharge) for ED syncope visits among older adults using a national ED database.

Methods: This is a retrospective review of ED visits with a primary diagnosis of "syncope and collapse" among older adults utilizing 2012-2016 data from the National Emergency Department Sample (NEDS). Primary outcomes were ED admissions for syncope patients from 2012 to 2016, differences in admission rates by gender, by location (urban vs. rural) and teaching status (teaching vs. non-teaching.) Comparisons were evaluated by logistic regression modeling.

Results: We identified 2,092,100 syncope visits from 2012 to 2016 in patients aged 65 years or older. Despite increases in ED syncope presentations (415,6008 to 445,398), ED admissions significantly decreased from 138,229 in 2012 to 79,847 in 2016. Admissions decreased an average of 16.7% yearly (95%CI 16.5-16.9%.) Admission rates based on gender showed females admission rates increased with age as compared to males. Overall admission rates and differences in admission rates at teaching and non-teaching facilities decreased during the study period. Admission rates at rural facilities were lower than in an urban setting for all years of the study.

Conclusion: Hospitalization rates for U.S. older adults visiting an ED for syncope decreased significantly from 2012 to 2016. This decrease in admissions may reflect increased utilization of observation stays that are not counted as admissions. Further investigation is required to determine frequency of observation admissions for older syncope patients and long term outcomes associated with patients with this disposition.

A215

Intensity of end-of-life healthcare and advance care planning documentation among older adults with or without multimorbidity

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Background: Multimorbidity, common among older adults, is associated with increased end-of-life (EOL) healthcare use. This association has been examined by number but not by type of condition. We examined EOL utilization and advance care planning (ACP) by patients with clusters of conditions versus those with 1 condition to understand how type and number of conditions affect utilization.

Methods: We used the Cambia Metrics Program to evaluate subjects age 65+ cared for in the UW Medicine system who died 2010-2015 with at least 1 of the following: malignant cancer/leukemia, chronic obstructive pulmonary disease (COPD), coronary artery disease, heart failure (HF), severe chronic liver disease, chronic renal disease, dementia, diabetes with end organ damage or peripheral vascular disease. Using 4 mutually-exclusive condition clusters, we assigned subjects as follows: 5+ comorbidities; 1-3 comorbidities plus cancer then pulmonary/cardiovascular disease then renal disease. We compared each cluster to subjects with 1 diagnosis: dementia, cancer, COPD/HF or renal disease. We describe the percentage hospitalization/ICU admission in their last 30 days and ACP documentation in their last 180 days in the healthcare system. We performed logistic regression for hospitalization, ICU admission, or ACP documentation controlling for *a priori* confounders (age at death, hospital assignment, race, gender).

Results: Of 11,649 patients, 5215 (45%) had multiple conditions. Except for renal disease, patients with multimorbidity were significantly more likely to be hospitalized or have an ICU admission compared to those with 1 illness and also more likely to have ACP documentation (Table).

Conclusions: Patients with multimorbidity were more likely to experience high-intensity hospital-based care at or near EOL in a single healthcare system and seemed more likely to have ACP documentation in that system. Further research is needed to clarify if such increased intensity care is aligned with patient goals for care and how interventions might align care desired with care received.

Demographics				Statistical Analyses			
Cluster assignment	Age at death (median, range)	White, non-Hispanic (n, %)	Female (n, %)	Subgroup comparison	Hospitalization in last 30 days (odds ratio (OR), 95% confidence interval (CI))	ICU in last 30 days (OR, 95% CI)	ACP in last 180 days (OR, 95% CI)
5+ comorbidities	74 (65-96)	211 (65.1)	113 (33.0)	5+ comorbidities vs dementia only	7.02 (4.63, 10.6)	5.38 (3.31, 8.74)	4.47 (2.89, 6.90)
Dementia	85 (65-104)	501 (85.1)	349 (58.1)				
Cancer with comorbidities	74 (65-102)	2,015 (85.6)	978 (37.9)	Cancer with comorbidities vs cancer only	2.32 (1.98, 2.72)	2.74 (2.18, 3.46)	1.90 (1.63, 2.21)
Cancer only	72 (65-102)	2,297 (88.7)	1,379 (48.2)				
Pulmonary/CV with comorbidities	79 (65-104)	1,591 (79.3)	879 (41.5)	Pulmonary- CV with comorbidities vs pulmonary- CV only	1.48 (1.29, 1.70)	1.24 (1.07, 1.44)	1.66 (1.43, 1.93)
Pulmonary/CV only	79 (65-102)	2,285 (88.8)	1,172 (42.5)				
Renal disease with comorbidities	77 (65-100)	113 (68.1)	79 (45.7)	Renal disease + comorbidities vs renal disease only	1.64 (0.91, 2.94)	1.07 (0.53, 2.14)	1.10 (0.64, 1.90)
Renal disease only	79 (65-103)	151 (75.9)	103 (49.0)				

A216

Statin Discontinuation in Veterans Affairs (VA) Nursing Home Residents with Limited Life Expectancy

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Background: Expert consensus panels recommend against statin use in older adults with limited life expectancy (LLE) or advanced dementia (AD), but studies show that many nursing home (NH) residents with LLE/AD receive statins. This study examined resident and facility factors predicting statin discontinuation after NH admission in Veterans with LLE/AD taking statins for secondary prevention.

Methods: This was a national, retrospective cohort study of Veterans admitted to VA NHs in fiscal years 2009-15. Data sources included the VA Residential History File, Minimum Dataset (MDS), daily medication administration data, VA Corporate Data Warehouse, and Medicare claims. Inclusion criteria were LLE/AD at admission, age ≥65, history of coronary artery disease, stroke, or diabetes, and statin use at admission (n=12,761). Residents were followed from first day of statin use until discontinuation (i.e., gap in statin use ≥14 days) or censoring due to discharge, death, or day 91 of the NH stay. Competing risk models were used to assess predictors of discontinuation.

Results: The sample was 99% male, 79% White, and 53% aged 65-74; 32% discontinued statins by day 91. The strongest predictor of discontinuation was explicit documentation of <6 months prognosis on the MDS (adjusted HR=2.59, 95% CI=2.27, 2.96). Other factors associated with greater hazard of discontinuation included older age, receiving hospice/palliative care, smoking, advanced dementia, weight loss, dehydration, cancer, severe aggressive behavior, greater activity of daily living limitations, and smaller facility size. Conversely, admission from home/assisted living vs. hospital, greater distance between residence of a family caregiver and NH, greater number of indications for statin use, and being obese or overweight predicted lower hazard of discontinuation.

Conclusions: Most Veterans admitted to VA NHs with LLE/AD taking statins for secondary prevention do not have these medications discontinued after admission. Deprescribing appears to be largely influenced by resident factors indicating poor prognosis and may be less likely in those with greater cardiovascular risk.

A217

Impact of Language Barriers in Providing Care to Older Adults with Limited English Proficiency

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Background

In 2015, more than 25.9 million people in the US were Limited English Proficiency (LEP). Civil Rights Title VI compliance states LEP are to receive free interpreting services which does not involve the use of non-professional interpreters such as family. The objective was to assess the impact of language barriers on communication between physicians and older adults with LEP.

Methods

An anonymous physician survey incorporating a modified Communication over Language Barriers Questionnaire (with permission – Junger 2018), was distributed in a large health system. Jonckheere-Terpstra and Spearman's were used for ordinal variables, Fisher's Exact for binary variables.

Results

Of 112 respondents, 36% were attending physicians (AP), 61% other physicians (OP), 60% female, 55% spent time equally in inpatient and outpatient settings. Mean age 42.8, mean post training years 15. In the past year 33% estimated their LEP population at 21%-40%, and 20% at 41%-60%.

Most (95%) acknowledged relying on family, friends or staff to provide translation during exam, instead of recommended Language Communication Access Services (LCAS). Most (73%) stated their decision was guided by patient preference and 43% believed these individuals were "adequate translators." Of interest, 25% asked children under age 13 to assist with translation.

The most challenging topics "difficult/very difficult" during examination were cognitive assessment (67%), advance care planning (ACP) (66%) and fall assessments (34%). Indeed, most (73%) acknowledged postponing ACP, cognitive (65%) and fall assessment (62%). Barriers to the use of LCAS were time constraints (74%), and timing (morning vs afternoon) of appointments (38%). Of interest, 89% recognized that when using LCAS, they were uncertain if their patient received correct information.

AP used telephonic interpreters as a primary strategy for LEP patients less often than OP (80% vs 97% respectively *p*=0.004). Physicians seeing greater percentages of LEP had fewer calls to LCAS (25% vs 8%, p=0.03).

Conclusions

Our data shows that physicians are challenged when assessing LEP patients and avoid addressing specific geriatric topics. It is imperative that we seek novel and practical approaches to widely improve language communication in the care of LEP adults for the benefit of patients, clinicians and overall health delivery in the US.

A218

Decisions, Decisions: A Policy Toolkit to Guide Canadian Policymakers on Deprescribing

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Background: Interest in appropriate prescribing is increasing with the aging of the population and recognition of high rates of medication prescriptions, with Canadian seniors being prescribed 7 different drug classes each year, and 49% having a claim for a Beers Criteria medication over a 1 year period. Both polypharmacy and potentially inappropriate medication use can result in harm for seniors, and negative impacts for their families, and the healthcare system. Targeting education to prescribers and the public is not sufficient to effect needed change; policy change is also required, but can be difficult to do. The purpose of our research is to develop a knowledge translation tool in the form of a policy toolkit for deprescribing policies.

Methods: Evidence was gathered from research conducted by the Canadian Deprescribing Network (CaDeN) researchers and a rapid realist review of international policies for deprescribing policies related to sedative hypnotics. The evidence was summarized in terms of the policy, success or failure in deprescribing, application to specific drug classes, policy implications and unintended consequences. Use of the SUPPORT tool for policy briefs was used. The toolkit was reviewed by provincial Pharmaceutical Directors affiliated with Ministries of Health.

Results: 7 unique international policies from 9 published studies were included. Published Canadian randomized controlled trials were included for deprescribing a variety of drug classes (EMPOWER, D-PRESCRIBE). A scan of interventions from other jurisdictions in Canada were referenced. This review revealed approaches to deprescribing with potential for broader applicability. From this, a toolkit was constructed to assist policy makers in developing appropriate pharmaceutical policy.

Conclusion: A policy toolkit can be assembled from international and local evidence to generate informed decision making regarding Canadian policies for deprescribing.

A219

Effects of Music and Memory on Agitated and Aggressive Behaviors in Dementia: Results from Nursing Home Pilot Study

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Background: Personalized music has been proposed as a non-pharmaceutical alternative for reducing agitated and aggressive behaviors among persons with dementia. One personalized music program, MUSIC & MEMORY, has been adopted by thousands of nursing homes throughout the country. Yet, the evidence of the program's effects on agitated and aggressive behaviors for persons with dementia is lacking.

Methods: In this pilot study, we tested the effects of MUSIC & MEMORY on agitated and aggressive behaviors for people with moderate to severe dementia residing in four nursing homes. Behaviors were measured in three ways: direct observation of behaviors using the Agitated Behavior Mapping Instrument (ABMI); staff reporting of behaviors in the past week using the Cohen-Mansfield Agitation Inventory (CMAI); and secondary analyses of routine resident assessments using the Minimum Data Set (MDS).

Results: A total of 45 residents received the program during the pilot, 34 of whom had pre- and post-intervention data available. The average CMAI total score was 61.24 (SD: 16.32) before and 51.24(SD: 16.05) after music (paired t-test, p<.01). Average total ABMI score while not listening to music was 4.4 (SD: 2.3) and while listening to music was 1.6 (SD: 1.5) (paired t-test, p<.01). There was no significant change in agitated behaviors using the MDS.

Conclusions: Given the short half-life of many of these non-drug treatments for managing agitated and aggressive behaviors, relying on available administrative measures may not adequately capture effects. The next phsae of this research is a NIA-funded, cluster randomized, controlled trial in 81 nursing homes throughout the US, scheduled to begin in Spring 2019.

Frequency of resident agitated and aggressive behaviors while using and not using the MUSIC & MEMORY® program (PILOT DATA; CAUSALITY NOT IMPLIED)

	Frequency of behaviors - No Music Mean (SD)	Frequency of behaviors - With Music Mean (SD)	Difference in frequency of behaviors Mean (SD)	Percent decrease in frequency of behaviors
Direct observation (Agitated Behavior Mapping Instrument)*	4.4 (2.3)	1.6 (1.5)	-2.8** (2.3)	60%
Staff interview (Cohen-Mansfield Agitation Inventory)*	61.2 (16.3)	51.2 (16.1)	-10.0** (18.9)	16%
Administrative Data (Minimum Data Set)*	0.8 (1.6)	0.7 (1.4)	-0.1 (0.8)	13%

***Higher scores indicate worse (more frequent) behaviors**
****p<.001, paired t-test with continuity correction**

A220

New tools for managing the newly defined stage-1 hypertension in the elderly

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Background: The newly introduced hypertension management guideline raised the challenge of how to efficiently manage the large 130/80 mmHg group of patients in China who were considered "normal" in the previous practices. This study is to evaluate the effects of a digital solution by pharmacists for hypertension care on the elderly stage-1 patients.

Methods: We developed a pharmacy-based digital solution that consists of a blue-tooth BP monitor, an App for pharmacists, and a cloud engine that runs decision support algorithms for lifestyle coaching and medication guidance. Pharmacists were recommended to use this solution to provide hypertensive care for the walk-in patients whose basic health information including BP measurements and medication history were stored in the cloud. This study analyzed the health outcomes of 15,550 patients in the intervention group and another 2,408 patients as control from 2,494 drug stores in 132 cities in China. All subjects were over 60 and of the newly defined stage-1 hypertension, and the minimal intervention duration was 180 days.

Results: The intervention group had less increase of SBP and DBP than the control group in comparison of the baseline and the last-time BP measurements (mean SBP change, intervention vs control: 2.5 mmHg vs 3.6 mmHg, P=0.004; mean DBP change, intervention vs control: 0.2 mmHg vs 0.6 mmHg, P=0.029). Based on the last-time BP measurements, the intervention group had improved patient hypertension stage distribution compared with that of the control group, P=0.047 (Table-1). Logistic regression identified risk factors for uncontrolled BP including higher baseline SBP and DBP, older age, and BMI $\geq$ 25, while being female and receiving higher number of intervention were determined as protective factors for better BP control.

Conclusion: Digital solutions are effective tools to assist pharmacists for improved hypertension care for the elderly stage-1 patients. Earlier and more frequent engagements with community healthcare givers and weight management are important to achieve beneficial health outcomes.

Table-1. Patient distribution based on their last-time BP measurements. Pearson's Chi-Square Test: P=0.047

Hypertension Stage	Intervention Group		Control Group	
	# of patients	% of patients	# of patients	% of patients
Normal	2,461	15.8%	371	15.4%
Elevated	2,305	14.8%	322	13.4%
Stage-1	4,867	31.3%	732	30.4%
Stage-2	5,917	38.1%	983	40.8%

A221

Ageing Experiences of Elderly Nigerians:Results from Focus Group Discussion

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Introduction

The population of Nigeria is ageing, currently 190million with about 5% being over 60yrs old. This study aims to articulate the challenges of ageing in Nigeria and expound recommendations from the elderly themselves.

Methodology

A focus group discussion held as part of a national ageing policy review by stakeholders, convened by the federal ministry of Women affairs and social development and supported by the World Health Organization in Abuja. Data such as age, sex, occupation and living condition obtained. Each participant responded to at least 2 questions. The questions;what problems do the elderly face in Nigeria?What interventions exist for the problems?What recommendations do you proffer?The discussions lasted 2 hours. Responses were analysed qualitatively using thematic groups.

Results

There were7 participants(5 females, 2 males) ranging in age from 59 to 83yrs. They had varied background, 2 retired teachers, 1retired civil servant turned pastor, 1 businessman, 1 lawyer in private practice, 1 retired engineer, and 1 former actress turned businesswoman. The problems enumerated were mainly health and social. Health related problems;common medical conditions(DM, hearing and sight challenges, Osteoarthritis): health care facility concerns(lack of priority for and poor attitude to elderly)and health care affordability(exorbitant out

of pocket spending). Only 1 participant had medical insurance. Social issues:housing, social isolation, limited opportunity for economic engagement, lack of access to justice, delay in pension payment. Participants all agreed that the elderly in Nigeria struggle to maintain optimal wellbeing. For existing interventions non governmental organizations were identified as providing platforms for interaction. The recommendations included;ensure universal health coverage, review pension process, health care facilities and business institutions be Age friendly. Additional recommended interventions:provision of affordable housing and an all inclusive justice system.

Discussion

Increasing age is a risk factor for health, socioeconomic and psychological issues. An Age friendly environment generates more positive attitude towards ageing. The elderly in Nigeria seek respect and inclusiveness from the society and government agencies for improved wellbeing. The same is articulated by the African union in Agenda 2063.

A222

Understanding the Vulnerabilities of Older Adults Before, During and After Disasters Strike

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Background: Older adults experience the greatest proportion of casualties and challenges during and after disasters. Outcomes are exacerbated by older adults' susceptibility to social, financial and physical barriers to recovery. In 2017, the American Red Cross partnered with the American Academy of Nursing to conduct a systematic review to identify gaps in disaster preparedness and interventions to reduce casualties. **Methods:** A systematic review incorporating the GRADE approach to assess the quality of evidence for experimental and quasi-experimental studies was conducted. Qualitative studies included were reviewed using the Critical Appraisal Skills Programme (CASP) Checklist. Databases searched included: PubMed, MEDLINE, AgeLine, Clinical Key, EBSCOhost and Scopus. Outcome measures reviewed included mortality, ED visits and hospitalizations. **Results:** A total of 826 peer-reviewed articles were retrieved, 56 of which were included for a full review. Two trials were identified, both of which had moderate effect sizes and quality. A narrative synthesis was used to formally summarize the results however meta-analytic summaries were not possible. Results identified multiple gaps across six emergency management domains (Figure 1). Successful preparedness strategies used multiple modalities and targeted several domains simultaneously. **Conclusion:** Gaps in disaster and emergency planning and preparedness should be addressed across multiple emergency management domains to increase effectiveness.
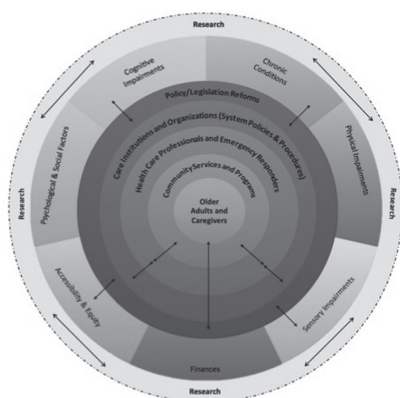
Figure 1: Adapted ecological model illustrating nested emergency management domains

Retrieved from: Bronfenbrenner, U., Friedman , S. L., & Wachs , T. D. (1999, March). Measuring environment across the life span: Emerging methods and concepts. *American Psychological Association* , 197-227.

A223

Cost-effectiveness of weekly teriparatide for older women with prior vertebral fractures in the US

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Background: Osteoporotic fractures are common and costly in older adults. Teriparatide (recombinant parathyroid hormone) is approved by the FDA for the treatment of postmenopausal women who are at high risk of osteoporotic fracture. Although both daily and weekly teriparatide are available outside the US, only the daily form is available in the US. To understand the economic value of introducing weekly teriparatide in the US given the potential for better adherence (taking a medication regularly) and persistence (being on medication from initiation to a given time point) compared with the daily form, we examined the cost-effectiveness of weekly subcutaneous teriparatide for 2 years compared with weekly oral alendronate for 2 years for older women with prior vertebral fracture. **Methods:** We used an updated version of a previously validated Markov microsimulation model to simulate a US cohort of community-dwelling non-Hispanic white osteoporotic women, age 80, with prior vertebral fracture, over their lifetimes. Using a societal perspective, we obtained incremental cost-effectiveness ratios [ICERs] (US dollars [$] per quality-adjusted life year [QALY]) with a willingness-to-pay [WTP] of $100,000 per QALY. We derived inputs for model parameters from published sources, or (only if needed) our own assumptions. The annual costs of teriparatide and alendronate were estimated to be $5120 and $160, respectively. **Results:** Without interventions, the simulated lifetime probability of at least one hip fracture was 56%; the probability of at least one clinical vertebral fracture was 42%. The ICER of teriparatide compared with alendronate was $320,000/QALY. In a deterministic sensitivity analysis, results were sensitive to changes in the relative risk of hip fractures associated with teriparatide, and the persistence rate of teriparatide. In a probabilistic sensitivity analysis, the probability of teriparatide being cost-effective compared with alendronate was 13% at a WTP of $100,000 per QALY. **Conclusions:** Among community-dwelling older women with prior vertebral fracture, weekly subcutaneous teriparatide for 2 years was not cost-effective compared with weekly oral alendronate for 2 years.

A224

Frailty ready inpatient care – interim findings from an integrated, comprehensive geriatric programme

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Background

The Framework for the Inpatient Care of the Frail Elderly (FIFE) is a 5-year program which promotes the hospital-wide implementation of geriatric principles of care for patients 65 years and older. It aims to transform the acute hospital into a senior-friendly, frailty-ready institution which optimizes processes and improves outcomes.

Methods

The program has 2-prong approach: (1) a nurse-led arm consisting of (a) comprehensive geriatric education and skill training for

identified champions (Geriatric Resource Nurse, GRN), (b) platform for case discussion with Geriatric Advanced Practice Nurse or Geriatrician, (c) Regular rounds by GRN to promote geriatric principles of care such as mobility, hydration, tubes/lines and diapers review, reality reorientation; (2) a mobile geriatric assessment team, which supports the nurse-led arm via case conferences and performing comprehensive assessment on select patients. This dyad systematically identifies and assesses frail older inpatients, and implements appropriate geriatric care. Evaluation of the program involved random assignment of 12 wards into FIFE and control wards. Control wards receive usual care. Patients included in the evaluation were systematically sampled. Except for restraint use, data were extracted from administrative systems. The proportion of patients on restraints was assessed through unannounced ward observations.

Results

1417 patients (696 from FIFE and 721 from control wards) were included in the analysis. Out of 14 outcomes assessed, 8 significantly favored FIFE. These included lower proportion of restraint use, lower pressure ulcers, earlier discharge to community hospital, earlier therapist interventions, more referrals to post-discharge services; more dietician interventions, and more geriatric syndromes identified. There was no significant difference in ALOS for patients discharged home when specialty-matched FIFE and control wards were compared.

Conclusions

Optimization of staff deployment, along with capability strengthening in geriatric principles of care may lead to hospital-wide improvements in outcomes for elderly patients.

A225

Delirium in Sickness and in Health: Environmental Design Factors

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Background: Delirium, an acute decline in attention and cognition, includes fluctuating disturbances in attention, awareness, behavior, cognition, and perception. Pharmacologic treatments for delirium remain ineffective. Nonpharmacological environmental factors such as family presence, enhanced orientation, and mobility aids, are first line for prevention and management. We hypothesized that if environmental factors affected the expression of delirium or delirium-like symptoms, these would be evident across different age groups of patients and even present in healthy individuals.

Methods: A survey study of the clinical, neuroscience and psychology literature was conducted to identify factors that contribute to delirium or delirium-like symptoms within different ages, health statuses and settings. Adult and pediatric delirium publications within critical care settings and post-operative spaces were identified and reviewed. In healthy cohorts, a literature search was conducted on delirium-like symptoms, which highlighted a body of literature on symptoms such as hallucinations and perceptual distortions in settings of sensory isolation and mobility restraints.

Results: First, we found studies on sensory deprivation within healthy subjects reporting symptoms similar to delirium, without physical illness present. Recumbent control participants with minimal mobility for days (permitted only to watch television, read, or listen to radio) reported alterations in depth perception of spaces and colours, describing distortions at the same frequency as those under full sensory isolation. Second, we found literature suggesting delirium to occur in all age groups, and thus not uniquely a concern with adults or elderly patients. Two common themes emerged in our survey: (1) the lack of standardized measures of delirium or delirium-like symptoms, which precludes direct comparisons between different patient or healthy populations experiencing delirium, and (2) that non-pharmacologic factors, particularly environmental design, are inextricably related to risk of delirium.

Conclusions: By broadening our search to include delirium and delirium-like symptoms across different patient groups as well as healthy individuals, our study suggests environmental design strategies that engage, promote interaction and empower mobility likely decrease risk of delirium. In some cases, design may succeed where drugs fail.

A226

Intergenerational Programs: a way to Improve Quality of Life in Patients with Dementia

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Background

Older adults with dementia often are socially isolated, increasing their risk for depression, cognitive and overall health status decline. Intergenerational programs (IGP) improve interactions between members of younger and older age groups. This study evaluates the impact of an IGP on older adults with dementia.

Methods

The aim is to demonstrate that IGP help improve the quality of life in patients with dementia. The IGP in this study is an ongoing program where trained middle school students meet with older adults in different settings and develop a sense of connection through shared experiences. Eligible patients have mild to moderate dementia, a caregiver, are verbal and able to participate in activities. The program will be assessed in 2 settings. Firstly, in the community by enrolling patients and evaluating them before and after the program. Secondly, in a nursing home by interviewing patients and caregivers currently participating in the IGP.

Results

From the nursing home, 5 patients (3 females and 2 males) were interviewed. They reported looking forward to these meetings and scored their enjoyment as 100%. They felt a sense of leaving a legacy, giving back, and teaching the children. Four of them stated that they were able to engage better with children than with adults as children showed an interest in their backgrounds and reminded them of their childhood. Caregivers shared that during the program, patients seemed to "wakeup", were engaged and looked happier. However some of them didn't remember the interactions afterwards and thus didn't notice any long lasting change. The ambulatory setting is currently in the enrollment phase and some barriers have been identified. It is difficult for patients with dementia to travel to the sessions. Caregiver availability and competing priorities such as medical appointments and sickness prevents them from attending.

Conclusions

IGP seem to improve the quality of life of older adults with dementia by providing something to look forward to, and a sense of purpose, it also improves socialization and brings joy to older adults.

The preliminary results from the community indicate that nursing home is preferred project setting due to fewer barriers for patient participation.

Reference: Bethany G, et al (2015) Intergenerational Programs for Persons With Dementia: A Scoping Review, Journal of Gerontological Social Work, 58:4, 357-378

A227

Stress and Cognitive Complaints in Older Adults

S. D. Stites,[2] E. A. Largent,[1] L. Pepper,[2] J. Karlawish.[2,3] *1. Medical Ethics and Health Policy, University of Pennsylvania, Philadelphia, PA; 2. Medicine, University of Pennsylvania, Philadelphia, PA; 3. Penn Memory Center, Philadelphia, PA.*

Background: Subjective stress has been shown to affect cognition. No studies, however, have examined the relationship between stress and cognition in older adults. This study assessed that relationship in older adults with varying degrees of cognitive impairment.

Methods: Older adults (n=259; mean age 79 years, range 65 to 97) with normal cognition (NC) or a diagnosis of Mild Cognitive Impairment (MCI) or mild stage Alzheimer's disease (AD) completed cognitive tests and self-report questionnaires on (1) subjective cognitive complaints (SCCs), (2) distress from SCCs, (3) general subjective stress, (4) anxiety, and (5) depression. SCCs were measured as a global score and scores on 10 empirically-derived cognitive domains (e.g., concentration, memory) that assessed interference in daily life from "a little" to "very much." Other self-report measures were dichotomized using clinical cut points. Multivariable regression analyses assessed how general subjective stress and distress from SCCs relate to interference in daily life and cognitive test performance.

Results: Adjusted for diagnostic group, the more SCCs a person reported, the more they reported distress from SCCs and general subjective stress (both p<0.05). Distress was more strongly associated with SCCs related to *concentration* and *language* than other cognitive complaints (p≤0.02). Persons with high distress from SCCs reported 20% greater impairment in the domains of *concentration* and *language* compared to others who reported lower distress (both p<0.05). Moreover, high levels of general subjective stress and distress from SCCs were independently related to worse performance on an executive function task often used for discerning dementia subtypes (both p<0.05). These analyses adjusted for diagnosis, anxiety, and depression. All results were similar across diagnostic groups.

Conclusions: Clinical interventions that offer compensatory strategies to reduce general subjective distress and cognitive-symptom distress may offer benefits to cognitive performance. In addition, cognitive-symptom distress may influence clinical diagnosis of dementia subtypes. Further study of this association is warranted.

A228
Apathy and Incident Cognitive Decline in Community Dwelling Older Adults

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Background: Apathy is a psychological syndrome characterized by lack of motivation, interest, flattening of affect and social withdrawal. Recent investigations highlight apathy as a separate entity from depression, which is uniquely correlated (independent of presence of depressive symptoms) to cognitive and functional decline in neurologic diseases like stroke, Parkinson's disease (PD) and dementia. The objective of this study was to investigate the association between apathy at baseline and incident cognitive disorders including dementia, MCI and motoric cognitive risk syndrome (MCR) in older adults without dementia. Methods: We prospectively studied the association between baseline apathy and incident cognitive disorders (i.e. dementia, MCI and MCR) in 542 community dwelling older adults (≥65 years old) enrolled in the Central Control of Mobility in Aging cohort study, using cox proportional hazard models. Apathy was defined by a score of ≥2 on the 3-item subscale (GDS3A) of the Geriatric Depression Scale Long Form. MCR is a predementia syndrome characterized by subjective cognitive complaints and slow gait. Associations were reported as hazard ratio (HR) with 95% confidence intervals (CI). Results: The prevalence of apathy (GDS3A≥2) was 29. 5%. Between 2011 and 2017, 83 participants developed a cognitive disorder. There were 75 cases of MCI, 30 cases of MCR and one case of dementia. Apathy was significantly associated with older age and history of hypertension in bivariate analyses. Apathy was significantly associated with incident MCR ((HR 2.39, 95% CI: 1.10-5.195)), after adjusting for age, education, baseline cognitive performance and depressive symptoms. Apathy was not significantly

associated with MCI or cognitive disorders in general. Conclusions: Apathy was found to be a predictor of MCR but not MCI in a cohort of community dwelling older adults. These associations were independent of baseline cognitive performance and depressive symptoms. The findings of this study highlight the role of apathy (independent of depression) as a potentially important predictor of dementia in older adults without neurologic disease.

A229 Encore Presentation
RELATIONSHIP BETWEEN GAIT SPEED, ARTERIAL AND CARDIAC STIFFNESS, AND CEREBRAL AMYLOID-β DEPOSITION AND CEREBRAL BLOOD FLOW IN COGNITIVELY NORMAL OLDER ADULTS

N. K. Nadkarni,[1] S. Perera,[1] E. Barinas-Mitchell,[1] W. Klunk,[1] O. Lopez,[1] S. Dekosky,[2] L. Kuller.[1] *1. University of Pittsburgh, Pittsburgh, PA; 2. University of Florida, Gainesville, FL.*

Background: Slower gait is associated with greater cerebral amyloid-β (Aβ) deposition, a key component of Alzheimer's disease (AD) pathology, and Aβ is associated with increased arterial stiffness in dementia-free persons. Whether gait speed is associated with cardiac and arterial stiffness, and cerebral blood flow (CBF) is unknown.

Aim: We examined the cross-sectional association between gait speed, Aβ, CBF, and cardiac and arterial stiffness in cognitively normal (CN) older adults.

Method: We assessed gait speed on 15' walk, Aβ on Pittsburgh-B PET as standardized uptake value ratio (PiB SUVR), CBF on arterial spin labeling MRI, cardiac stiffness on QRS voltage on EKG, and arterial stiffness using carotid-femoral pulse-wave velocity (cf-PWV). Statistical methods included Pearson's correlations, regression, and path analysis.

Results: In this population (N=50, 86±3 years), gait speed correlated with global PiB SUVR (r=-0.30, p=0.035), global CBF (r=-0.32, p=0.029), cf-PWV (r=-0.30, p=0.037) and QRS voltage (r=0.34, p=0.016). Gait speed was associated with QRS voltage (β=0.35, p=0.013), cf-PWV (β=-0.28, p=0.048), PiB SUVR (β=-0.27, p=0.06) and CBF (β=-0.33, p=0.026). The association between gait speed and QRS voltage remained significant (β=0.36, p=0.007) despite adjustment for age, gender, BMI and hypertention. Results of path analysis are shown in the attached figure.

Conclusion: Slow gait may be associated with greater Aβ deposition, and cardiac and arterial stiffness. Greater arterial stiffness may contribute to slow gait by influencing AD pathology, independent of cardiac stiffness. The relationship between higher CBF and slower gait remains unclear.
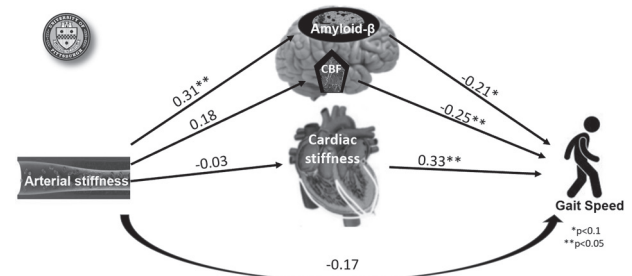
Figure: Path analysis showing relationship between arterial stiffness, amyloid-β deposition, cerebral blood flow, cardiac stiffness and gait speed.

A230 Encore Presentation
Examining Descending Pain Modulation System Integrity in Alzheimer's Disease

S. Atalla,[1] R. Cowan,[2] T. Monroe.[1] *1. The Ohio State University, Brentwood, TN; 2. Vanderbilt University, Nashville, TN.*

Background: People with Alzheimer's disease (AD) report pain less frequently and receive less analgesic medication relative to controls. However, there is no consensus on the neurobiological contributions to this disparity. The purpose of this investigation was to examine experimental pain psychophysics and brain activation in response to experimental pain and examine the association between brain activation and psychophysics in AD relative to controls.

Methods: The sample consisted of 61 adults (31 males, 16 with AD; 30 females, 15 with AD) over the age of 65. Psychophysics consisted of a perceptually matched paradigm in which subjects were asked to identify warmth, mild pain, and moderate pain (baseline temperature of 30°C). After each percept, reports of perceived unpleasantness were obtained (0-20). Functional MRI consisted of 4 BOLD runs each consisting of 2 trials of each percept. Data were analyzed using SPM12 and SPSS v24. We examined components of the descending pain modulation system (DPMS) including the primary and secondary somatosensory cortices (S1, S2), dorsolateral prefrontal cortex (dlPFC), anterior cingulate cortex (ACC), insula, amygdala, hypothalamus, and the periaqueductal gray (PAG).

Results: The groups did not differ on socioeconomic status, current or average pain, or state or trait anxiety scores. Psychophysics indicate that healthy adults perceived both warmth (p < 0.001) and mild pain (p = 0.030) at statistically significant lower temperatures. Group differences in neuroimaging showed greater activation in the PAG of healthy adults relative to adults with AD for mild pain > warmth (corrected p<0.05). Using the Z test of independent correlations, the association of mild pain perception and brain activation in the R and L ACC was significantly different between the groups (*p*=0.014 and *p*=0.013) respectively with brain signal being positively associated with mild pain in healthy older adults (R ACC: r=0.26; L ACC: r=0.31) and negatively associated in people with AD (R ACC: r=-0.38; L ACC: r=-0.32).

Conclusions: These findings suggest that increased pain thresholds in adults with AD may result from alterations in the neural circuitry in regions involved with descending pain modulation (PAG and ACC). Findings further indicate that older adults with AD may not experience similar engagement of the DPMS relative to controls potentially placing them at greater risk of suffering from pain.

A231
Executive Function as a Marker of Prodromal AD in AA versus W Older Adults

S. Garrett,[1] F. C. Goldstein,[3] K. Easley,[2] Y. Chen,[2] J. Lea,[1] I. Hajjar.[3]
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2. Biostatistics and Bioinformatics, Emory University, Atlanta, GA;
3. Neurology, Emory University School of Medicine, Atlanta, GA.

Background: African Americans (AA) are twice as likely to develop late-onset AD than whites (W) and less likely to be diagnosed.[1] Existing protocols for screening early cognitive impairment (CI) are based on identifying memory impairments and are not optimized for AA. We hypothesize that executive function is a better marker of AD in AA, in part due to its vulnerability to HTN and related vascular disorders. The aim of this study was to compare the prevalence of executive dysfunction as an optimal cognitive marker in AA with prodromal AD.

Methods: Cross-sectional analysis of VAScular ContribUtor to ProdromaL AlzheimeR's disease (AG051633, PI: Hajjar). VASCULAR's main objective is investigating contribution of vascular dysfunction, including HTN, to the pathogenesis of AD. All eventual 330 (40-50% AA) study participants (with matched controls), will have prodromal AD, and undergo cognitive testing. Specific aims- cognitive measures including CLOX- an executive clock draw test, Flanker-NIH Toolbox cognitive battery test of executive function, and MoCA executive function subscale. Our main derived measures were prevalence of executive dysfunction- (impaired performance on CLOX1, Flanker and MoCA executive function subscale) as well as comparison of executive function and memory performance in AA and W.

Results: 114 AA and 141 W; 49 AA and 33 W had prodromal AD. In sub analyses using CLOX, ~ 40% of AA had executive dysfunction (CLOX1) vs. 22% of W. Forty-eight percent (n=25) of AA with prodromal AD had executive dysfunction. Flanker scores were lower (i.e., poorer performance) in AA with prodromal AD relative to W, 7.64 ± 0.97 vs. 8.08 ± 0.66 (*p*=0.002); MoCA executive function subscale score was lower for AA with prodromal AD 2.8 ± 1.3 vs. W, 3.4 ± 1.2, (p<0.001).

Conclusions: AA demonstrated lower performance on Flanker and MoCA executive function scales. Measures of executive control suggest executive function has utility in identifying early CI in AA. Measurement of this cognitive domain may be useful if performed regularly.

Reference: [1]alzheimer's association, 2016. African Americans and Alzheimer's. [Online] Available at: www.alz.org/africanamerican/, [Accessed 9/30/16].

A232
Using level of arousal to predict 30-day mortality in acutely ill older adults: an alternative to delirium assessment?

F. B. Garcez, F. Campora, J. Esper Curiati, W. Jacob-Filho, T. J. Avelino-Silva. *University of Sao Paulo Medical School, Sao Paulo, Brazil.*

Background: Impaired level of arousal (LoA) is frequently observed in acutely ill older adults, particularly in patients with delirium. However, impaired LoA can also occur in the absence of other delirium features. We aimed to: (1) investigate the association between impaired LoA on admission and short-term mortality in acutely ill older adults; (2) explore the prognostic effect of LoA in patients without delirium. **Methods**: We conducted a retrospective cohort study examining patients aged +65 years admitted to a tertiary university hospital between 2010 and 2018. Participants were evaluated on admission according to a standardized comprehensive geriatric assessment model, which included delirium assessment using the Short-CAM. We reviewed medical records to complete the study measures. Our primary outcome was time to death in 30 days. Our main independent variable was LoA on admission, which was measured using two different approaches: (1) the level of consciousness component of the Short-CAM (normal; vigilant; lethargy; stupor; coma); (2) and the Glasgow Coma Scale score (GCS; 3=worst, 15=best). Multivariate analyses were performed using Cox proportional hazards models adjusted for possible confounders. **Results**: We included 1,554 admissions, with a mean age of 81 years and 61% of women. Delirium was observed in 28% of the cases on admission. Overall, 23% of the cases had GCS scores ≤13, and 33% were either lethargic, stuporous, or comatose according to Short-CAM criteria. Conversely, 6% were considered vigilant. General 30-day mortality of 19% was observed in this cohort but reached 37% in patients with GCS scores ≤11. Impaired LoA was independently associated with mortality, both when measured using Short-CAM criteria (lethargy+stupor+coma: HR=2.32, 95%CI=1.66-3.27) and GCS scores (GCS_{12-13}: HR=1.62, 95%CI=1.13-2.33; $GCS_{\leq11}$: HR=2.53, 95%CI=1.68-3.80). Our results were confirmed in patients who did not fulfill delirium criteria but had impaired LoA (Short-CAM: HR=2.16, 95%CI=1.44-3.24; $GCS_{\leq11}$: HR=3.07; 95%CI=1.50-6.29). **Conclusions**: Impaired LoA on admission was an independent predictor of 30-day mortality in acutely ill hospitalized older adults. Clinicians should be aware that even if unsure of whether a patient has delirium, LoA can provide important clinical insight.

A233

Living alone and psychological distress in older adults with criminal legal involvement

W. C. Bryson. *Psychiatry, Oregon Health and Sciences University, Portland, OR.*

Background:

Older adults are the fastest growing age demographic in the United States criminal legal system, and they face health disparities including poor social support and mental health problems. Living alone has been linked to depressive symptoms among older adults in the general population, but its prevalence and impact on older community-dwelling adults with criminal legal involvement have not been established. In this study, we analyzed the prevalence of living alone among older adults with criminal legal involvement, and the association between living alone and mental health symptoms.

Methods:

Participants in this cross-sectional study included all community-dwelling adults aged 65 or older who completed the National Survey on Drug Use and Health (NSDUH) between 2008-2014. Criminal legal (CL) involvement was defined as parole, probation, or arrest within the past year. Psychological distress was measured with the Kessler-6 (K6) scale. We used descriptive statistics to (a) calculate the prevalence of living alone among individuals with vs. without CL involvement, and (b) compare mean scores on the K6 by CL status and living alone. Finally, we used linear regression to determine whether the descriptive associations persisted after controlling for sociodemographic and health-related covariates.

Results:

Among the N=17,176 individuals aged 65 and older included in the study, there were n=115 (0.7%) with CL involvement and n=16,989 (99.3%) without. The prevalence of living alone was higher among those with CL involvement than those without (39.1% vs. 29.5%, p=0.024). Among the subset of individuals not living alone, those with CL involvement had higher psychological distress than those with no CL involvement (mean K6 score 7.03 vs. 3.13, p<0.001). However, among those living alone, psychological distress did not differ based on CL status (mean K6 score 4.64 vs. 3.66, p=0.125). Linear regression models found that these descriptive associations persisted after controlling for covariates.

Conclusions:

Our results suggest that living alone may protect older community-dwelling adults with criminal legal involvement from psychological distress, and this is not the case for those without criminal legal involvement. The balance of mental health risks and benefits involved in living alone is different among those with criminal legal involvement, which is important in organizing and delivering healthcare services to these vulnerable individuals.

PRESIDENTIAL POSTER SESSION B

Thursday, May 2
5:00 pm – 6:00 pm

B1

ANTIBIOTIC ASSOCIATED NEUROTOXICITY IN AN ELDERLY WITH RENAL DYSFUNCTION

K. Venkatachalam,[1] E. Hutchison,[2] H. Levy,[3] D. Carr.[1] *1. Geriatrics, Washington University / Barnes Jewish Hospital, St. Louis, MO; 2. Internal Medicine, Washington University, St. Louis, MO; 3. St. Louis Collage of Pharmacy, St. Louis, MO.*

Background:

Clinical manifestations of cefepime neurotoxicity (myoclonus, disorientation & seizures) are often underappreciated, particularly in the elderly. Reported incidence in literature is between 1% & 15%.

Case:

70 y/o gentleman (Ht: 5"8', Wt: 76kg) with type 2 DM, hypothyroidism, rectal cancer s/p neoadjuvant chemotherapy & radiation, abdominoperineal resection, prostate cancer complicated by rectourethral fistula was admitted to the urology service on the hospital floor for altered mental status. It was presumed to be secondary to urinary tract infection & infected presacral fluid collections. He was started on broad-spectrum IV daptomycin & meropenem for concerns of sepsis, but regimen was changed on day 2 to IV cefepime 2 g Q 12 h with IV linezolid. He had CKD 3 with a creatinine clearance of 53ml/min at the time of IV cefepime initiation. 2 days later his creatinine increased to 2.3mg/dl (creatinine clearance to 32ml/min). Mentation declined further with new tremor & myoclonus. Geriatrics was consulted. He was at high risk of developing delirium. Given his change in mental status, a new finding of tremor, and myoclonus, cefepime neurotoxicity was suspected. Cefepime was discontinued in favor of ceftriaxone and metronidazole given prior culture data. 3 days after stopping cefepime, his mentation significantly improved with resolution of tremor and myoclonus. He was discharged on daptomycin, ceftriaxone, and metronidazole with plan for outpatient urology follow-up for consideration of urinary diversion,

Discussion:

Cefepime is renally excreted with significant CSF penetration. In a meta-analysis, only 50% of patients received an adjusted dose of cefepime when there was a decline in renal function. Elderly patients experience neurotoxicity despite appropriate renal dose adjustment. This case would fall under the phenotype of antibiotic associated encephalopathy accompanied by myoclonus arising within days after antibiotic administration, a normal MRI and resolution of symptoms within days. It is commonly reported in the setting of renal insufficiency. It illustrates the importance of monitoring renal function in the elderly, the need for early recognition of CNS side effects due to pharmacologic agents and adjusting dose of renally excreted antibiotics to prevent untoward adverse events.

B2 Resident Presentation

Metabolically deranged: A rare indication for lifelong PPI use in the elderly

A. Dossaji, S. Samanani, M. Hasan. *UMMS-Baystate Medical Center, Springfield, MA.*

Background: Hypochloremic hypokalemic metabolic alkalosis with paradoxical aciduria and hypocalcemia are common findings in the elderly due to untreated peptic ulcer disease. We present a case where the above findings were caused by loss of gastric secretions via gastrostomy tube in the setting of cancer induced Gastric Outlet Obstruction (GOO) creating a unique scenario necessitating the use of lifelong PPI in the elderly.

Case presentation: An 83-year-old female recently diagnosed with metastatic gastric carcinoma with duodenal invasion leading to high-grade GOO with the placement of G-tube for decompression and jejunostomy tube for enteral feeding. She presented to the ED with profound weakness and steadily increasing G-tube output, 1L per day on admission. On exam, she was hypovolemic with lab findings including serum: chloride 70, bicarbonate 46, potassium 3.3 and urinary: sodium 70, potassium 51.6, chloride <20 and pH 4.5. Treatment consisted of chloride repletion with saline via J-tube and IV Proton pump inhibitors (PPI) with the resolution of metabolic alkalosis, hypokalemia, and normalization of urinary pH within 48 hours. Oral PPI was continued to maintain electrolyte balance.

Discussion: Our patient lost high volumes of HCl from her G-tube leading to alkalemia with resultant renal excretion of HCO3 to maintain blood pH. However, progressive dehydration drove aldosterone production leading to Na reabsorption and inhibited HCO3 excretion, exacerbating the hypokalemia and hypocalcemia. Starting PPI reduced gastric H+ production reducing overall HCl loss. This, along

with fluid resuscitation, reversed aldosterone production and repleted chloride; thus, resolving metabolic abnormalities.

The literature has multiple recommendations regarding PPIs in the geriatric population including those from The American Geriatrics Society, the US FDA, and the START/STOPP criteria. Long-term PPI use in the elderly is associated with increased risk of osteoporotic fractures, renal disease, dementia and, nutritional deficiencies. However, in certain individual cases, the benefit of long-term PPI may outweigh the risk, as seen with our patient.

Conclusion: Despite guidelines emphasizing potential harms from long-term PPI use in geriatric patients, the potential benefit may supersede the harm. As such, an individualized risk-benefit analysis is necessary when deciding on the benefit of long-term PPIs in geriatric patients.

B3
LADA in an octagenarian
A. Sanchez Lopez, A. Fabiny, A. Schafer. *UCSF, San Francisco, CA.*

Case presentation

87 year-old man with remote history of prostate cancer, eczema, vitamin B12 deficiency and prediabetes presented with acute onset of fatigue, decreased appetite, nausea and somnolence. He had a glucose of 476 mg/dL and after hydration, and insulin, he was discharged on glipizide. His HbA1c was 11.6% with prior five years of HbA1c between 6-6.4%. He was started on low dose metformin and glipizide was discontinued. He tested positive for islet cell antibodies and high titers of glutamic acid decarboxylase antibodies GADA. Three months later, he remained well controlled on metformin with a HbA1c of 6.7% and a C-peptide was within normal limits and found to have positive parietal cell and intrinsic factor Ab.

Discussion

LADA exhibits features of both type 1 (T1D) and type 2 (T2D) diabetes. The Immunology of Diabetes Society has proposed 3 diagnostic criteria: onset at $\geq$30 years, presence of circulating diabetes-associated pancreatic islet autoantibodies and insulin independence within the first 6 months of diagnosis.

The age of onset seems to contribute to clinical heterogeneity. The LADA China study found that patients with elderly-LADA (e-LADA), diagnosed after age 60, have better residual beta cell function, higher level of insulin resistance, more metabolic syndrome characteristics and shared more similar HLA DQ genetic characteristics with elderly T2D as compared to younger-LADA.

The NIRAD study demonstrated that patients with high GADA levels tipically are younger and resemble T1D as they tend to have lower BMI, lower prevalence of metabolic syndrome, higher levels of HbA1c and lower C-peptide levels. Our patient had similar characteristics to the younger group as he had high GADA titers and he didn't share many features of e-LADA. Also, patients with elevated GADA titers have higher frequency of other organ-specific autoantibodies suggesting a more extensive autoimmune process as in this case.

Given the underuse of universal autoantibody screening in patients diagnosed with diabetes, there is a high rate of misdiagnosis, reported in 5–10% among those with T2D. Diagnosing LADA at any age and knowing the immunological profile is important because it helps to anticipate the course of the disease and guide treatment. As an example, the use of sulfonylureas, common treatment for T2D is not recommended in LADA because they exhaust beta cell reserves faster. The appropriateness of discontinuing sulfonylurea in our patient was not only indicated based on his age but also specific to his diagnosis.

B4
Charles Bonnet Syndrome Masquerading as Delirium.
A. Shami,[1] S. Ang.[2] *1. Baystate Medical Center, Springfield, MA; 2. Medicine, Baystate Medical Center, Springfield, MA.*

Introduction: Charles Bonnet syndrome (CBS) is an underdiagnosed condition in older adults which presents as visual hallucinations. The prevalence is variable across populations but may be as high as 17.5% in those with vision impairment and may resemble other neurological conditions. We review a case of CBS masquerading as delirium.

Case presentation: EM is a 79-year-old female admitted from skilled nursing facility (SNF) due to acute kidney injury likely caused by dehydration and overdiuresis. History was notable for legal blindness with a right prosthetic eye and poor vision in the left eye with glaucoma.

Despite resolution of her kidney injury over the next two days, her hospital course was complicated by hyperactive delirium with visual hallucinations. CT head was without acute abnormality and medication list was unremarkable for any polypharmacy.

EM was started on risperidone which helped with her agitation symptoms but still experienced visual hallucinations that seemed mostly benign. She described seeing objects in her room such as kittens and babies and was having conversations with them. She noted that faces looked so "tiny" to her. Yet she was in a good mood throughout this and eventually fully oriented and following all commands. The hallucinations did not seem to be distressing. She even had good insight about her hospitalization.

Further collateral history from nursing at her SNF revealed that she suffered visual hallucinations prior to hospitalization. She had been evaluated by an ophthalmologist and by the inpatient psychiatry team both of whom concurred with a diagnosis of CBS. She was discharged back to SNF with the goal of tapering off antipsychotic medications.

Discussion: CBS occurs in patients, mostly elderly, with vision loss due to various causes such as glaucoma. However as it affects a mainly elderly population already prone to other conditions, CBS can be confused with delirium, psychosis or neurological disorders. The visual hallucinations in CBS are generally not distressing to the patient and often described as Lilliputian (small-appearing) due to distortions in visual perception. Despite a lack of connection with psychotic disorders, the hallucinations may be improved by the use of atypical antipsychotics. However, our case illustrates the importance of collateral history from the patient's caregivers to gather an understanding of their baseline vision and ophthalmic history prior to starting medical therapy.

B5 Student Presentation
Evaluating the use of Marijuana for Agitation Symptoms in Patients with Dementia: A Case Series
A. Mueller,[1] D. Fixen.[2] *1. School of Pharmacy, University of Colorado, Aurora, CO; 2. Clinical Pharmacy, University of Colorado School of Pharmacy, Denver, CO.*

Introduction: Studies have reported changes in the endocannabinoid system in the brain of patients with Alzheimer's disease (AD), playing a role in the pathophysiology of AD. Cannabinoids have been shown to have various neuroprotective properties. Cannabidiol (CBD) is not psychoactive, in contrast to tetrahydrocannabinol (THC) which causes euphoric effects.

Medical marijuana has approved use for dementia or agitation of AD in 10 states. Evidence suggest that the utilization of marijuana products containing both THC and CBD or CBD alone have been effective and safe for use in older adults for the relief of agitation symptoms associated with dementia.

Cases: An 86-year-old male with dementia was experiencing behavioral disturbances and started using CBD oil spray. Family noticed an improvement with combative behaviors and felt this

product had helped most with dementia behaviors. This product was preferred over first-line agents due to the risks of side effects such as stroke, death and worsening cognition.

An 80-year-old male with AD was experiencing worsening behaviors such as agitation and aggression. The use of a gummy product containing a 10:1 ratio of CBD:THC was initiated due to the failure of Depakote and Seroquel. Once the gummy was added, there were no signs of dementia-related behaviors and was reported to be successful when administered regularly.

Discussion: A review in 2017 summarized positive findings for benefits of cannabinoids in agitation of AD and dementia, but there was no definitive conclusion due to varying cannabinoid products. Cannabinoids were shown to be overall well-tolerated, with few short-term side effects. This is in contrast to first-line medications utilized for dementia behaviors which can have unwanted side effects. Further research regarding the safety, efficacy and variability of these products in older adults is needed.

References
1. Campbell VA, Gowran A. Alzheimer's disease; taking the edge off with cannabinoids? *Br J Pharmacol 2007;152*(5):655-62.
2. Maust, DT, Bonar EE, Ilgen MA, et al. Agitation in Alzheimer Disease as a Qualifying Condition for Medical Marijuana in the United States. *Am J Geriatr Psychiatr 2016;24*(11):1000-03.
3. Lim K, See YM, Lee J. A Systematic Review of the Effectiveness of Medical Cannabis for Psychiatric, Movement and Neurodegenerative Disorders. *Clin Psychopharmacol* Neuropsy 2017;15(4):301-12.

B6

What's old is actually young - A congenital case report of failure to thrive

A. Roberts, S. Hallen. *Geriatrics, Maine Medical Center, Portland, ME.*

An 87 year old male with history of COPD, peripheral vascular disease, and prostate cancer (in remission), presented to the ED with a one month history of malaise, nausea, dizziness, frequent falls and weight loss following a brief upper respiratory tract infection. He was diagnosed with "failure to thrive" and orthostatic hypotension. He was discharged to an acute inpatient rehabilitation center, where he continued to complain of diffuse weakness, nausea and vomiting. His symptoms were severe enough to prevent his participation in therapy. He was sent to the ED for re-evaluation, and there laboratory testing revealed hyponatremia (sodium 125mEQ/L). This was initially thought to be due to hypovolemic hyponatremia and he received IV fluid repletion until he appeared clinically euvolemic. Despite this, his hyponatremia persisted. Further work-up revealed: a low morning cortisol, a cosyntropin stimulation test suggestive of adrenal insufficiency, a low free thyroxine level, and a normal (but inappropriately low) thyroid stimulating hormone level. Concerned for panhypopituitarism, a MRI of the brain was obtained which showed a bilobed cyst in the pituitary fossa with mass effect on the optic chiasm and infundibular stalk resulting in empty sella syndrome. The patient was diagnosed with a Rathke's cleft cyst. Endocrinology was consulted and patient was started on hydrocortisone and levothyroxine. Patient opted for conservative management. With treatment, his sodium normalized, his nausea abated and he clinically improved.

Rathke cleft cysts (RCCs) are benign sellar and suprasellar lesions. These cysts are remnants of the Rathke pouch which gives rise to the anterior pituitary. In most patients, RCC are asymptomatic and a common finding on autopsy. Symptomatic RCC represent only 5-15% of all surgically resected sellar lesions[1]. This case highlights the need to maintain a broad differential for older adults presenting with "failure to thrive," given that a congenital remnant led to symptomatic panhypopituitarism in this patient.

1. Trifanescu RA, O, et al. Rathke's Cleft Cysts. *Clinical Endocrinology*. 2012(76):151-160.

B7

Hyperthyroidism induced congestive hepatopathy – A clinical correlation or a mere coincidence?

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A 75-year-old woman with a remote history of "thyroid disorder" and dysrhythmia presented with two weeks onset of jaundice associated with abdominal pain, nausea, vomiting and dark urine. She also endorsed palpitations and unintentional 30-lb weight loss over 2 years. Physical examination revealed jaundice, scleral icterus, palpable non-tender thyroid gland with no nodules, irregularly irregular tachycardia with a 3/6 systolic murmur at the apex, 1+ bilateral lower extremity edema, and thinning hair. Laboratory data revealed elevated alkaline phosphatase (ALP; 241 IU/L) and total bilirubin (24.4mg/dL). Ultrasound (US) abdomen showed cholelithiasis. Thyroid stimulating hormone was low (<0.005 U/mL) with elevated free thyroxine (4.75mg/dL). Thyroid US showed thyromegaly and thyroid uptake scan showed increased uptake consistent with Grave's disease. A transthoracic echo (TTE) showed ejection fraction (EF) of 56%, mildly dilated right ventricle (RV) and right ventricular systolic pressure (RVSP) of 57mmHg.

The patient underwent endoscopic ultrasound/endoscopic retrograde cholangiopancreatography (EUS/ERCP) for possible choledocolithiasis. ERCP revealed two filling defects in the common bile duct. Bile flow was seen around the stones with absence of complete mechanical obstruction; the extent of cholestatic liver injury could not be solely explained by choledocholithiasis. Additional lab work including autoimmune workup was unremarkable. She then underwent a liver biopsy which showed congestion and stage 3 fibrosis.

The patient was discharged home on methimazole, diuretics and beta blockers. She presented again to the hospital one week later with increased fatigue. CT pulmonary embolism protocol was unremarkable. Transesophageal echo showed EF of 50-55%, moderately dilated RV, RVSP of 80mmHg and mildly dilated pulmonary artery. Right heart catheterization showed mean pulmonary artery pressure of 24mmHg with pulmonary capillary wedge pressure of 10mmHg.

Hepatopulmonary congestion is a rare complication of hyperthyroidism that frequently resolves with medical management. Our patient was discharged home on medical management for Grave's disease and heart failure. Follow-up in the clinic 3 months later showed a TTE with an EF of 60-64% and RVSP 35mmHg. The patient continues to be asymptomatic with normalization of her blood work.

B8

Born to Fall: Geriatric Falls Evaluation Uncovers Congenital Brain Anomaly

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Background: Falls are the main cause of injury in older adults. Acquired central nervous system (CNS) lesions such as stroke are common contributors to falls but congenital CNS defects are less often considered.

Case: A 62-year-old man with two prior falls presented to a fall assessment clinic. He reported 8 years of balance difficulty bothersome enough that he began using a cane and quit his factory job. He also complained of frequent, vague dizziness. Family medical history was striking for two daughters with agenesis of the corpus callosum, both with seizure disorders, as well as a stillborn son. Exam was notable for marked axial swaying in tandem stance and reported dizziness with vertical gaze shifts without restricted ocular motion or nystagmus. Gait was antalgic but otherwise unremarkable. Strength was 5/5 throughout and exam showed no rigidity, tremor, dysmetria or dysdiadochokinesia. Laboratory evaluation revealed normal vitamin levels, TSH, and a negative RPR. Orthostatics were negative. The patient had

never had brain imaging. Subsequent head CT showed agenesis of the corpus callosum.

Discussion: Falling is a common, morbid geriatric syndrome whose causes include sensory, musculoskeletal and neurologic changes. While acquired CNS deficits are frequent contributors, congenital defects are less often encountered. We present a man whose congenital agenesis of the corpus callosum was discovered during a comprehensive falls evaluation. He had lived 62 years without knowing of this issue and likely passed it on to his children. Callosal agenesis is an uncommon condition often causing poor motor coordination, especially for tasks that involve both halves of the body, and subtle cognitive and social difficulties. Studies link lesions in the corpus callosum, and in white matter more broadly, to imbalance and falls in conditions including Parkinson's disease, multiple sclerosis, mild cognitive impairment and vascular dementia. We suspect our patient's structural brain lesion contributed to his imbalance and falls.

Conclusion: Though often considered pediatric issues, as health care and life expectancy improve geriatricians will likely encounter more patients with congenital anomalies. Atypical or early presentations of geriatric syndromes or unusual family histories should trigger suspicion for unrecognized congenital disorders.

B9 Encore Presentation
Dementia and the Loaded Gun: Keeping and Bearing Arms When Cognition and Capacity Become

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Background: The physical environment is fraught with potential dangers that can jeopardize the safety of a person living with dementia and his or her family carepartner. For rural Veterans, one common source of danger is the presence of firearms in the home environment. A loaded gun in the house becomes particularly problematic as dementia progresses and cognition and capacity become compromised. However, the second amendment guarantees United States Citizens the right to keep and bear arms.

Methods: In this poster we present preliminary data on a sample of 21 rural Veterans and their carepartners who participated in a tele-dementia assessment as part of the national GRECC Connect program.

Results: Most Veterans (95%) had a diagnosis of dementia and were accompanied by a family caregiver (90%; 74% spouses). The dyads underwent an in-person psychosocial interview battery administered by the team research psychologist followed by a comprehensive clinical assessment conducted with the clinic geriatrician via tele-video-conferencing. Forty-three percent of the Veterans seen were 80-years-of-age or older. Forty-eight percent scored 10 or below on the St. Louis University Mental Status (SLUMS) examination indicating impaired cognition and suggestive of reduced capacity. Sixty-two percent of the households own a gun and 57% keep a loaded gun in the home and/or vehicle. Qualitative comments from the caregivers include fear and discomfort with the firearms in the home. A case study is presented to illustrate the challenges encountered with providers, family members and law enforcement.

Conclusions: Clinicians face additional challenges in addressing patient safety when working with dementia patients who have guns in their home when these patients reside in rural environments. Clinical, practical and policy implications and the actions needed moving forward are discussed.

B10 Resident Presentation
Improving Medication Reconciliation

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Background

According to the Institute for Healthcare Improvement adverse drug events remain a top patient safety priority. However, accurate medication reconciliation, especially in the geriatric population can be challenging. Project RED, a discharge intervention program at Boston Medical Center, showed improvement in readmissions with comprehensive discharge planning including a medication reconciliation. Yet even in this structured environment, follow up phone calls by a pharmacist revealed that over 50% of those with completed reconciliations needed corrective action by a pharmacist.[1] The following patient highlights the difficulty in obtaining an accurate medication list and shows how home visits and dedicated appointments can assist in this endeavor.

Case

Patient is a 79 year old woman with history of hypertension, stroke, asthma, chronic obstructive pulmonary disease, rheumatoid arthritis, myelomalacia of the cervical cord, lumbar stenosis, osteoporosis, and vitamin D deficiency who presented to a General Internal Medicine clinic for GI complaint. Her visit note mentions that she brought in her medications and a reconciliation was completed with a total of 14 medications. However, given concern for memory impairment a home visit was made. During the home visit, she presented a different list from another PCP with 12 medications and had difficulty presenting her medication bottles as there was no organization. She later came in for a dedicated medication reconciliation appointment, with her medications, and was found to have only 9 medications, was taking pills from 3 separate bottles of a single medication, and had incorrect pill counts. Further discussion revealed she frequently did not fill medications due to finances. Thus many of her medications were discontinued with the final medication list consisting of 4 medications in order to avoid polypharmacy and improve compliance.

Conclusions

This case highlights the difficulty of medication reconciliations and points to potential useful tools for addressing this challenge including home visits and dedicated clinic appointments for the purpose of medication reconciliation.

Sources

1. Jack BW, Chetty VK, Anthony D, et al. A reengineered hospital discharge program to decrease rehospitalization: a randomized trial. *Ann Intern Med*. 2009;150(3):178-187.

B11
Tornado In My Chest: A Case Of Antineutrophil Cytoplasmic Antibody Associated Vasculitis (AAV)

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Background: Cough is a frequent complaint in the elderly population. Common causes are upper airway cough syndrome (due to postnasal drip), asthma and gastroesophageal reflux. Vasculitis often presents a diagnostic challenge as the disease processes may have varied presentations. Nasal crusting, epistaxis, hemoptysis or other upper airway disease is suggestive of AAV.

Methods: Case presentation of an elderly male with an unusual presentation of AAV as cough that worsened over time.

Results: An 87-year-old nonsmoker male with a history of chronic lymphocytic leukemia (CLL) with subsequent hypogammaglobulinemia resulting in recurrent pneumonias on IVIG, and atrial fibrillation on apixaban, presented to our geriatric clinic for chronic

cough of 3 years duration worsening over the last year. Patient described his cough starting like a tornado, with full intensity episodes and sometimes productive, mostly severe at night and in the early mornings that did not let his wife sleep.

His physical exam showed normal vital signs and cardiopulmonary exam was unremarkable. Pulmonary function tests were normal, and a CT scan of his chest showed bilateral ground glass and reticular opacities suggestive of interstitial lung disease.

Patient then presented to the emergency department with hemoptysis and a repeat CT scan of his chest now showed multifocal patchy consolidations, new pulmonary nodules and new ground glass opacities, for which he was treated for pneumonia.

Indirect immunofluorescence ANCA testing was positive with a peri nuclear pattern of staining (P-ANCA). ELISA confirmed the presence of antibodies to myeloperoxidase (MPO) and was negative for proteinase 3 (PR3).

A CT scan of his sinuses showed chronic sinusitis and nasal endoscopy showed mild edema in the turbinates.

Patient was diagnosed with AAV. He was started on a short course of steroids followed by cyclophosphamide and rituximab with dramatic improvement in his cough and hemoptysis.

Conclusion: AAV is a necrotizing vasculitis that predominantly affects small vessels and is associated with ANCA specific for MPO or PR3. The definitive treatment for AAV is with immunosuppressant agents, and there are reports of clinical benefit with IVIG. His atypical presentation of AAV may be related to the need of IVIG therapy for his hypogammaglobulinemia.

B12
Give Total Parenteral Nutrition (TPN) early not late: A case of severe nutritional anasarca in a Skilled Nursing Facility (SNF)
A. Ahmad. *Internal Medicine and Geriatrics, Penn State Health, Hummelstown, PA.*

Background:

TPN is indicated for severe malnutrition when enteral therapy is not possible. We highlight a case of severe malnutrition where time was of essence. Even though our patient was admitted for sub-acute rehab and despite facility limitation, the post-acute care team made the decision to start TPN that turned the patient's trajectory.

Case:

61year old female with history of smoking, COPD, anxiety and alcohol abuse presented to our SNF after a series of admissions over 4 months starting with pneumonia to small bowel obstruction requiring exploratory laparotomy and lysis of adhesions. Post-op she was readmitted for an abdominal wound infection. Upon arriving to our SNF she was found to have severe generalized anasarca, an albumin of 0.8 gm/dl and an immediate decision was made by the post-acute care team to start TPN as her oral intake was poor. It took 2 days to arrange access and TPN with our long term care pharmacy. Shortly thereafter the patient was hospitalized for the 7th time for abdominal pain and altered mental status. On this admission she was found to have duodenal ulcers and transfused. Other work up was unyielding. TPN was continued by the inpatient team. She returned to us marginally better.

SNF course:

She was 126 ibs now with diffuse anasarca and bilateral pleural effusions. She was continued on TPN and home meds. Lasix was increased. Albumin improved from 0.8 to 1.9. She diuresed almost 26 ibs over next 3 weeks. She required oxygen for episodes of hypoxia from pleural effusions and severe COPD. Continued to be tachycardiac even necessitating a CT that ruled out PE. Thiamine was discovered to be low and repleted. Patient made slow and steady improvements. She did need another transfusion arranged. Cognition continued to improve as did motivation in therapy. TPN was tapered after 3 weeks and she was discharged home.

Conclusion:

A timely intervention of TPN turned her complex medical condition around while giving time for her oral intake to improve. Her gut edema was also contributing to her nausea and anorexia. Even though low albumin and diffuse anasarca was identified on each admission over last 4 months- no service tried starting her on TPN till she was seen by the geriatric post-acute care team who identified a core issue. She left the SNF much improved and reportedly is doing well at home.

B13
The Last Trip
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Background: For patients with dementia and their families, traveling poses many uncertainties and unexpected outcomes. There are limited recommendations for traveling with patients with dementia.

Case presentation: A 75 year old man was diagnosed with Lewy Body Dementia three years prior to presentation. He had episodes of anxiety and delusions but was easily redirected. He was travelling with his wife.

While in flight, he became acutely confused and delusional. He was afraid of other strangers and very anxious when he realized he could not get off plane. His behaviors escalated with thoughts that the plane was being attacked and that someone was trying to hurt him. He was unable to recognize his wife. Physician travelers attended to the patient until they landed.

Pt was taken to hospital and monitored overnight. His mentation improved and he was discharged to family in Ohio. He continued to have violent outbursts and was admitted to multiple hospitals for aggressive and agitated behaviors, treated with antipsychotics to target symptoms. No other medical reason for delirium.

He progressively declined, was nonverbal, minimally responsive and rigid. Family changed his code status to DNRCCO. He passed away in Ohio 3 months after arrival and never made it back to Florida.

Discussion: Patients with dementia are at increased risk of delirium with long trips, especially air travel. Best practices for traveling for patients with dementia have not been established. In the United States, there are no known federal accommodations for individuals with dementia travelling by air. Risk factors for delirium may be related to hypoxia in high altitude.[1] The most common reason caregivers are advised to avoid trips is to minimize unfamiliar places and disruptions in routines. Some recommendations to reduce the risk of delirium include: to stay hydrated, wear comfortable clothes, avoid alcohol/unfamiliar foods and request aisle seats for easy accessibility to bathrooms.[2] Informing the cabin crew may alert them to possible changes in behavior that can be harmful to the patient/other passengers. Training of airport staff to improve their skills in assisting patients with dementia during distress and disorientation was proposed in Australia.[3]

REFERENCES
1. Aquilina C, Mathews D. 2006. Cognitive impairment precipitated by air travel. *Int J Geriatric Psychiatry*; **21**: 398-399.
2. McCabe T. BJPsych Bulletin (2017), **41**, 30-32.
3. Australian Journal of Dementia Care-2016. Making air travel for people with dementia.

B14 Resident Presentation
Lippes Loop in an elderly with dementia: Do we remove it?
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Introduction

Named after Jack Lippes MD, an obstetrician-gynecologist in the 1950's, was the genius behind the intrauterine device (IUD) called the Lippes Loop – a plastic, double "S" loop, trapezoid-shaped IUD which resembled the uterine cavity contours. During its first distribution in

1962, it became the gold standard for IUD in the United States. It was popular for decades, but was associated with complications such as bleeding, infection and uterine perforation.

Case

A 79 year-old African American woman with history of dementia, osteoarthritis and urinary incontinence was admitted with decreased mobility, left hip pain and decreased appetite. Caretakers did not notice any vaginal bleeding or abdominal pain. Pelvic x-ray revealed bilateral suchondral acetabular sclerosis, left buttock injection granuloma and incidental finding of Lippes loop. Her appetite improved over time and left hip pain was relieved with acetaminophen. No string was visible on the introitus and no vaginal bleeding. The IUD was left in situ as the patient was asymptomatic. Given her dementia and episodes of being combative to the hospital staff, a pelvic examination was deferred. She was discharged home.

Discussion

IUD is one of the most effective contraceptive methods. However, with increasing geriatric population, internists should be aware of the earlier devices available in the market, which may have been long forgotten by the elderly patients. The loop has been associated bleeding, uterine perforation with concomitant actinomycosis infection, and a rare case of intravesical migration with formation of bladder calculus and vesicovaginal fistula. All these complications prompted removal of the device. On the other hand, there was a case reported of the IUD left in situ for fifty years, without complications.

In our patient, she did not present with any abdominal pain or abnormal vaginal discharge or bleeding. The duration of the IUD inside the uterine cavity could not be estimated. There was no indication for urgent removal of the device.

In an elderly patient with dementia who has a Lippes loop inserted many years back, the best course of action is to leave the device in situ. Determining the location of the device can be explored with the aid of ultrasound. Of note, warning signs such as abdominal pain and vaginal bleeding should warrant further work-up.

B15 Resident Presentation
A new age for an old problem - using technology to facilitate goals of care in advanced heart failure patient

C. K. Craig, A. Shami, S. Ang, R. Conroy. *Baystate Medical Center, Springfield, MA.*

Introduction:

Heart failure (HF) is one of the leading causes of hospitalization and death in older adults. Given advancements of therapies in this field, a greater number of patients are reaching advanced stages of HF, which makes goals of care (GoC) discussions important to ensure understanding and impact on quality of life (QoL). We report a case where mobile technology helped facilitate GoC discussion in an advanced HF patient.

Case:

SM is a 76 year old male with a complex cardiac history including non-ischemic biventricular HF secondary to rheumatic valvulopathy and restrictive cardiomyopathy with an ejection fraction of 10-15%, who was admitted for acute heart failure exacerbation complicated by cardiorenal/hepatic syndrome and acute encephalopathy.

This was one of several hospitalizations for the same issue with SM now suffering from worsening renal and hepatic function and cardiac cachexia. He was offered advanced HF therapies including milrinone to improve his QoL but declined these therapies despite family urging him to reconsider. After many difficult GoC conversations, his son who was his health care proxy (HCP) became much less involved in his father's care.

This caused much disagreement in the family and the patient removed his son as his HCP and appointed a different son and daughter, who lived in Africa and did not have a good understanding of the patient's condition. The geographic distance made communication challenging because of poor phone reception, time zone conflict

and language barriers. At the same time, SM became increasingly delirious.

Our team helped connect SM to his family in Africa using a digital phone application which allowed overcoming these communication barriers. Through videoconferencing family were able to appreciate SM's illness and understand the gravity of his situation. This helped them make decisions regarding his care and he was transitioned to comfort focused care and passed away peacefully.

Conclusion:

Our case demonstrate the importance of early involvement of geriatric and palliative care team in patients with advanced HF. Shared decision making can be challenging due to the complexity of advanced HF therapies which aim to improve symptoms and QoL. Our team was able to think outside the box and use a simple, easily accessible, phone applications to establish goals of care and improve the quality of life for Mr SM during his last days.

B16
Comparing Disposition and Bounce Backs Following Treatment for Pneumonia Between Hospital at Home and Traditional Hospitalization

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Pneumonia is a common cause of hospitalization with substantial risk to patients and cost. Hospitalization at home (HaH) has been shown to be safe and effective in the treatment of acutely ill adults with a range of illnesses including pneumonia. However, no U.S. study has compared pneumonia severity, treatment, and outcomes for hospital at home versus traditional hospitalization.

We identified all patients treated for pneumonia among HaH patients and hospitalized controls in the Mount Sinai Health System Hospital at Home project from 2014 to 2017. Care in HAH was administered by an interdisciplinary team and included a 30-day post-acute care period. Data included interviews, retrospective medical chart and insurance claims. The PORT-PSI and CURB scores were calculated based on retrospective medical chart review to measure pneumonia severity.

We identified 65 HaH patients, and 34 controls. HaH patients had more functional dependence, 59.52% vs 27.27%. Both groups had similar mean PORT PSI and CURB scores; 95.94 (STD 30.96) vs 94.52 (30.96) and 1.63 (1.02) vs 1.44 (0.96) respectively. 96.9% (63 out of 65) of HaH cases were successfully treated at home. Mortality was very low in both groups (1 vs 0). The HaH group had slightly less improvement in functional status -0.22 (1.75) vs -0.13 (1.49), where the more negative number indicates less functional recovery. Patients in HaH were less likely to require skilled nursing facilities or subacute rehabilitation at discharge 0.00 vs 8.82%. All cause 30-day visits to the ED were less in the HaH group 1.59% vs 8.82% as well as all cause 30-day readmission to the hospital 1.59% vs 20.59%.

Patients treated for PNA with moderate risk scores were effectively and safely treated in HAH. Although the two groups had similar pneumonia severity scores and the HaH group had lower baseline functional status with less overall improvement, all cause 30-day ED visits and hospital readmission were significantly lower for the HaH group compared to traditional hospitalization. Larger U.S. studies are needed to further examine benefit of HaH on outcomes for pneumonia hospitalization, including stratification based on pneumonia severity score and outcomes.

B17

The Need to Attend to "What Matters Most" by Increasing Goals of Care Discussions

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Introduction: Baystate Health's HRSA GWEP program developed a new model of team-based, interprofessional care, Geri-Pal team, which assists in co-managing frail older adults in primary care patients in community health centers (CHCs). The goal is to improve health outcomes and quality of life (QOL) for the patients. Resources and training on palliative care are minimal and the impact of these gaps frequently presents challenges for our care of home visit patients. Accordingly, one of our focuses has become advance care planning and goals of care (GOC) conversations. This effort has been further supported by our participation in the Institute for Healthcare Improvement/Hartford Foundation's "Age Friendly Health System" initiative. We report a case which illustrates the need to train and support staff in advance care planning.

Case Description: Mr. P was a 65 year old man with intellectual disability, dementia, seizures, anxiety, and recurrent urinary tract infections (UTI) with 3 hospitalizations requiring intensive care unit in the past year. During his hospitalizations, he became distressed and agitated and suffered from use of physical and chemical restraints. His sister felt these hospitalizations led to worsening QOL. Our Geri-Pal team was consulted to help with complex decision making. We focused on addressing recurrent UTIs and goals of care. The social worker facilitated discussions with Mr. P's sister, his primary care physician, group home, and the Department of Developmental Services. All agreed on the need to improve QOL. A new care plan included a referral to Urology and the decision to forego additional hospitalizations. The patient's family was grateful that the care team was "finally listening" and the treating clinicians were pleased with the new focus on QOL.

Discussion: Many CHCs lack experience and resources to support GOC conversations needed to improve QOL. Additionally, GOC conversations also often reduce hospitalizations and costs associated with aggressive and inappropriate medical care. Patients and families usually welcome these conversations which usually improve both patient/family satisfaction and the clinician/patient relationship. Ongoing effort to support clinicians in conducting and documenting advance care planning will enhance value by reducing inappropriate healthcare utilization while improving experience and quality of care for patients.

B18

Catatonia as a rare manifestation of gabapentin withdrawal

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A 65 year old female was admitted for elective total hip replacement. Her medical history included low back pain and depression. She was on morphine sulphate, tramadol, fluoxetine and gabapentin 1500mg BD.

The operative and recovery periods were uneventful. On the 5th postoperative night she started to be confused, she stood up for more than an hour, unable to move or sit, staring with dilated pupils, not verbalizing and did not follow instructions. She was holding the bed rails tightly with clenched fists.

The next day she did not communicate and had a vacant fixed gaze. She was haemodynamically stable. The muscle tone was high and she was holding tightly to the bed sheets, not releasing them.

Full blood count, kidney and liver function, calcium and thyroid functions were normal.

The movement and behavior abnormalities suggested a catatonic syndrome. Review of the drug chart showed that on the 1st and 2nd postoperative days she incidentally had no Gabapentin, and on each of the 3rd day and 4th day she had 1500mg OD.

Gabapentin withdrawal was diagnosed as the cause of catatonia. She was given 3mg of Lorazepam slow IV. She remained sleepy for 15 hours; during which the muscles became less tense untill the muscle tone normalised. She had slight myoclonic jerky movements of the limbs during the recovery period. Then she became awake within 4 hours and communicating, however did not remember what happened. Gabapentin was restarted.

Discussion:

Gabapentin is a structural analog of the inhibitory neurotransmitter GABA. Gabapentin binds to, and inhibits, the alpha 2-delta subunit of voltage-gated calcium channels. It increases the availability of GABA.

Gabapentin can become a drug of abuse due to its CNS depressant effect, with the risk of physical dependence and addiction.

Symptoms of gabapentin withdrawal include insomnia, anxiety, irritability, confusion, suicidal thoughts, tachycardia, muscle spasms and seizures. In this case gabapentin withdrawal presented as catatonia.

Benzodiazepines potentiate GABA receptor function, and thus provide a suitable therapeutic option for the alleviation of CNS effects due to Gabapentin withdrawal in this case. It is to be noted that benzodiazepines withdrawal symptoms are similar to gabapentin withdrawal symptoms.

Learning points:

When patients have unexplained symptoms and signs, medications need to be considered.

Catatonia is a rare symptom of gabapentin withdrawal.

Benzodiazepines can be used as a treatment for Gabapentin withdrawal.

B19

Out of the Blue: Weeding through the Differential for Digital Ischemia

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Background: Most upper extremity arterial disease in older adults is caused by atherosclerosis, affecting large and small vessels and resulting in ischemia as a late complication. Subacute bilateral small vessel ischemic disease in the upper extremities raises concern for processes such as vasospasm and vasculitis, with multiple possible underlying etiologies.

Case: A 70 year old man with a history of atrial fibrillation, osteoarthritis, and metabolic syndrome, presented with one month of progressive cyanosis, swelling, rest pain and cold sensation of the bilateral distal fingers. Symptoms improved minimally with warming measures. He quit smoking cigarettes 40 years ago but smoked cannabis daily for pain. There was no involvement of the lower extremities.

Labs were notable for normal: blood counts, ESR/CRP, liver, thyroid and renal function. Immunologic and hypercoagulable work-up were unrevealing. Hand xrays showed erosive osteoarthritis. Echocardiogram showed no vegetations or thrombus. Paraneoplastic panel and cancer screenings were negative. Upper extremity arterial studies showed no obstruction proximal to the wrists, but decreased tracings in two digits on the right and nonpulsatile tracings in three digits on the left.

Initial management included cessation of his beta blocker, continuation of dabigatran, and initiation of a calcium channel blocker and topical nitroglycerin for vasodilation and opiates for pain. Still, his condition worsened with ulceration and ischemia of multiple digits. He was admitted, and started on a heparin drip and PDE5 inhibitor. These measures in addition to cessation of cannabis use stopped the proximal progression of ischemia. He ultimately progressed to dry gangrene of several distal digits.

Conclusion: The differential diagnosis for digital ischemia includes vasospasm, autoimmune or paraneoplastic vasculitis, atherosclerosis or thromboembolic disease. Given this patient's extensive unrevealing work-up for other causes, the presentation was likely due to cannabis arteritis. This subtype of thromboangiitis obliterans, a nonatherosclerotic inflammatory arteritis, is a rare clinical diagnosis due to cannabis use, with most case reports in younger adults. However, given increasing cannabis legalization and resulting use among older adults, this diagnosis must be considered for these patients as well, after other etiologies are excluded. The mainstay of management is cessation of cannabis.

B20

The Statin Who Cried Wolf: A case of Statin-Induced Autoimmune Necrotizing Myopathy

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INTRODUCTION: Muscle aches are a common complaint amongst statin users. While typically benign, this is a case of an elderly gentleman with a rare statin side effect.

CASE: 78-year-old male with a history of hyperlipidemia presented to his PCP after losing "the spring in his step." He complained of a 6-month history of knee and thigh pain, rash, and fatigue. Routine labs were normal except for elevated LFT's. Statin was discontinued and referrals were made to GI, dermatology, and physical therapy.

He was diagnosed with fatty liver, a hypersensitivity reaction, and was told to increase physical activity. Over the next month, gait became progressively unsteady, and repeat labs showed increasing LFTs. After neurology referral, patient was started on a trial of Sinemet for suspected Parkinson's. Over the next 2 months, rash resolved, but leg pain continued with new weakness. Referral was made to movement disorders clinic.

On physical exam, he had proximal leg weakness and slightly increased tone. No bradykinesia or tremor noted. With no clear signs of Parkinson's, Sinemet was tapered and labs were ordered for gait disorder vs. underlying neuromuscular process.

The following month, patient fell several times. He experienced a change in voice with progressive gait difficulty, sensory loss, and hyporeflexia. Outpatient labs showed an elevated CK level to the 7000's. He was directly admitted to the hospital for workup of progressive weakness and CK elevation.

In the hospital, a biopsy was obtained showing atrophic and necrotic muscle fibers. Anti-HMGCR antibodies were > 200 (normal 0-19). Diagnosis was statin-induced autoimmune necrotizing myopathy.

DISCUSSION: Muscle pain is a common complaint amongst patients using statins and a common reason for discontinuation. Once the drug is stopped, symptoms resolve. In contrast, statin-induced autoimmune necrotizing myopathy is an extremely rare entity with greater disease burden.

Onset is 2 months to 10 years after starting statin. Symptoms develop in subacute to chronic course and include proximal arm and leg weakness, myalgias and may include dysphagia, arthralgias, and Raynaud's. Labs show mean CK levels > 10,000 without rhabdomyolysis. Biopsy shows prominent necrotic and regenerating fibers without significant inflammation. Treatment modalities include discontinuation of statin, and referring to a specialist. First line treatment is steroids and refractory cases require IVIG. Recurrence is not uncommon.

B21

Acute Pancreatitis: Is it Me or Is It My Medication?

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Introduction: Most patients with acute pancreatitis (AP) have acute, severe, persistent epigastric, RUQ, or, rarely, left-sided abdominal pain. Some 90% have nausea and vomiting (N&V); in severe cases, dyspnea from diaphragmatic inflammation, pleural effusion, or ARDS occurs. 5-10% of patients with AP present painlessly with unexplained hypotension. Drug-induced pancreatitis (DIP) is often missed because of the difficulty in implicating a causative medication.

Clinical Scenario: A 67-year-old man with DMII, HBP, HLD, and no history of EtOH abuse presented to our ED with 1 day of abdominal pain, N&V. He takes metformin 1000mg BID; Januvia 100mg QD was added 3 weeks prior. RLQ pain was moderate, persistent and dull, unassociated with oral intake. There were no peritoneal signs. ROS was negative. Hemodynamically stable, he had leukocytosis, normal lactic acid, renal and liver function. TGs were 73 mg/dL. First lipase was >30, 000IU/L. CT was consistent with pancreatitis; pancreatic duct and gallbladder were WNL. Januvia was stopped; he was kept NPO with IV pain management and hydration. On day 2, lipase was 9,022 IU/L. Improved, he was discharged to follow-up with GI for endoscopy.

Discussion: Suspect AP in patients with acute onset of persistent, severe abdominal pain. Diagnosis requires 2 of 3 criteria: persistent, severe abdominal pain, +/- posterior radiation; elevated serum lipase or amylase (3x ULN), and positive imaging. Early in the course, digestive enzyme synthesis continues but secretion is blocked. Amylase rises 6-12 hours from onset, normalizing in 3-5 days. Elevation >3x ULN has a 67-83% sensitivity and a specificity of 85-98%. Lipase rises 4-8 hrs from onset, peaks at 24 hrs, normalizes in 8-14 days; sensitivity and specificity are 82-100%. Etiologies include mechanical, toxic, metabolic, infectious, trauma, vascular, genetic and ADEs. Three drug classes have been implicated. Class I are associated with >20 reported cases of AP and 1 documented case with re-exposure. Class II are implicated in >10 cases. Class III meds are others reported in association with AP. Of 2005's top 100 most frequently prescribed meds in the USA, 44 have been implicated in AP, 14 of them Class I-II. Physicians need a high index of suspicion for DIP, especially in geriatric patients who may be on multiple meds.

B22 Resident Presentation

Adding Insult to Injury: A Lesson in Polypharmacy

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Case Presentation: An 88-year-old woman was brought to the hospital after a fall. Family described one month of functional and cognitive decline. She had dementia but could perform her ADLs and was interactive and cooperative. Before admission, she became more combative at her SNF, resulting in changes to her medications. Her medication list included clonazepam, valproic acid, lorazepam, sertraline, tramadol, and trazodone.

On exam, she was hypertensive but afebrile. She was frail and anxious. She was picking at the covers, and her head and feet were twitching. She was alert, but not following commands. She had mild rigidity of her extremities. She was hyperreflexic, with clonus at both ankles. Basic labs and imaging were normal. Based on her physical exam, she was diagnosed with serotonin syndrome.

Discussion: Serotonin syndrome is a life-threating condition brought on by increased serotonergic activity in the central nervous system. It is precipitated by medications with serotonergic activity, most often when a medication is added or titrated. Serotonin syndrome is a clinical diagnosis. Although cases range in severity, patients present with a constellation of symptoms, including tremor, hyperreflexia, diaphoresis, agitation, and muscle rigidity. They can have clonus, including ocular clonus, and autonomic instablility marked by

hypertension, tachycardia, and fever. Cornerstones of treatment are withdrawal of offending medications and supportive care.

Conclusion: Our patient was on several medications associated with serotonin syndrome: valproic acid, sertraline, tramadol, and trazodone. Several of these had been added to treat agitation, and when this worsened, additional agents were added, compounding the problem. Lorazepam given at her memory care unit transiently improved her symptoms, as serotonin syndrome was inadvertently partially treated. This case highlights two important points. First, serotonin syndrome must be on our differential diagnosis for older adults with altered mental status. Second, in patients with dementia related behaviors like agitation, medication review is vital. In our patient, agitation was likely a signal of too many medications, not too few. She improved with supportive care and lorazepam, and was discharged from the hospital on no serotonergic agents.

B23

Lyme in the coconut - A case of Lyme neuroborreliosis

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Background: Lyme disease is a tick-borne illness caused by Borrelia burgdorferi in the United States, resulting in at least 30,000 cases per year. Roughly 10% of those with Lyme disease experience neurologic sequalae, occurring in the early and late disseminated phases of the disease. Literature suggests cognitive decline associated with Lyme disease can be reversible when treated with antibiotic therapy.

Clinical Scenario: We present a case of a 72-year-old male from Pennsylvania, diagnosed with multiple sclerosis in 2011, after two episodes of optic neuritis. At that time, the patient also began to experience progressive cognitive decline and Parkinsonism. Due to prompting by the patient's wife, the patient was found to be serology and CSF positive for B. burgdorferi and his diagnosis was changed to Lyme neuroborreliosis. He was treated with 4 weeks of ceftriaxone and repeat lumbar puncture showed clearing of B. burgdorferi antibody from CSF. However, clinical symptoms did not improve. He was found to have significant attention, apraxia, and visuospatial deficits, with sparing of short and long-term memory. Investigations revealed normal TSH, B12, folate, negative HIV and syphilis. His MRI showed periventricular and subcortical white matter changes, unchanged from 2012.

Discussion: Literature on Lyme neuroborreliosis suggests treatment failure with ceftriaxone is relatively rare. Our patient was treated with appropriate antibiotic and his CSF cleared of B. burgdorferi antibody, however, he remained disabled by cognitive impairment, leaving clinical uncertainty around his case. His poor response could be due to prolonged untreated Lyme neuroborreliosis and permanent inflammatory changes in the brain, protracted delirium or a superimposed neurodegenerative disease.

Conclusion: We describe a case of late Lyme neuroborreliosis with lack of clinical response to appropriate antibiotic therapy. The literature suggests a quicker, more complete response in acute Lyme neuroborreliosis and a more protracted course in chronic Lyme neuroborreliosis. Our patient's poor response could be due to the chronicity of his disease, with initial symptom onset in 2011, however we cannot rule out the possibility of coexisting neurodegenerative disease, requiring further work-up.

B24

Repeated Strokes and Rehabilitation Challenges in an Older Adult with Vasculitis

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BACKGROUND

Patients with Antineutrophil Cytoplasmic Antibody–associated Vasculitis (ANCAV) have a significantly higher incidence of arterial and venous thrombosis[1]. ANCAV affects people of all ages; men and women equally, although it is most common in older adults.

CASE

A 79-year-old Middle Eastern female with diabetes mellitus, hyperlipidemia and hypothyroidism developed progressive renal impairment, hemoptysis, fatigue and cognitive impairment of 8 month duration. Renal biopsy revealed pauci-immune crescentic glomerulonephritis and mild arteriolar nephrosclerosis. Subsequent workup was positive for perinuclear ANCA/myeloperoxidase (pANCA/MPO) and she was diagnosed with ANCAV and treated with steroid and rituximab. She later experienced repeated stroke symptoms. Brain imaging showed multiple acute and old infarcts, micro-bleedings and chronic small vessel ischemic changes. She was admitted to Skilled Nursing Facility for rehabilitation. Several weeks of intense physical therapy failed to improve her function. Functional Independence Measure[2] (FIM) score became slightly worse from 46 to 43, requiring significant assistance with activities of daily living. Multi-organ involvement, multiple strokes and dementia associated with vasculitis contributed to the failure in rehabilitation.

DISCUSSION

ANCAV is the most common primary systemic small-vessel vasculitis in adults and includes three major categories: Wegener's granulomatosis, microscopic polyangiitis, and Churg–Strauss syndrome. Diagnosis of ANCAV without delay is critically important because of life-threatening injury to organs which can be mitigated to various extents by immunosuppressive treatment[3]. The immunosuppressive treatment should be tailored based on assessed risks and benefits in each patient. Close vigilance and prompt management of potential complications of immunosuppression are required. Corticosteroid treatment alone is often adequate, although refractory or relapsing disease may require addition of cytotoxic agents. Recent report[1] indicates patients with ANCAV have a high incidence of arterial and venous thrombosis, especially in the first year of diagnosis. Future studies are needed to assess the potential benefits and risks of anticoagulation or antiplatelet agents in ANCAV to prevent thrombotic complications.

REFERENCES

1. J Rheumatol 2018; doi:10.3899/jrheum.170896.
2. Adv Clin Rehabil 1987;1:6–18.
3. N Engl J Med 1997;337:1512-23.

B25 Resident Presentation

The Drinking Distraction: A case of subdural hemorrhage lost in a history of alcohol withdrawal.

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Introduction: Patients with subdural hematoma can present with symptoms of headache, nausea, vomiting, and anxiety which overlap with those of alcohol withdrawal. The presence of such confounding issues highlights the importance of maintaining a broad differential and avoiding confirmation bias even in the setting of a negative head CT.

Case Presentation: A 66-year-old male with a history of DVT and PE on warfarin, and alcohol abuse presented for an episode of unresponsiveness. He had several alcoholic drinks before being found unresponsive at his assisted living facility. The patient could not recall the episode but presented with bruising on the right side of his head. Initial physical exam was unremarkable. CT head was read with no

acute findings. Initial alcohol level was 183 and INR was therapeutic, therefore warfarin was continued. His episode of unresponsiveness was deemed likely related to alcoholic intoxication.

The patient was monitored with CIWA scores and received lorazepam as needed. He continued to receive his warfarin until his INR was elevated to 3.9 and warfarin was held. Physical exam remained stable with no deficits reported, however patient endorsed a sensation of head fullness on the morning of day 2. That evening the patient was found unresponsive with a fixed and dilated right pupil. An acute head CT was obtained showing a large right sided subdural hematoma with early herniation. The patient expired the following day. Retrospective review of his initial head CT revealed a small subdural hematoma.

Discussion: With the dependence on imaging studies for answers to clinical questions, we tend to rely less on physical exam findings and history taking. Given the missed SDH on initial head CT, there was likely a fixation on the diagnosis of alcohol withdrawal contributing to his symptoms. This would have changed management and complications could have been avoided.

The combination of throbbing headache, papilledema, and vomiting can be highly suggestive of increased intracranial pressure and should raise suspicion(1). A specific physical exam finding for increased ICP is papilledema(2), however this is rarely done.

References:

(1)Dunn LT. "Raised Intracranial Pressure"

Journal of Neurology, Neurosurgery & Psychiatry 2002;73:i23-i27.

(2)Funnell JP, Craven CL et Al. "Intracranial pressure in patients with papilloedema."Acta Neurol Scand. 2018 Aug;138(2):137-142. Epub 2018 Mar 12

B26 Student Presentation

A case of using a combination CBD:THC product for pain management in an older adult

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Introduction: In the state of Colorado, there are over 18,000 adults 60 years and older with a medical marijuana card.[1] [RD1] The primary reason for use is pain. The two most common cannabinoids used are tetrahydrocannabinol (THC) and cannabidiol (CBD), which have been studied individually or in a 1:1 combination for treatment of pain.

Case: A 78-year-old female with deteriorating disc disease and arthritis was on chronic opioid treatment for pain management. The patient tried a THC-based product and reported feeling "high", not liking the experience. The patient worked with the clinical pharmacy team within the geriatric primary care clinic in search of alternative options to her opioids. The patient used a CBD:THC (10:1) combination product and reported no negative adverse effects. The patient reported pain relief with the product and successfully discontinued opioid therapy.

Discussion: Different ratios of combination CBD:THC products could open new doors in pain management. THC is a partial agonist for cannabinoid receptor 1 (CB1), which modulates pain, but THC modulates other endocannabinoid receptors, which can cause psychoactive side effects.[2] CBD has a low affinity for CB1; however, it is suggested that CBD helps modulate effects of THC, including reduced psychoactive side effects while attenuating other positive effects.[2] There is a lack of evidence looking at different ratios of CBD:THC products, in addition to older adults. Further safety and efficacy evidence is needed for using combination marijuana products for pain management in older adults.

References:

1.Colorado Department of Public Health and Environment. 2018 medical marijuana registry statistics: October [online]. Available at https://www.colorado.gov/pacific/cdphe/2018-medical-marijuana-registry-statistics. Accessed November 28, 2018.

2.Lee G, Grovey B, Furnish T, Wallace M. Medical cannabis for neuropathic pain. Curr Pain Headache Rep 2018; 22:8.

B27

Powassan Virus: An Uncommon Cause of Viral Encephalopathy

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Introduction

Powassan virus (POWV) is a flavivirus and a cause of tick-borne encephalitis. It is transmitted from bite of an infected tick. Disease in humans is caused by utilizing *Ixodes scapularis* ticks as host. Most cases in the United States occur in the Northeast and Great Lakes region. We present a case of POWV encephalopathy and respiratory failure in an elderly patient who eventually made a complete recovery.

Case Presentation

A 77-year-old male presented with fever, acute encephalopathy, seizure and acute respiratory failure requiring intubation and mechanical ventilation. Computed tomography scan of the head as well as magnetic resonance imaging of the brain was negative. Cerebrospinal fluid (CSF) analysis showed elevated white cell count with lymphocytic predominance and increased protein, but the cultures remained negative. CSF IgM testing for viral causes was negative. He received broad-spectrum antibiotics, but they were all eventually discontinued due to negative cultures. Finally, serum IgM for POWV returned positive. POWV infection was confirmed after demonstration of neutralizing antibodies. He underwent tracheostomy placement for persistent respiratory failure. Three weeks after his presentation, his mental status had significantly improved, and he was discharged to rehabilitation unit where he underwent decannulation of the tracheostomy tube. On an outpatient visit three months after his initial presentation, his mental status had returned to baseline and his respiratory failure had resolved.

Discussion

Ixodes scapularis is well-known for transmission of Lyme disease and anaplasmosis but it is also a host for POWV. Center for Disease Control reported 114 cases of POWV infections from 2008 to 2017 in the United States. Of those, only 5 were diagnosed in Pennsylvania. Patients usually present with fever, weakness, confusion and somnolence. The diagnosis of this infection is usually made by detection of virus-specific IgM antibody in serum or CSF. A positive IgM result is confirmed by neutralizing antibody testing. POWV is associated with 10% mortality but majority of survivors have some residual neurologic dysfunction. Our case is unique in that it is one of the rare reported cases of POWV in Pennsylvania in a patient with prolonged disease course who eventually made a complete neurologic recovery.

B28

An Itchy Twitchy Feeling: A Case of Extracardiac Pacemaker Stimulation.

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Every year, approximately 200,000 pacemakers are implanted in the US of which more than 80% are in older adults. A rare complication of pacemakers, that is important to recognize, is extracardiac stimulation. We present a case of an older adult who presented with extracardiac stimulation causing pectoral muscle fasciculations.

CASE STUDY: A 93-year-old man was admitted to our SNF following an episode of urinary tract infection and acute upper extremity DVT. Medical history included aortic stenosis s/p TAVR, mitral regurgitation s/p valvuloplasty, atrial fibrillation, sick sinus syndrome s/p permanent pacemaker placement, and polymyalgia rheumatica. On the day of admission to SNF, he reported localized, rhythmic and positional twitching of his left chest wall for the past month, interfering with his sleep. Exam was notable for a systolic ejection murmur over the aortic area, irregular rhythm, and fasciculations of his left pectoral muscles. Vital signs were normal. The pacemaker, implanted in 2014, appeared to be correctly placed. No pain, tenderness or surrounding erythema was noted. Routine laboratory studies were normal. The cause of fasciculations was suspected pacemaker malfunction.

Pacemaker interrogation demonstrated 84% pacing with normal capture threshold and impedance. Chest x-ray showed an in-place position of the pacemaker without lead fracture or displacement. A cardiologist changed the pacemakers lead polarity from unipolar to bipolar which immediately resolved his fasciculations.

DISCUSSION: Muscle fasciculations have diverse causes in older adults. In this case study, the pacemaker was responsible for the patient's disturbing symptoms. Usual muscles involved in pacemaker-induced fasciculations are the pectorals, intercostals or diaphragm. Common causes of pacemaker-induced fasciculations include electrode insulation defects, lead fracture, lead displacement or unipolar lead placement. Resolution of fasciculations occurs by either lowering the voltage, changing the polarity, repositioning or by replacing the leads. Geriatricians should remain vigilant to potential causes of pacemaker induced localized fasciculations. Early detection and correction will help our patients to feel and sleep better!

B29
Acute Bleeding in an 80 Year Old Male : An Uncommon Diagnosis

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Introduction:

The diagnosis and management of acute bleeding in older adults is challenging due to presence of comorbidities and polypharmacy. Acquired factor VIII deficiency, also termed acquired hemophilia A, is a rare bleeding disorder with an incidence of approximately 1 to 4 per million/year. Approximately 50% of cases are idiopathic, while the remaining cases may be associated with autoimmune diseases, underlying malignancies, infections, or use of medications.

Case:

An 80-year-old male, with a history of stage III gastric adenocarcinoma on remission, presented with persistent bleeding from a small laceration on his right arm after a fall. Hemoglobin was 7.5 g/dl from 8.7 g/dl 3 months prior. His alkaline phosphatase resulted abnormally elevated. On further workup, Partial Thromboplastin Time (PTT) was noted to be prolonged to 118 seconds with normal Prothrombin Time (PT). Normal PT argued against heparin contamination. Serum fibrinogen and Fibrin degradation products resulted within normal range. On work-up for the isolated prolonged PTT, factor VIII assay resulted at significantly low at 2% consistent with deficiency. Factors IX and XI resulted within normal range. One-to-one mixing studies did not correct PTT which was consistent with an inhibitor and diagnosis of acquired factor VIII deficiency. Tests for antinuclear antibody, hepatitis C antibody, Hepatitis B core antigen, lupus anticoagulant and anti-neutrophil cytoplasmic antibodies resulted negative. Imaging studies revealed recurrence of malignancy, which was, in our patient, the most likely cause of the hemophilia. Patient received Factor VIII to raise the circulatory level and was started on steroid and Rituximab to eliminate the inhibitor followed by Cyclophosphamide. Patient finished the course of treatment and discharged home. PTT upon discharge was 48 seconds.

Conclusions:

The care for acute bleeding in older adults may be particularly complex especially for those residing in nursing homes, as they are often in poorer health with high rates of comorbidity and medication use. Acquired hemophilia A is a rare disease associated with severe bleeding complications and is known to cause significant morbidity and mortality specifically in elderly population particularly when the diagnosis is missed. Since underlying malignancy is one of the etiologies for acquired hemophilia a prompt recognition is critical to initiate early treatment.

B30
Transitioning from Insulin to DDP-4 Inhibitors for Type 2 Diabetes

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Background

Dipeptidyl-peptidase 4 (DPP-4) inhibitors are a relatively new treatment regimen for Type II Diabetes Mellitus (T2DM) associated with less hypoglycemia than insulin. There are no published data regarding the effects of these drugs on insulin therapy. This case series presents findings from a cohort of older adults on insulin who received DPP-4 treatment with the intention of discontinuing insulin, if possible.

Methods

Using data from electronic health records, we reviewed all patients in nursing homes with T2DM who were on insulin and started on DPP-4 inhibitors. We tapered insulin dosages when finger stick blood glucose levels were <200 mg/dL and noted when insulin treatment was stopped altogether.

Results

Of 34 identified patients, mean age 73.7 years (range 59-95 years), 20 (59%) were able to stop insulin completely and 8 were able to reduce their insulin dose. The remaining 6 patients were unable to reduce their insulin dose and the DPP-4 inhibitor was ultimately stopped. Among the 20 who stopped insulin, 12 patients were successfully switched from insulin to DPP-4 on day one because of a low insulin dose or low HgA1c. Tapering duration ranged from 10-727 days until insulin was stopped. The dose of insulin for those tapered ranged from 28 to 84 units daily. Among the 20 patients who discontinued insulin, HgA1c improved in 11 and weight decreased in 11. HgA1c decreased 0.5% for all patients and 1% in those who stopped insulin (p=0.02). The average weight loss for all patients was 2.8 pounds, and, in the 20 who stopped insulin, 4.1 pounds (p=0.66).

Conclusions

More than half (59%) of patients were able to transition off insulin therapy onto DPP-4 inhibitors with subsequent improvement in weight by 4.1 pounds and HgA1c by 1%. These findings suggest that DPP-4 inhibitors provide a new care option in the treatment of Type II Diabetes Mellitus in older nursing home patients and can be used to transition patients off insulin therapy. Because it may take several months, patience and close monitoring is required to succeed. This report provides a starting point for larger studies to confirm our findings and develop a protocol for transitioning patients.

B31
New-Onset Autoimmune Diabetes Secondary to Immune Checkpoint Inhibitors in Elderly Patients with Metastatic Melanoma

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Background

Immune checkpoint inhibitors (ICI) have emerged in the past 5 years as powerful treatment for malignancies such as melanoma and lung cancer, with a growing list of indications. In parallel to their increased use, several reports of immune-mediated side effects have surfaced. We herein describe 2 patients who presented with new-onset diabetes following initiation of pembrolizumab (Pmab).

Case Presentation

Case 1: A 90 year-old man presented with acute onset of generalized weakness and weight loss. He was found to have a point of care glucose of 385 mg/dL. Laboratory testing demonstrated mild diabetic ketoacidosis (DKA): glucose of 435 mg/dL, creatinine of 0.9 mg/dL, anion gap of 16 and beta-hydroxybutyrate of 1.2 mmol/L (normal <0.4).

His BMI was 26.5 kg/m². The patient had no history of diabetes; his niece was diagnosed with type 1 diabetes in childhood. He was diagnosed with truncal melanoma 12 years ago. He was recently

diagnosed with lung and brain metastasis, and started on Pmab after receiving stereotactic radiation therapy. Prior to initiating Pmab his fasting glucose was 160 mg/dL, repeated was 120.

The patient was hospitalized for acute management. On admission his glycosylated hemoglobin was 10.2%, GAD65 antibodies were negative. Following stabilization of his glucose readings, he was discharged home on multiple daily injections of insulin (MDI) using glargine 10 units daily and aspart 4-5 units with meals. He subsequently had low C-peptide level at 0.7 ng/mL (normal 1.1-4.4). He continued to require MDI on follow-up at 2 years.

Case 2: A 69 year-old man similarly presented with symptomatic hyperglycemia. He had a history of melanoma with recently diagnosed metastases to the lungs for which he received 2 doses of Pmab. He was found to have DKA and was hospitalized for acute management. Fasting glucose was normal 6 weeks before presentation. He continued to require MDI on follow-up at 1 year.

Discussion

The patients described had fasting glucose readings that were normal or near-normal in the weeks preceding initiation of Pmab but more importantly, both had dramatic presentations with evidence of insulinopenia given the ketoacidosis. ICI are increasingly recognized to cause immune-mediated endocrinopathies, most commonly hypophysitis and thyroiditis. Autoimmune diabetes is a rare complication of such therapies but an important one to recognize in order to guide timely diagnosis and appropriate management.

B32

"I can't knit anymore!" : An Atypical Presentation of Giant Cell Arteritis

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Intro: Giant Cell Arteritis is a type of vasculitis that primarily impacts older adults (greater than 50). A typical presentation includes new onset of headaches with constitutional symptoms (fatigue, fever, or weight loss) and possible facial symptoms (jaw claudication or visual disturbances). It can coincide with polymyalgia rheumatica. Early detection is vitally important as a delay in diagnosis and treatment can lead to permanent visual impairment.

Case: LC was a previously healthy 77 year old Caucasian woman who presented to the office with two months of exertional wrist pain and an inability to complete her knitting tasks. She also noted intermittent numbness, cold sensation, and weakness into her hands. All of her symptoms were relieved by rest. In addition, she started getting error readings on her home blood pressure cuff and commented that she was no longer able to palpate her radial pulses. She denied headache, neck pain, visual impairment, and any constitutional symptoms.

On exam, she was well appearing without any abnormalities at neck, shoulder, elbow, or wrist joints. Her upper arm blood pressures were unobtainable bilaterally and her radial pulses could not be palpated.

On diagnostic workup imaging revealed diffuse mural thickening in a beaded appearance as well as narrowing and segmental occlusions of multiple large arteries in her chest and bilateral upper extremities consistent with vasculitis. Her ESR was normal (11) and the rest of her rheumatologic bloodwork was unrevealing.

Initial consult with a rheumatologist resulted in a potential diagnosis of giant cell arteritis but with her normal inflammatory markers she was told it was no longer active and was not given immunotherapy treatment. She was told to seek vascular surgery to improve her claudication symptoms. Follow up at a tertiary rheumatology center led to a positive temporal artery biopsy (which confirmed giant cell arteritis) and she was started on immunotherapy.

Conclusion: While LC lacked any of the common symptoms of giant cell arteritis, she presented with claudication symptoms from significantly impaired blood flow into her bilateral upper extremities.

Proper diagnosis of giant cell arteritis led to initiation of immunotherapy to prevent new onset vision loss. Unfortunately the treatment did not lead to an improvement in her presenting symptoms.

B33 Resident Presentation

TUMS: The Unknown Medical Story

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Case: A 72 year old male with a past medical history of CKD stage 3, hypertension, and prior CVA with residual left sided hemiparesis presented to our hospital with nausea, vomiting, confusion, and weakness. A stroke code was called, as there was concern for acute CVA. CT head was obtained and negative for acute disease. Initial labs revealed a creatinine of 8.22 (baseline around 1.3), calcium level of 15.5, and metabolic alkalosis. EKG showed peaked T waves. He was given a dose of calcitonin and started on aggressive IV hydration. His medication list was reviewed and none of his prescribed medications had a known side effect of hypercalcemia. Parathyroid levels were within normal range. CT of the total spine, thorax, and abdomen did not find any discernable masses. Spep and Upep were obtained to rule out multiple myeloma, with both within normal range. Over the course of three days the patient's calcium and creatinine levels began trending down. His mentation improved with resolution of his hypercalcemia, allowing a more thorough history to be obtained. At that time, the patient reported a significant history of indigestion over the past several months. Inorder to improve his symptoms he had been consuming an average of 15-20 tablets of Tums a day. Ultimately, it was concluded that the patient's symptoms had been secondary to his excessive Tums intake, as the rest of his hypercalcemia workup had been negative.

Discussion: Milk-alkali syndrome is a disorder that consists of hypercalcemia, acute kidney injury, and metabolic alkalosis. It is the third leading cause of hypercalcemia after primary hyperparathyroidism and malignancy. The incidence has been increasing secondary to the use of calcium carbonate in CKD, easily available over-the-counter calcium carbonate, and the use of calcium in prevention of osteoporosis. The population at highest risk of developing this syndrome is the elderly, those on diuretics, and patients on medications that reduce GFR. Treatment includes stopping the offending agent and administration of isotonic saline.

Conclusion: It is important to discuss the proper use and side effects of all medications, including those that are obtained over-the-counter. Many patients are unaware of possible adverse effects associated with seemingly benign medications. The elderly population is especially susceptible as many substances take longer to clear in the body as we age. Regular PCP follow up and careful review of all medications with patients can help prevent similar cases in the future.

B34

Is Seeing Believing? Charles Bonnet Syndrome (CBS)

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Introduction: Aging is associated with varying degrees of functional limitation and loss. Goals of care change over the age spectrum; older patients consistently list maintaining independence as one of their primary goals and often hide or minimize symptoms to protect this. Appropriate management of medical conditions should facilitate this goal to the greatest degree possible. Sometimes reassurance is the best medicine.

Clinical Scenario: A 97-year-old woman with HBP, AMD and no history of psych or cognitive issues c/o seeing abnormal images: people with enlarged heads or alternating black and pink stripes. There was no obvious trigger or associated pain, visual loss, headaches, dizziness or lightheadedness. They resolved with eye closure and she recognized that they weren't real. Frequency increased; fear of mental illness and loss of independence kept her quiet. At a scheduled

ophthalmology visit her AMD was stable. Relieved, she was still fearful. During a later hospitalization CT head showed age-related cerebral atrophy, no acute pathology. Infectious, metabolic, and neurological evaluations were negative. Ocular migraine was considered although there was no visual loss. She was discharged to follow up with her PCP. In the office, normal cognitive evaluation with visual hallucinations were consistent with CBS. She was on lisinopril, a lipophilic ACE; med review revealed it could trigger hallucinations by crossing the blood brain barrier. She was switched to an ARB and the hallucinations resolved within a month. She had one subsequent episode, but reassurance and education have enabled her to live without fear, recognizing that these are benign in nature.

Discussion: CBS is a benign condition usually occurring in patients with ocular pathologies like cataracts or AMD. Common images are distorted faces, animals, or landscapes. Causal hypotheses include deafferentation theory, where damage to normal visual pathways results in loss of inhibition of the visual cortex, triggering release of visual hallucinations. The brain interprets the internal visual cues and signals as an external visual image. As geriatricians, our goal is not only to diagnose, but to help patients live to their fullest capacity. Recognition of CBS among health care providers enables patients to live without the fear engendered by these sensory misperceptions.

B35
Mind Your Manners: A Curious Case of Intractable Belching
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Case:

A 76-year-old female presented with a 3-day history of intractable belching and hiccups. She was admitted due to inability to tolerate oral feedings due to associated nausea and vomiting. She had a 1-month history of difficulty swallowing, and past medical history of Type 2 diabetes, GERD and 60 pack-years of cigarette use.

On exam, she appeared uncomfortable with constant, rhythmic belching and hiccupping. She was intermittently spitting clear mucous. Lung sounds were clear. Abdomen was soft and mildly tender to palpation diffusely. She was alert and attentive, followed commands easily, yet scored 10/30 on the Saint Louis University Mental Status (SLUMS) test. Labs (including lipase, WBC) were all normal, except an initial Na 133 that corrected to 136 after IV fluids. She was given IV ondansetron for nausea and baclofen for the hiccups. She was also started on IV pantoprazole. Despite this treatment, her hiccups and nausea persisted.

Case Conclusion:

The patient's history raised initial concern for esophageal obstruction and malignancy. A CT scan of chest, abdomen and pelvis was unremarkable. An esophagogastroduodenoscopy (EGD) was normal. Bedside observation revealed the patient was swallowing air when not speaking. Symptoms seemed to abate with prolonged conversation. Given the suspected diagnosis of aerophagia, she was taught diaphragmatic breathing and glottis exercises. By discharge, belching and hiccup frequency had markedly reduced and she tolerated an oral diet.

Discussion: Aerophagia is a repetitive pattern of swallowing air that results in recurrent belching. It is usually unconscious and unrelated to meals. Aerophagia causes supragastric belching and hiccups. The distinction is important in that the air does not originate in the stomach. Thus these patients do not obtain significant relief with transient lower esophageal sphincter (LES) relaxation medications like baclofen. EGD evaluation to rule out organic pathology may be useful in certain cases. Management involves behavioral changes such as diaphragmatic breathing exercises, speech therapy, and restriction of gas containing beverages. There is also role for cognitive behavioral therapy (CBT) in refractory cases.

Aerophagia is a behavioral disorder associated with anxiety, depression and other neurocognitive disorders. The patient's presentation may be linked to previously undiagnosed dementia. As such, repeat coaching will likely be needed to sustain behavioral changes

B36
Patient Barriers to Bisphosphonate Treatment
J. B. Levinson, N. Jina, K. Beldowski, C. Hwang, W. Zirker. *Geriatrics, Temple University Health System, Philadelphia, PA.*

Background:

Osteoporosis is common in the elderly, with over 50% of women over age 50 having osteopenia or osteoporosis. Osteoporosis constitutes a major healthcare burden, as osteoporotic fractures can lead to disability and increased morbidity. Bisphosphonates are the first line treatment, yet more than 50% of patients will discontinue treatment within 1 year.[Chodick, G et al.; 2016]

Methods:

Surveys were administered to female patients above the age of 50 who presented to geriatrics clinic over a 4 month period with subsequent chart review. The survey included questions regarding attitudes and beliefs towards bisphosphonates as well as osteoporosis knowledge and related risks.

Results:

59 women completed the survey, with mean age of 78 years (range 51-98) and 27 had a diagnosis of osteoporosis and 32 did not. Of patients with osteoporosis, 26%(7) said they would be willing to start bisphosphonates if indicated, as compared to 31%(10) who did not have the diagnosis. When questioned on what concerns they had to starting bisphosphonates, 23 responded "side effects," yet only 6 could name a side effect of concern. Over-medication and cost were the next most commonly answered barriers, with 12 and 13 responses, respectively. "Ease of medication use" and "not worried about bone health" were additional barriers to treatment with 6 responses each. Patients diagnosed with osteoporosis expressed significantly greater concern for a bone fracture versus those without the diagnosis, t-value of 2.68, p<0.05. Forty-four percent of respondents felt they did not have enough knowledge on the subject. 92.7% stated they primarily attained health knowledge from a doctor, with 43.1% supplementing health knowledge from other sources (eg. family, friends, and internet).

Conclusions:

The barriers to bisphosphonate treatment were concerns of side effects and a lack of knowledge. Over two-thirds of surveyed women refused bisphosphonates if indicated. Side effects were the most common concern, yet only 10% could name a side effect. Women with osteoporosis were significantly more likely to be worried about a bone fracture. Nearly half of the patients believed they did not know enough regarding the subject. Almost all of the patients stated that their health care provider was their primary source of knowledge, suggesting opportunities to provide better patient education.

B37
DRESS Syndrome Secondary to Allopurinol in a Geriatric Patient
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Background: Drug reaction with eosinophilia and systemic symptoms (DRESS) is a rare, adverse drug reaction that occurs within two months of drug exposure. Diagnosis is made based on presence of a cutaneous drug rash, internal organ involvement, and hematologic findings including eosinophilia or atypical lymphocytes.

Presentation: A 71 year old Caucasian woman with a history of gout, hypertension and diabetes mellitus type II presented with a complaint of a rash, worsening fatigue, and facial swelling. Outpatient history included initiation of allopurinol for gout two months prior to presentation. One month later, she developed a pruritic urticarial rash; she was treated with prednisone and allopurinol was discontinued at

that time. Her rash persisted and she developed worsening fatigue. She was advised to come to the ED for further evaluation. On presentation, her vitals were stable and she was afebrile. A rash was noted on exam. Pertinent labwork included BUN 50 and Cr 2.39, elevated from a baseline Cr 1.3. Initial CBC included Hgb 9.7, WBC 11.4, absolute eospinophils 2.6/L and eosinophils 23%. ESR and CRP were elevated to 48 and 4.4. IV solu-medrol was initiated. She was evaluated by renal and rheumatology, who agreed with a diagnosis of DRESS. Punch biopsy completed during her hospitalization showed spongiotic dermatitis with eosinophils, also consistent with DRESS. Her symptoms continued to improve, and she was transitioned to a prednisone taper prior to discharge.

Discussion: DRESS is characterized by a long latency, with recurrence of episodes even after discontinuation of the culprit medication. The mechanism of the reaction is unknown, although it is thought to be a combination of immunologic and genetic responses. Antiepileptic medications are most commonly associated with DRESS, but inciting agents also include allopurinol, sulfonamides, olanzapine, and kinase inhibitors. Internal organ involvement manifests as hepatitis, interstitial nephritis, pneumonitis or pericarditis. Renal involvement can be seen in 10-30% of cases and is most frequently associated with allopurinol. Early cessation of the medication and treatment is essential to decrease risk of mortality from end organ dysfunction. Once a drug hypersensitivity syndrome is identified, the initiating medication should be avoided for the remainder of the patient's life.

B38
Cutaneous Leukocytoclastic Vasculitis Secondary to NSAIDs in a Geriatric Patient
K. Wilhelmy. *Geriatrics, UPMC, Pittsburgh, PA.*

Background: Leukocytoclastic vasculitis (LCV), also synonymous with hypersensitivity vasculitis, is a small vessel vasculitis isolated to a single organ system, most commonly the dermis. The clinical hallmark of LCV is palpable purpura, with more severe manifestations including hemorrhagic bullae, necrosis and ulcerations.

Presentation: A 67 year old Caucasian woman with a past medical history of coronary artery disease, type II diabetes mellitus, and COPD presented for evaluation of worsening right foot swelling and a purpuric, desquamating rash. Her outpatient history included a persistent rash for three weeks, and she had been treated with betamethasone cream, cetirizine, and hydroxyzine by dermatology one week prior. Symptoms also correlated to increased use of naproxen to three times daily for lower extremity pain. On presentation, vitals in the ED were the following: BP 155/66, HR 76, RR 16, SaO2 95%. No leukocytosis was noted on labwork; ESR and CRP were elevated to 110 and 3 respectively. Physical exam revealed multiple purpuric papules of the extremities and a large necrotic ulcer with eschar on the right plantar foot. Punch biopsy of the right medial foot and left calf showed a superficial perivascular neutrophil-rich dermatitis consistent with leukocytoclastic vasculitis. Autoimmune and paraneoplastic work ups were negative. She was evaluated by rheumatology and started on Cellcept prior to discharge. Etiology was thought to be secondary to naproxen use.

Discussion: There is a wide range of associated etiologies for LCV, which include medications, infections, autoimmune connective tissue diseases, dysproteinemias, and neoplasms. NSAIDs have been documented as causative agents; however, only a few cases of hypersensitivity vasculitis secondary to naproxen have been reported. Identifying and eliminating triggering factors are necessary for symptom resolution. LCV is often self-limiting and further treatment is based on the severity of presentation. Pharmacologic interventions includes colchicine, mycophenalate, azathioprine, corticosteroids, dapsone, plasma exchange and IVIG; long-term therapy is not required to prevent recurrence.

B39
Spinal Epidural Hematoma Masked by Previous Deficit
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Background: Patients with cardio-embolic cerebrovascular accidents may have residual neurological deficits. While unexplained bleeding on properly administered anticoagulants is rare, it can occur. It is possible that a previous neurological deficit may mask the presentation of a compressive spinal hematoma.

Case Presentation: The patient is a 76 year old community dwelling male with several cardiac risk factors who experienced a left MCA ischemic stroke in November 2014. He had residual right sided weakness, worse in his arm than leg, and non-fluent language disorder. He was discharged on dual anti-platelet therapy, but after a prolonged cardiac monitor revealed atrial fibrillation (CHA_2DS_2-VASc of 7), he was started to anticoagulation with rivaroxaban and his clopidogrel was discontinued.

In January 2015 he had a fall and struck his right side without any concerning injuries on initial evaluation. After this, he started complaining of pain in his right shoulder, and later complicated by adhesive capsulitis. Over the next several months he had multiple visits for shoulder pain. The patient received three shoulder joint injections with only modest improvement of his now-chronic musculoskeletal shoulder pain.

Late 2018 the patient had a colonoscopy due to rectal bleeding, and upon resumption of anticoagulation apixaban chosen over rivaroxaban. Days after this conversation, he presented with intense right shoulder pain. His right-sided hemiparesis and chronic pain made it difficult to measure any new motor or sensory deficits. A contrast enhanced CT was performed which found right dorsal epidural hematoma C3-C4 with nerve root compression, better seen on MRI. His anticoagulation was held for several weeks until his pain improved, after which it was restarted after extensive shared decision making.

Conclusions: We present a case of a common complaint, shoulder pain, with an uncommon etiology, cervical epidural hematoma. The patient's physical exam was unreliable, owing to his pre-existing hemiplegia. Health care providers of older patients will encounter patients with previous ischemic events on anticoagulation, such as described in this case. It is important to maintain a high level of concern when there is acute worsening of chronic musculoskeletal pain. Additionally, when the physical exam is unreliable, consideration should be given to early advanced imaging and expanded differential.

B40
Mirror, Mirror On the Wall...
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A 66-year-old female presented to the skilled nursing facility (SNF) with severe malnutrition and debilitation. She has a history of hypertension, depression and anxiety. Family reported worsening of depression with development of psychosis only within the past year. During this time, she had received inpatient psychiatric treatment twice with regular outpatient follow up. Despite multiple medication changes in antidepressants and antipsychotics, she continued to have delusions. She believed her mouth and legs were missing and therefore, could not eat or walk. She was admitted to the hospital for severe dehydration, weakness, a BMI of 13.9 kg/m2 and a stage 4 sacral pressure ulcer. TSH, folate and vitamin B12 levels were within normal limits. EGD, colonoscopy, mammogram and Pap smear were negative. CT brain was also negative. Hepatitis panel, HIV, and RPR were all non-reactive. Her family chose to have a gastrostomy tube placed due to her refusal to eat. She was started on continuous enteral feeds and discharged to a SNF.

On admission to the SNF, the nurse practitioner recommended that the speech therapist use mirror therapy by cueing the patient to look at herself in the mirror during all meals. During her initial treatment with MT, meal refusal decreased and oral meal intake increased from an average of 20% to 50% of all meals. Enteral feed volume decreased and she gained 6.5 pounds since admission to SNF. The physical therapist also used the mirror to remind the patient that she did indeed have legs. Her ambulation improved from requiring maximal assistance by 2 persons to walking 100 feet with standby assistance and a walker.

The prevalence rate of major depression in older adults is up to 10% per year. Some depressed patients develop somatic delusions which are less responsive to standard medication regimens. Mirror therapy is an inexpensive and simple form of therapy. It has been shown to be effective in the treatment of phantom limb pain as well as hemiparesis after stroke. Little information can be found on its use for other conditions. In this case, mirror therapy was utilized to improve oral nutrition intake and ambulation in a patient with severe malnutrition and gait impairment as a result of depression with psychotic features. This case also represents a rare form of delusions which has not been reported elsewhere.

B41
An 85 Year Old Woman with Hallucinations, Falls and Gait Apraxia: An Unusual Presentation of Lupus Cerebritis

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BACKGROUND:

~10-20% of cases of SLE are diagnosed in those age 50 years or older.[1]

CASE PRESENTATION:

An 85-year-old woman presented with one week of disorientation, hallucinations, inability to walk and multiple falls. She was previously fully independent in ADLs. Medical history was notable for mild cognitive impairment and idiopathic thrombocytopenic purpura for which she was taking eltrombopag and azathioprine. On exam, vital signs were normal. She was alert and attentive to conversation but oriented to person only. Speech was fluent; strength and sensation were normal. She was unable to walk. Initial labs were notable only for mildly elevated TSH with normal free T4. Head CT showed no acute abnormality. MRI brain showed new patchy non-enhancing T2/FLAIR signal abnormality within the bilateral cerebellar hemispheres and the brainstem. Cerebrospinal fluid (CSF) analysis showed elevated protein (72 mg/dL) without pleocytosis. CSF gram stain and culture, paraneoplastic antibody (Ab) panel, oligoclonal band profile, and Arbovirus Ab panel were negative, as was PCR for herpes simplex, varicella zoster, and JC viruses. Serologic testing revealed positive ANA at 1:320 in a diffuse pattern, strongly positive anti-histone Ab, and low total immunoglobulins. A presumptive diagnosis of lupus cerebritis was made. The patient was treated with pulsed-dosed methylprednisolone with rapid improvement in symptoms over 72 hours. She was discharged to a subacute rehabilitation facility on oral methylprednisolone taper with no recurrence of symptoms at outpatient follow-up.

DISCUSSION:

Though there were features suggestive of delirium, the patient's attentiveness and history of acute onset gait apraxia raised suspicion for alternative diagnoses. MRI brain and lumbar puncture ultimately lead to the diagnosis. Neuropsychiatric symptoms are common among patients with SLE but vary widely in presentation; thus, a high index of suspicion for SLE is required.

CONCLUSION:

Lupus cerebritis should be considered in the differential diagnosis of delirium in older adults, especially when clinical features atypical for delirium are present.

REFERENCES:

1. Heckman GA, Papaioannou A, Adachi JD, Denburg JA. Systemic lupus erythematosus presenting as subacute delirium in an 82-year-old woman. *J Am Geriatr Soc*. 2001;49(4):458-461.

B42
Leiomyosarcoma as a Rare Cause of Hip Pain

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Background

Hip pain is a common symptom in the elderly. While degenerative changes in the hip and pelvis commonly lead to this pain, clinicians need to be aware of rare causes of common presentations.

Case

An 87-year-old woman presented with 2 weeks of left hip pain after beginning a new exercise program. Pain was located in the anterior hip and worsened with weight bearing. Stinchfield test and x-ray of left hip and pelvis were unremarkable. She was treated conservatively with rest but after one month, her pain progressed, radiating into her groin, lateral thigh, and knee. Pain worsened with ambulation and was alleviated by being supine. No red flag symptoms were present. On exam, she had limited range of motion of the left hip with internal and external hip rotation reproducing pain in the left groin, lateral hip, and knee. Bone scan showed significantly increased, linear shaped, flow phase, blood pool phase, and delayed phase bone tracer activity across the intertrochanteric region of the left femur, suggesting a fracture. Additional x-rays showed a fracture line in the anterior cortex near the lesser trochanter and a lytic area in the trochanteric region. MRI revealed a destructive lesion involving the proximal left femur from the greater trochanter to the proximal diaphysis with differential of metastasis or primary bone sarcoma along with fracture. The patient had no history of malignancy and work up of the skeletal lesion of unknown origin with Rougraff's criteria was negative for metastatic disease. Surgical biopsy showed high-grade leiomyosarcoma of the bone. She underwent concurrent resection of the 6-cm tumor with endoprosthetic reconstruction of left proximal femur. Margins were negative and no systemic chemotherapy was recommended. Her post-operative course was uncomplicated and following surgery, she had resolution of pain and resumption of normal activity.

Conclusions

The differential diagnosis of hip pain is broad, representing a diagnostic challenge. In a patient with unremarkable plain radiology findings and persistent pain, additional imaging such as MRI should be performed to assist in identification of specific pathology. Primary bone tumors in the elderly are rare and metastatic bone lesions more common[1], leading to the need for further imaging and biopsy to determine an appropriate treatment plan.

[1] Recine, Federica et al. "Primary leiomyosarcoma of the bone: a case report and a review of the literature" *Medicine* vol. 96,45 (2017): e8545.

B43
Development of automatic behavior following initiation of donepezil

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Introduction: Automatic behavior is intentional but inappropriate activity that occurs while an individual is partially asleep. This activity may last minutes to hours and is typically associated with non-rapid eye movement (NREM) sleep. Alzheimer's disease is characterized by acetylcholine (ACh) deficiency in the basal forebrain. Donepezil is an acetylcholinesterase inhibitor indicated for treatment of mild, moderate and severe Alzheimer's dementia. Donepezil produces its effect by inhibiting centrally-active acetylcholinesterase, the enzyme responsible for breakdown of ACh.

Clinical Scenario: An 85-year-old male with PMH significant for HTN, prostate cancer, alcohol use disorder in remission and mild, mixed dementia. He lived with his spouse, who reported worsening cognition. He was initiated on donepezil 5mg at bedtime, which was well-tolerated. Four weeks later, the dose was titrated to donepezil 10mg at bedtime. At follow-up, his spouse reported new onset automatic behavior overnight. Behavior included putting their dog into the car and attempting to drive. Donepezil was decreased to 5mg and changed to morning administration. Shortly after, his spouse reported cessation of automatic behavior overnight and development of significant automatic behavior in the daytime. The patient had driven from Connecticut to Pennsylvania without recollection and upon realization, called his spouse for assistance. He was admitted to a local hospital, work-up was non-revealing for an acute cause of the behavior. Following this event, patient presented for follow-up of persistent mild, mixed dementia and donepezil was discontinued. Patient and spouse denied alcohol use during these episodes. Automatic behavior resolved fully following discontinuation of donepezil.

Discussion: Automatic behavior is not a normal part of dementia or Alzheimer's disease. Donepezil is commonly used in practice for the treatment of mixed or Alzheimer's dementia. Automatic behavior has not yet been reported as a potential adverse effect of donepezil, however, is a known effect of benzodiazepine and non-benzodiazepine hypnotics, which enhance GABA signaling. Neurons of the basal forebrain promote cortical activation using ACh and GABA. It is possible the automatic behavior in this case was related to ACh and GABA activity, however, further clarification is needed to better identify the associated mechanism.

B44

Aging Displayed in Selfportraits of Artists

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A self-portrait is a common representation of an artist with different techniques by that artist and emerged since the 15th century. Albrecht Dürer was one of the first artists who performed various self-portraits during his life. The fascinating aspect from a gerontological point of view is that artists show themselves throughout the aging process as well as sometimes with manifest signs of diseases. The poster show self-portraits over the life course from Rembrandt van Rijn (1606-69), Vincent van Gogh (1853-90), Ferdinand Hodler (1853-1918), Lovis Corinth (1858-1925), Helene Schjerfbeck (1862-1946), Edvard Munch (1863-1944), Käthe Kollwitz (1867-1945), Pablo Picasso (1881-1973), and Max Beckmann (1884-1950).

B45

Inappropriate Sexual Behaviors in Dementia Treated with Gabapentin

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Introduction:

Inappropriate sexual behaviors in dementia is a common occurrence but not a well-researched and understood topic. Due to limitations related to ethics and subjective observations related to cultural acceptances, there are no specific guidelines in place for treatment of symptoms which can be upsetting to patients, caregivers and staff. Initial recommended management includes non-pharmacological treatment and behavioral modifications. Pharmacological interventions recommended and considered to be efficacious include antidepressants, cholinesterase inhibitors, antipsychotics, antiepileptics, beta blockers and hormonal therapy. Here we present a case of a heterosexual geriatric male with moderate to severe dementia whose inappropriate sexual behavior was treated in the long-term care facility with gabapentin.

Case:

A 68 yo male with of moderate to severe dementia, normal pressure hydrocephalus and prostate cancer s/p radiation was reported to have increased incidents of inappropriate sexual behaviors towards female staff with onset of symptoms over 6 months. Labs and CT head were stable. Initial therapy with redirection was attempted without improvement. He had been stable on his donepezil 10mg and memantine 10mg daily prior to symptoms. Escitalopram therapy was initiated with worsening of symptoms which was subsequently discontinued. He was then trialed on gabapentin 300mg TID with improvement of behaviors in four weeks.

Discussion:

This patient was already on a cholinesterase inhibitor and started on an antidepressant. Traditionally initiating therapy with antidepressants is mainly due to the safer profile of these medications. However, it was not tolerated in this case. Gabapentin has been known to cause decreased libido with lower doses having reduced risk profile. Despite limited studies and trials, multiple case reports have suggested various regimens including treatment of symptoms with gabapentin in the nursing home setting. Given there are no guidelines available for the treatment of inappropriate sexual behaviors in dementia and monitoring of improvement; further trials and studies are needed as regimens vary from patient to patient. Considering trial of various pharmacotherapy regimens including gabapentin while considering overall risks versus benefits may prove helpful in some situations.

B46

Acute Onset of Non-Psychiatric Hallucinations in Elderly-Charles Bonnet Syndrome-preceded by Unusual Behavior

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Background:

Charles Bonnet Syndrome (CBS) occurs in a patient with either visual field loss or visual acuity loss, such as macular degeneration, glaucoma, cataracts, cerebrovascular disease, and tumors. The visual phenomenon occurs due to deafferentation of nerves along the visual pathway system as a precipitant for abnormal visual cortex function, leading to spontaneous neuronal discharge and hallucinations.

Case(s):

A 76 y.o. man, with prior history of anxiety and procedure-related atrial fibrillation began to see dark spots in his visual field. Then he began to experience other visual abnormalities including a right-sided visual field cut, flying spots of light, intermittent black spots, printed words floating in the air, and cartoon characters dancing. Patient reported "cartoons are more pleasant" while reading the newspaper and they resolve. After a normal eye exam, an outpatient MRI demonstrated a subacute left posterior inferior occipital lobe infarct. He was admitted to the hospital and diagnosed with Charles Bonnet Syndrome. He was anticoagulated and discharged home in good condition but with lingering visual hallucinations.

An 85 y.o. woman with history of macular degeneration receiving anti-VEGF, tobacco use, and prior left occipital and right ACA/MCA CVA presented to clinic with new onset obsessive compulsive traits. Patient's friend and caretaker reported patient repetitively lighting cigarette lighters, lighting matches, and shuffling cards constantly throughout the day, which was unusual for the patient. Patient reported seeing numbers and cards on the wall and that she would have to play a game or match the cards to make them disappear. Patient was diagnosed with CBS due to presence of her symptoms in setting of macular degeneration and having received anti-VEGF injections.

Conclusion:

While inconsistent diagnostic criteria, lack of awareness by healthcare providers, and low patient disclosure make it difficult, CBS can be diagnosed based on diligent history taking from the patient and caretaker to aid in diagnosis. Change in behavior may or may not be directly linked to the pathophysiology of CBS, however the syndrome

may lead to compensatory behaviors, such as in above cases, which would allow for earlier diagnosis and management. There is a need for increased awareness of CBS as a geriatric syndrome to allow for preservation of quality of life and prevention of functional impairment.

B47 Resident Presentation
The Big Picture- Avoiding Invasive Procedures in Elderly
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Polymorphic ventricular tachycardia (PVT) is a life threatening rhythm that results from acute cardiac or neurological events. The etiology of PVT in patients with acute neurological events is not completely understood

Case presentation

A 76-year-old female with hypertension and diabetes presented to the hospital complaining of headache, lightheadedness and confusion that started after she had a mechanical fall. Her initial vital signs showed a heart rate of 65/min, blood pressure of 160/90 mmhg, respiratory rate of 16/min. At the emergency department she became unresponsive. ECG showed PVT that was treated successfully with defibrillation followed by amiodarone drip. On recovery ECG showed sinus rhythm with normal QT interval. Laboratory workup showed no electrolyte disturbances. Echocardiography was normal. Cardiac enzymes and troponin were negative. CT scan of the head revealed an acute subdural hematoma with midline shift. Repeat CT head at 6 and 12 hours showed a stable hematoma, so no surgical intervention was warranted. She had no further episodes of ventricular tachycardia. Amiodarone was discontinued and metoprolol was initiated to antagonize the acute sympathetic surge. Given the new onset of PVT in the light of acute subdural hematoma, and complete resolution of arrhythmia following beta-blocker therapy and normal echocardiography, she did not undergo cardiac catheterization. She eventually had a successful recovery and was discharged home. Six months later, she continued to be asymptomatic with no recurrence of arrhythmia.

Discussion

PVT is commonly caused by acute ischemia, coronary vasospasm, electrolyte abnormalities, long QT syndrome and rarely following acute brain injuries. These patients have a high sympathetic surge which probably causes PVT. Also, intracranial bleeding can cause prolongation of the QT interval that may trigger PVT and torsade de pointes. Medical therapy includes treatment of the underlying cause, antiarrhythmic drugs and beta-blockers to suppress the high sympathetic tone.

Subjecting these patients to cardiac catheterization can delay identification and treatment of primary disorder and subject elderly patients to potential complications of cardiac catheterization and further progression of intracranial bleeding if subjected to anti-coagulation. The aim of this case study is to sensitize physicians to look at the big picture while evaluating elderly patients with PVT to avoid unnecessary invasive procedures

B48
"I've always been a loner" Providing care to elder orphans and the unbefriended.
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Background:

Unbefriended older adults lack decisional capacity, and do not have advanced directives or a surrogate decision maker. Elder orphans retain capacity but lack a surrogate and are at risk of becoming unbefriended if they lose capacity. The Health and Retirement Survey estimates 22% of adults over 65 are elder orphans. This population is at risk for lower quality care at the end of life, care not aligned with goals, institutionalization, and higher health care costs at the end of life.

Case 1:

Ms S is a 69 y/o woman recently diagnosed with metastatic breast cancer and advanced squamous cell carcinoma of the rectum. She declined further treatment and returned home where she lived alone. Self-described as "a loner" she was estranged from family and had no friends. She was unable to name a health care proxy or suggest potential surrogates. She retained decisional capacity so our team engaged her in filling out a MOLST (Medical Order for Life Sustaining Treatment) form, documenting her wishes to be DNR/DNI/DNH and receive comfort care only. Consistent with her wishes, she subsequently died at home.

Case 2:

Mr. B is an 80 y/o man admitted to the ICU, unresponsive, hypotensive, and hypoxic. Given the lack of advanced directives or surrogate, the ICU team used 2-physician decision making to institute a DNR/DNI order and switch to comfort care. After discussion with legal, it was determined that attempts to treat his underlying conditions couldn't be stopped without a thorough search for advanced directives or a surrogate. DNR/DNI status was reversed and disease directed care restarted. Unfortunately, Mr. B died in the ICU before any surrogates were found.

Discussion:

The contrasting outcomes of these cases illustrate the importance of documenting the wishes of elder orphans at risk for becoming unbefriended. Failure to do so leads to burdensome care that may not be aligned with patient preferences and that may contribute to increased health care costs at the end of life.

Conclusion:

Clinicians should help clarify and document the wishes of elder orphans while they retain capacity and locate a decision maker, if possible. Health care systems should develop clear policies for decision making for the unbefriended whose wishes are unknown.

Reference:

Carney MT, Fujiwara J, Emmert BE, Liberman TA, Paris B. Elder orphans hiding in plain sight: a growing vulnerable population. Curr Gerontol Geriatr Res. 2016:1–11.

B49
A Case of Unremitting Ear Pain
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Introduction: Otalgia is less common in adults than in children; associated serious pathology is more common in the elderly, who are more often hospitalized after presenting with ear pain. Secondary otalgia can be associated with TMJ, pharyngitis, dental disease, and cervical DJD. Symptoms persisting after treatment, or concerns based on history, risk factors or physical findings warrant further evaluation.

Clinical Scenario: An 83-year-old man with PMH of HBP, CA prostate, and common variable immunodeficiency had sudden onset of R otalgia. Cerumen impaction was treated with lavage; he improved but was given opioids for pain. Pain returned that night, unrelieved by opioids; he developed a temp of 101°F, vomited, and went to the ER. CT head showed maxillary and ethmoid sinusitis, otitis externa. He was discharged with 10 days of amoxicillin; there was improvement. Pain, hearing loss, and tinnitus returned within 7 days, waxing and waning over the next year. This resulted in visits to multiple ENTs, 3 head CTs, dental extractions, bone grafting, sinus closure, R myringtomy x 2, and multiple courses of antibiotics and steroids. Profound mixed hearing loss on the R and moderate/severe SNHL on the L was found on audiogram; hearing aids were prescribed. APAP 6gm/day, NSAIDs, and ultimately hydrocodone provided only 2-4 hours of relief. A new ENT considered vascular compromise because of the suddenness and severity of symptoms. Another MRI revealed a new brain mass. A Neurosurgeon diagnosed osteomyelitis of the skull base with insinuating phlegmon or abscess within the

R paramedial prepontine cistern and petroclival region. A 6-week course of IV vancomycin, ceftriaxone and oral Flagyl was started; the pain resolved within days of initiation. He has taken APAP only once since, no longer requires narcotics, and reports only an occasional mild headache.

Discussion: This case highlights the importance of thorough investigation of persistent otalgia in geriatric patients, a high-risk population. Otalgia, while common, is much less so in the elderly. Infections should respond promptly to antibiotics. Risk factors for a worst-case-scenario include age >50, elevated ESR, CAD, DM, immunocompromise, smoking or EtOH use, dysphagia, weight loss, superior retraction of the TM, otorrhea, and unilateral hearing loss. Our patient had multiple risk factors and red flag symptoms that warranted further evaluation.

B50
"WHY AM I HERE? I JUST CAN'T HEAR!"

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Background: Dementia is a condition characterized by significant impairment in cognitive skills which leads to deterioration in function that eventually impairs independence. Testing mental status in the elderly sometimes becomes challenging not only because of variations in education level but also due to associated sensory impairments such as hearing and vision loss. We present a case with dual sensory impairments impacting cognitive assessment.

Case: A 94-year-old male with PMH of severe hearing loss, bilateral cataracts, BPH and chronic venous insufficiency was admitted to the VA CLC (nursing home) for placement after he was evicted from his apartment due to a delusion related behavior problem. Physical exam was normal except for vision and hearing loss, lower limb edema, stasis dermatitis, and Foley catheter. His labs were normal and head CT was unremarkable for his age. He did exhibit some paranoia, likely related to his inability to hear what people were saying. Cataract surgery was deferred until hearing loss could be better addressed.

During his admission, he was evaluated by psychology and diagnosed with Dementia due to Major Neurocognitive Disorder and Delusional Disorder. Psychology recommended a guardian to manage his funds and make decisions for him.

During his stay in the CLC, he showed significant independence in his daily functioning and passes were authorized. He could access and manage his funds, use public transportation, do his laundry and regularly check his USPS mailbox. He sometimes left the CLC to get a haircut or have a meal. The veteran did have severe sensorineural hearing loss; even with hearing aids he could only hear noise when spoken to. Attempts to use a pocket talker were unsuccessful. Despite his bilateral sclerotic cataracts he could read large letters and respond appropriately, and we were able to communicate with him by writing.

Results: Based on his IADL functional level we excluded the diagnosis of dementia. He was eventually discharged successfully to live in a rented apartment. Currently, we are pursuing further management for his hearing loss and cataracts and for a new neuropsychiatric mental status test, to exclude Mild Cognitive Impairment!

Conclusion: This case illustrates the importance of creating an ideal situation, with adequate time and compensation for multiple sensory deficits, before performing a neuropsychiatric evaluation that will potentially impact the independence of the patient.

B51
Cerebral Amyloid Angiopathy Limits the Management of Stroke
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Cerebral amyloid angiopathy (CAA) is a predominantly sporadic degenerative vasculopathy characterized by beta-amyloid deposition in the cerebral microvasculature which may lead to lobar intracerebral and sulcal hemorrhage in older adults. Although relatively common after the 7th decade of life (>50% of persons), CAA rarely impacts the management of stroke in those living with CAA disease. In cases of severe CAA, reconsideration of traditional thrombolytic and antiplatelet therapies is warranted to reduce risk of CAA-related hemorrhage.

A 70 year-old female with no known history presented to subacute rehabilitation (SAR) after hospitalized for acute stroke. The patient had experienced 2 days of right-sided clumsiness and word finding difficulties which progressed to frank right hemiparesis and dysarthria. Emergent evaluation revealed a woman in mild distress with severe hypertension and prominent right-sided weakness. NIH stroke scale score was 15. She underwent immediate head imaging which demonstrated acute left posterior limb internal capsule and corona radiata lacunar infarcts. Due to location, infarcts were presumed secondary to longstanding untreated hypertension. MRI brain however also identified prior left occipital lobe and bilateral caudate infarcts, as well as extensive chronic microvascular ischemic changes with the presence of innumerable peripheral microhemorrhages affecting the gray-white matter junction. Additional findings were consistent with diagnosis of concomitant CAA. Standard stroke pathway was activated but was altered to omit antiplatelet medications due to risk of hemorrhage associated with severe CAA.

Patient demonstrated persistent right hemiparesis, expressive aphasia, and dysphagia necessitating referral to comprehensive inpatient acute rehabilitation followed by SAR. She ultimately never regained functional independence and was admitted to long term care where she continues to receive care in the form of statin therapy without anti-thrombotic medications.

In the standard treatment of stroke, intracranial hemorrhage is the most feared complication. CAA by nature is associated with microbleeding of the lobar, cortical, and corticosubcortical regions of the brain. Due to the extent of underlying CAA disease, antiplatelet medication was held in this unfortunate patient, straying away from established guidelines in the management of stroke.

B52 Resident Presentation
The Art of Physical Examination: Alcohol Abuse Masking Progressive Supranuclear Palsy
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Background: Progressive supranuclear palsy (PSP) is an underdiagnosed neurodegenerative disease typically affecting adults in their middle and late ages. Those affected usually have a poor prognosis. Physical examination is paramount for accurate diagnosis. Our case discusses PSP and the clinical features that may be masked by concomitant history of chronic alcohol abuse.

Case Presentation: RB is a 78-year-old male with a history of alcohol abuse, previous brain abscess status post craniotomy, traumatic subarachnoid and subdural hemorrhages, who was transferred from an outside hospital after multiple episodes of repeated falls at home and altered mental status with restlessness and agitation.

On examination, RB was found to be confused along with bilateral upper extremity resting tremors, which was noted on previous admissions as well. He had hypertonia in the upper limbs and the lower limbs. He also had cogwheel rigidity, masked facies, and a shuffling, bradykinetic gait.

Labs revealed sodium of 130, a negative urine toxicology screen and undetectable levels of alcohol. Clinical Institute Withdrawal Assessment (CIWA) was 12 on admission. CT brain ruled out any underlying acute abnormalities. The patient had been admitted in the past for acute pancreatitis, repeated falls and brain injuries secondary to alcohol intoxication. Given his known history of alcohol abuse, he was treated for alcohol withdrawal with lorazepam without any improvement in mentation. Geriatrics was consulted once other infectious and metabolic causes were ruled out. A thorough physical exam revealed that patient had vertical downward gaze with history of

"backward" falls. Follow up MRI showed marked atrophy of midbrain tegmentum which confirmed PSP.

Discussion: This case highlights how a history of alcohol abuse may delay the diagnosis of neurodegenerative diseases such as PSP due to overlapping features of cognitive impairment, eye movement disorders and cerebellar ataxia. However downward gaze palsy and brain imaging findings can differentiate PSP from alcohol abuse. Unfortunately, there is no treatment of PSP as dopaminergic medications show only transient or limited relief in symptoms.

Conclusion: PSP is a rare neurodegenerative disease that shares many neurological features of chronic alcohol abuse, necessitating careful clinical examination to differentiate this condition.

B53
New Onset Skin Lesions in an Older Male: Consider Drug Induced Lupus!

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Background
Drugs may trigger an autoimmune response, through drug induced autoantibodies. Rarely, a clinical syndrome with features similar to Systemic Lupus Erythematosus develops, termed "drug induced lupus" (DIL), typically after months or years on an offending agent. Higher daily cumulative doses and long duration of therapy increase risk of DIL. Presence of anti-nuclear antibodies (ANA) is required for diagnosis.

Case
79 year old male with hypertension, coronary artery disease, hyperlipidemia and prostate cancer presented with persistent skin lesions. BP 150/84, afebrile. The lesions were annular, circumscribed, 1 - 2 inches diameter, scaly, over hands and feet. He was on hydralazine (initial 25 mg TID raised to 100 mg TID for 7 years) and losartan for hypertension. Dermatology visit and skin biopsy suggested nummular eczema, erythema annulare centrifugum or purpuric spongiform dermatitis with eosinophils. Labs requested by geriatrician included ANA, Anti DS DNA, antihistone antibody and RPR. ANA titre was 1:160; RPR and anti-Smith Ab were negative, anti histone antibody was positive, enabling a diagnosis of DIL secondary to hydralazine. Baseline serum creatinine: 1.70, eGFR 40. Hydralazine was discontinued and the discoid skin lesions healed over time.

Discussion
The case illustrates the need for a high index of clinical suspicion for DIL, as lupus is typically rare in males. In most cases of DIL, ANA is positive. Anti-histone antibodies occur in >95% of patients on hydralazine, procainamide, chlorpromazine, quinidine and resolves on drug discontinuation. Mechanism involved is uncertain; may relate to abnormal oxidative drug metabolism, with drugs acting as haptens or agonists for drug specific T cells, cytotoxic drug metabolites, nonspecific activation of lymphocytes, disrupted central immunotolerance and abnormal thymus function. Genetic factors may contribute. Clinical disease occurs in 5-10% of those on hydralazine. Even low doses (100 mg/d) of hydralazine may develop disease in slow acetylators.

Lessons Learnt
● Hydralazine is commonly associated with DIL, largely dose and duration of therapy related

● Those on hydralazine with dermal lesions need evaluation for DIL, as the adverse effects are reversible

Reference
● Vaglio A et al. Drug induced lupus: traditional and new concepts. Autoimmune Rev. 2018;17:912-8

B54
Blistering Rash in a 100-Year-Old Homebound Hospice Patient: A Case of Acute Generalized Exanthematous Pustulosis

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A 100-year-old homebound African-American male Veteran with neurocognitive disorder and multiple co-morbid conditions, on hospice care, developed a complicated UTI, confirmed by a urine analysis and culture. He was treated with 10 days of oral trimethoprim/sulfamethoxazole. He had no previous history of psoriasis or drug allergies. Two days after completing the course of antibiotics, he developed a generalized rash of fluid-filled blisters on his buttocks and upper and lower extremities. He was evaluated at home by an RN from the VA Home Based Primary Care (HBPC) Program, in consultation with the NP provider and HBPC Medical Director. He had no fever, hypotension, pain, erythema, pruritis, anorexia, or delirium. His physical examination was unremarkable. He remained stable clinically. The rash gradually resolved without treatment. He was diagnosed with acute generalized exanthematous pustulosis (AGEP). A blistering rash may occur in the context of antibiotic treatment. Possible diagnoses include Stevens-Johnsons syndrome, acute generalized exanthematous pustulosis (AGEP), pustular psoriasis, staphylococcal infection, and herpes zoster. AGEP is a severe cutaneous adverse reaction resulting from antibiotic use in 90% of cases. It is a rare disease with an estimated incidence of 1-5 patients per million per year. Life-threatening diagnoses like Stevens-Johnson Syndrome, which may require hospitalization, should be considered immediately. In the absence of systemic symptoms, patients may be carefully monitored at home with supportive care. Withdrawal of the offending drug is the most important intervention, and topical steroid treatment may sometimes be helpful. Care must be taken to avoid scratching and opening blisters, as this may lead to secondary bacterial infection. In a frail, elderly homebound patient, clinical evaluation and monitoring, without a biopsy or extensive laboratory testing, may be sufficient. An ER visit and hospitalization may be unnecessary and most consistent with the patient's goals of care.

B55 Student Presentation, Encore Presentation
A case of *Streptococcus bovis* meningitis complicated by venous sinus thrombosis

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Background:
Streptococcus bovis (group D non-enterococcal streptococcus) bacteria comprise a normal part of colonic flora in 10-15% of adults. It is a rare cause of meningitis, sometimes seen in neonates in the setting of sepsis and even less frequent in adults. We present a case of *S. bovis* meningitis complicated by venous sinus thrombosis.

Methods:
A 66-year old male with history of cluster headaches and stem cell transplant for multiple myeloma presented for severe headache. Vitals were remarkable for a blood pressure of 193/123. He was given sumatriptan and oxygen but became progressively altered over hours. Repeat temperature was 100.6 F. Exam noted obtundation and nuchal rigidity. Empiric ceftriaxone, vancomycin, ampicillin, acyclovir, and dexamethasone were started for suspected meningitis. The cerebrospinal fluid (CSF) contained 4,397 white blood cells/uL, >250 mg/dL of protein, and 36 mg/dL of glucose. CSF and blood cultures grew *Streptococcus gallolyticus*. Echocardiography was negative. After admission and improvement on ceftriaxone, the patient reported severe headache and was found unresponsive after a tonic-clonic seizure. Computed tomography venogram revealed a large venous sinus thrombosis in the right transverse and sigmoid sinus. He received therapeutic enoxaparin and lamotrigine for seizures. Follow-up colonoscopy

showed tubular adenomas. He improved and was discharged on three months of enoxaparin and lamotrigine with no neurologic sequelae.

Results:

S. bovis is a rare cause of community-acquired bacterial meningitis. Risk factors include endocarditis, colonic disease, immunosuppression, alcoholism, and Strongyloidiasis. Treatment consists of a penicillin or cephalosporin. While cerebral venous thrombosis is said to complicate 10.3% of *S. pneumoniae* meningitis cases, only one other case of cerebral venous thrombosis in *S. gallolyticus* (*S. bovis* group) meningitis has been reported.

Conclusion:

When *S. bovis* meningitis is diagnosed, concomitant colonic disease or endocarditis should be ruled out. Additionally, if headaches or neurologic signs persist despite treatment, cerebral venous thrombosis should be considered. If confirmed, heparin in the acute setting with a bridge to warfarin or enoxaparin is necessary. Currently, no definitive guidelines exist regarding the use of direct oral anticoagulants or the optimal duration of anticoagulation.

B56

Constipation as a Life-threatening Illness

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Constipation is so common its impact may be underestimated when treating older patients. The prevalence of constipation in adults is 12-19% and increases with age and chronic illness. Of long-term care residents, 50-74% use laxatives daily. Constipation adversely affects quality of life, and may cause complications such as incontinence, impaction or Ogilvie's Syndrome and can be life-threatening.

A 97-year-old woman with a recent stroke with residual right-sided weakness, coronary artery disease, systolic heart failure and constipation presented with lethargy. Just prior to admission she was noted to have fever, abdominal discomfort, and bloody stools after an enema for persistent constipation. On admitting examination, vital signs were P=115 (irregularly irregular), RR=33, and BP=105/65. She was somnolent but opened her eyes and wriggled her toes on command. Bilateral lower extremities were edematous and her lungs had bibasilar crackles. Her abdomen was distended, tympanic to percussion and tender at the left lower quadrant. Labs showed leukocytosis of 20.7, AST 163, ALT 164 and proBNP of 5150. Her left ventricular ejection fraction was 40-45% on echocardiogram. CT abdomen and pelvis showed large colonic stool burden with dilated rectum to 10.3cm, thickening of sigmoid and descending colon, moderate bilateral pleural effusion, ascites and diffuse anasarca. She was given 1.5 liters of fluids and started on vancomycin and piperacillin-tazobactam. Despite these measures, she became more hypotensive, had increased bloody stool output and worsening lactic acidosis. After discussions with her daughter, her treatment plan was transitioned to focus on comfort and she died within hours.

Stercoral colitis, first described in 1894, is a rare but life-threatening complication of persistent constipation and fecal impaction, characterized by colonic wall inflammation with potential complications of ulceration, intestinal ischemia, perforation, bacteremia and death. Healthcare providers should consider this high-risk diagnosis in patients at risk for impaction, such as those with immobility, prior history of constipation, and conditions and medications that slow transit time. Timely diagnosis and treatment may prevent the development of life-threatening complications.

B57 Resident Presentation

A rare case of disseminated herpes zoster in an immunocompetent patient

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Varicella zoster virus (VZV) infection can cause chickenpox as a result of primary infection as well as shingles secondary to the reactivation of the latent virus in sensory ganglia. Zoster occurs in approximately 30 percent of people in the United States with the greatest risk factor for developing shingles being age. Disseminated herpes zoster is defined as the involvement of more than two contiguous dermatomes or systemic involvement. Disseminated zoster has been reported in immunocompromised individuals, however it is a rare diagnosis in immunocompetent persons. Here, we describe a case of multidermatomal zoster in an elderly immunocompetent host.

A 75-year-old woman with a past medical history significant for chronic heart failure, hypertension, history of cerebrovascular accident, seizure disorder and atrial fibrillation presented to the hospital with vesicular eruptions on the right side of her face and her left thigh. Her lesions were localized to the L1 and right V2 dermatomes. She was not on any form of immunosuppression and HIV testing was negative. Patient's mental status continued to worsen throughout her hospitalization, so a lumbar puncture was performed to evaluate for CNS infection. CSF PCR was found to be positive for VZV, suggestive of herpes encephalitis. She was started on IV acyclovir for disseminated herpes zoster. Unfortunately, her condition continued to worsen and family elected to place her on comfort care measures only.

Triggers for disseminated zoster infections include immunosuppression and stress. Disseminated infections in immunocompetent individuals are seen more with advanced age as compared to the immunocompromised population, however complication rates were similar. Immunosenescence is thought to play a role in the development of disseminated infections in immunocompetent individuals, thus with the increasing geriatric population, it is important to identify and diagnose disseminated herpes zoster early in affected individuals to reduce related morbidity and mortality. Furthermore, it is important for persons over the age of 60 to receive the zoster vaccine as recommended by the Centers for Disease Control and Prevention to help reduce the incidence of zoster and its complications.

B58

Improving Transitions of Care for the Delirious Patient with Dementia

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The successful transition of care of hospitalized dementia patients to a skilled nursing facility (SNF) for rehab is often difficult because of polypharmacy, communication difficulties, multiple comorbidities, and an inability of the patient to advocate for his care.

A 93-year-old male with moderate dementia was admitted from an assisted living locked dementia unit after a fall. His PMH included HTN, glaucoma, profound hearing loss, multiple falls, insomnia, dizziness, and delirium. On initial evaluation, he was more confused and had bilateral rib fractures; his pain was treated with acetaminophen, lidocaine patch, and tramadol. Geriatrics was consulted throughout the 5 day hospital stay. At the time of discharge his delirium improved but had not resolved. Discharge was complicated due to delays in reaching the POA, inadequate medication reconciliation and late arrival at the SNF. The medical team was initially unable to contact the POA, delaying the discharge until 5:30pm. EMS brought the patient to his home in error, and the patient finally arrived at the correct SNF at 10pm. Poor handoff to the covering team led to all pain medications being omitted at discharge and because of the late arrival, a delay in getting his medications.

Transitions of care to a SNF have a high probability for errors. In this case, the covering medical team was told the medicine reconciliation was complete, but did not confirm the correct medications at discharge. Given his rib fractures and delirium, this was critically important. Then there was an unacceptable delay in arrival to the correct facility.

Delays on the day of discharge can lead to missed medications and meals, alterations in sleep-wake cycling, and can worsen delirium. Improved communication with the POA and EMS staff at the time of discharge could have avoided delays in contacting the POA and arriving at the correct SNF. This case prompted us to require discharge by 5 pm for all patients > 65 years of age. However, a systematic solution needs to be developed to minimize errors during the discharge process. At least one study using video teleconferencing has shown 30-day readmission rates, total health care costs, and average length of stay to be significantly lower. Future interventions at our institution include developing processes to close the communication gap and lower the probability of error at discharge.

B59 Resident Presentation
Unilateral Clues Painted By Mitral Jets
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Background

Acute mitral regurgitation due to valve prolapse is a cause of cardiogenic shock and death most commonly found in the elderly. Prompt diagnosis and urgent surgical repair or replacement of the valve are the mainstays of therapy. We present a rare case of unilateral pulmonary edema that in retrospect was diagnostic of papillary muscle rupture.

Case

A 69-year-old male with hypertrophic cardiomyopathy and diastolic dysfunction secondary to hypertension developed acute onset dyspnea. He initially presented to his PCP and was found to have pulmonary edema on chest x-ray. His symptoms progressed to include limb edema and orthopnea despite being started on Furosemide.

He presented to the ED with cardiogenic shock in the setting of EKG showing an anterolateral STEMI. Chest x-ray showed unilateral pulmonary edema and he was treated with IV Furosemide. Echocardiogram showed severe mitral regurgitation (MR) secondary to mitral valve prolapse with papillary muscle rupture (PMR). He was taken for urgent surgical mitral valve replacement.

Discussion

Unilateral pulmonary edema represents around 2% of all cases of cardiogenic pulmonary edema and is often misdiagnosed or interpreted solely as "pulmonary edema." The most common cause of unilateral pulmonary edema is severe MR. This delay in recognition of PMR especially in the setting of an acute myocardial infarction (AMI) has shown to lead to increased morbidity and mortality. When examining a geriatric patient who presents with AMI, closer evaluation of chest x-rays should be considered as a fast and extremely cost effective intervention to recognize early papillary muscle rupture and improve outcomes.
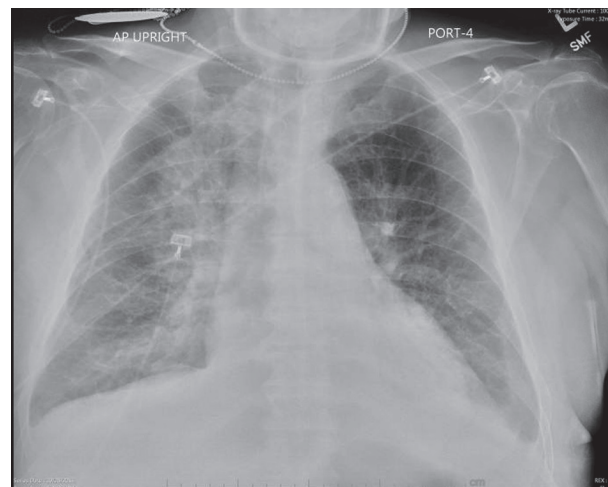
Unilateral Right Sided Pulmonary Edema

B60
Find the "Mechanics" of this Patient Fall in the Periodic Table of Elements
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Background:

Older adults often endorse non-specific complaints as the presenting symptom of serious underlying medical conditions. 10% of hospital admissions in older adults are related to adverse drug events. A careful medication review and physical exam are critical when evaluating any older adult with a nonspecific complaint, generalized weakness, or a fall.

Case report:

An 80 year old community-dwelling female presented after a fall at home in the setting of multiple recent falls, generalized weakness, and functional decline. Per family, she spent more time in bed due to depressed mood. She was admitted for a "mechanical fall" and need for safety evaluation. Vitals and labs were noted as unremarkable. Relevant medical history included stroke and bipolar 1 disorder. Fall history revealed symptoms of dizziness with position changes and bilateral leg weakness. At baseline, she was independent with mobility, ADLs, and IADLs except for medication assistance from her husband. Home medications included aspirin, lithium, meloxicam, quetiapine, metoprolol, senna, and sertraline. Physical exam revealed bilateral hip flexor weakness and extrapyramidal movements, with myoclonic jerks, asterixis, and gait ataxia. Her creatinine of 1.1 (baseline 0.7) corresponded to a creatinine clearance of just 40 mL/min. Suspected lithium toxicity was confirmed by a trough of 1.3 (reference 0.5-1.2). MRI brain was negative for an acute intracranial process. Treatment included holding lithium, stopping meloxicam, and supportive care with IV fluids. Within a week, extrapyramidal movements resolved, and she returned her ability to ambulate independently.

Conclusion:

Lithium is both a periodic table element and a drug with a high risk of toxicity due to its narrow therapeutic window. Older adults who need lithium require close monitoring, as clinical toxicity may not correlate with drug levels, and therapeutic efficacy can be seen with lower lithium levels (0.6-1.0). Toxicity can result from acute kidney injury or drug interactions, such as meloxicam and quetiapine in this case. Chronic toxicity can even cause the syndrome of irreversible lithium-effectuated neurotoxicity (SILENT). The term "mechanical" adds little to no clarity in the evaluation of a patient fall, and it may even create false-reassurance that a specific medical diagnosis or cause has been established. In this case, the fall was not "mechanical"; it was elemental.

B61

Anticoagulation for deep vein thrombosis in a frail elderly patient with Cerebral Amyloid Angiopathy

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Introduction Cerebral amyloid angiopathy (CAA) is characterised by β-amyloid deposits on the walls of cerebral vessels. It is associated with a high risk of intracranial haemorrhage (ICH) after anticoagulation, resulting in a common practice to avoid antithrombotic agents in such patients. Limited data is extrapolated from studies looking at anticoagulation for atrial fibrillation (AF) in patients with previous intracranial haemorrhage (ICH). However, recent studies have found that reduced mortality and thrombotic events with anticoagulation outweighs ICH risk in patients with CAA and AF. To our knowledge, there are no studies on anticoagulation for venous thromboembolisms in CAA.

Case Report An 83-year old female presented with unilateral left calf swelling and tenderness following a 3-week period of immobility. Past medical history includes dementia on the background of previous atraumatic subarachnoid haemorrhage secondary to probable CAA. Baseline MRI Brain showed chronic supra- and infra-tentorial intraparenchymal microhaemorrhages and cortical superficial siderosis. She was pre-morbidly ambulant with a walking stick, basic activities of daily living (ADLs)- assisted and instrumental ADLs- dependent. Ultrasound doppler confirmed a left ileo-femoral deep vein thrombosis. Based on early studies, the risk of pulmonary embolism was estimated to be more than 50% and the risk of mortality approximately 25% if left untreated. As the patient did not have decision-making capacity, a decision was made to administer 2 weeks of subcutaneous low-molecular weight heparin 1mg/kg BD after discussion with the family regarding overall goals of care. The patient tolerated anticoagulation well and did not suffer any immediate complications.

Discussion There is limited data on anticoagulation in CAA. In our frail elderly patient, the treatment strategy was to reduce the risk of clot extension with the acute phase of venous thrombosis treatment while minimising exposure to anticoagulation-related ICH risk. Alternative options include an inferior vena cava filter and DOACs with associated risks. There are ongoing randomised trials for anticoagulation after intracranial haemorrhage that will likely influence clinical practice in the coming years. At the same time, treatment strategies should be tailored to individual patients' goals and preferences.

B62

Fatal Complications From a Fall: A Case of Fat Embolism Syndrome

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Background:

Fat embolism syndrome (FES) is a rare, but lethal condition that usually occurs post-traumatic long bone fractures. The incidence has been reported to be between 1% to 10% with mortality thought to be as high as 10-20%. However, the process to diagnosing this syndrome is classically based on a clinical triad including respiratory, neurologic, and cutaneous manifestations. However, due to nonspecific symptoms, it is usually a diagnosis of exclusion. Currently, the main treatment is supportive management. Corticosteroids and heparin have been suggested as potential treatment, but remains controversial.

Case:

69 year-old male with past medical history of diabetes and hypertension initially presented to outside hospital with left hip pain after a fall for unclear time period. He was found to have left intertrochanteric fracture, but surgery was deferred since it was felt patient needed to be medically stabilized. On day six, it was noted that patient had an acute change in mental status with facial droop, aphasia, dysphonia, and dysphasia. Work-up at outside hospital remained negative for etiology.

Patient was transferred to a tertiary care center for further management. Patient developed increased work of breathing resulting in subsequent intubation. Patient developed violaceous purpura of left foot with gangrenous 4th and 5th digits. Dermatology was consulted and attributed it to pressure ulcers or fat embolism. Repeat MRI showed new subacute ischemic stroke within the left posterior temporal lobe along with small infarcts in the right temporal lobe. Ocular exam suggestive of embolic syndrome.

Given constellation of symptoms and recent trauma, it was felt that patient's symptoms were most consistent with fat embolism syndrome. Patient was continued on supportive management, but given difficulty to wean off ventilation, family eventually opted for withdrawal of care.

Discussion:

Falls are a leading cause of injury in older adults oftentimes leading to a loss of quality of life but to also potential fatal complications, which in this particular case includes FES. Early immobilization and operative correction significantly reduces the incidence of FES demonstrating how crucial it is for older adults to receive appropriate and timely interventions.

B63

Age is just a number: New onset Type 1 Diabetes Mellitus in Geriatric patient.

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Introduction: Type 1 diabetes (T1DM) is defined by the presence of autoimmune markers. Most commonly checked autoantibodies to confirm diagnosis of T1DM are anti-Islet cell, insulin, and GAD65 antibodies. Three to four percent of patients of T1DM who does not have commonly checked above-mentioned antibodies have positive zinc transporter 8 (ZnT8) antibody.

Case: 73-year-old woman referred to endocrinology clinic in July, 2018 for management of fluctuating blood sugars. She was diagnosed with Type 2 diabetes (T2DM) 4 years ago by her primary care physician and started on oral hypoglycemic agents. In 2016, basal insulin was added due to persistent hyperglycemia on oral hypoglycemic agents. On initial presentation to endocrinology clinic, her medications included Glimepiride, Sitagliptin-Metformin, Nateglinide, Glargine and Gabapentin. Past medical history included T2DM and hypertension. Family history was notable for stroke in mother and hypertension in father. Vitals and physical exam was unremarkable. Initial labs showed C-peptide of 0.4 [1.1-4.4 ng/ml] with sugar of 160 mg/dl suggesting that patient may have T1DM. Further laboratory investigations showed negative GAD 65 and pancreatic islet cell antibodies. Her BMI was 25 and patient was still dealing with fluctuating blood sugars. Given patient's BMI, low C-peptide and clinical history, suspicion for T1DM was high. Therefore, ZnT8 antibody were checked, which came back positive [171 U/ml; negative < 15 U/ml]. Patient was started on basal-bolus insulin with latest HbA1c 8.6% that is down from 9.6% in three months. Patient recently attended comprehensive diabetes education and is getting confident with use of multiple dose insulin basal-bolus injection, which has resulted in significant decrease in sugar fluctuations.

Conclusion: Data on incidence of new onset of T1DM in geriatric populations is sparse. Our case is unique as patient was diagnosed with diabetes at the age of 69 years, which was later reclassified as T1DM at the age of 73 years. Also our patient did not have common anti- GAD 65 and pancreatic islet cell antibodies but positive ZnT 8 antibodies confirmed autoimmune etiology and hence, T1DM.

B64

Unveiling a Masquerade: Adrenal Insufficiency in a Patient with Leukodystrophy-induced Dementia

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An 85 year old man with a history of acute lymphoblastic leukemia s/p intrathecal chemotherapy and whole brain radiation (WBR) complicated by leukodystrophy-induced dementia presents 4 years later for skilled rehabilitation due to weakness, gait instability, and falls. Associated symptoms included gradual onset of fatigue, anorexia and weight loss, and episodic delirium superimposed on previously diagnosed moderate dementia. Rehab course was notable for persistent orthostatic hypotension despite discontinuation of anti-hypertensives with associated falls and delirium; minimal improvement in symptoms with IVF. CBC, CMP, CXR, urine and stool studies were negative. Given goals of care, previous diagnosis of moderate dementia and significant decline, hospice was considered. Simultaneously, the possibility of adrenal insufficiency (AI) was raised and his wife agreed to trial steroids if treatment could improve his quality of life. Appetite, hypotension, gait, and cognition profoundly improved with initiation of hydrocortisone 10mg qAM and 5mg qPM and he was able to participate in discussions pertaining to further medical interventions. Additional workup showed Insulin like growth factor, TSH, free T4, and luteinizing hormone were within normal limits. ACTH stimulation test demonstrated a blunted response to ACTH with a baseline cortisol of 5.7 ug/dL and cortisol level of 13.1 ug/dL 60 minutes after ACTH administration consistent with AI. Since accurate diagnosis and treatment with hydrocortisone, condition remains stable and cognition has improved to the extent the patient is working on publishing a children's book despite a premorbid dementia diagnosis.

We present a case of AI in a patient with leukodystrophy-induced dementia whose symptom burden and quality of life were drastically improved with accurate diagnosis and treatment. WBR is a known cause of hypothalamic-pituitary axis (HPA) disruption resulting in AI and often develops over several years; onset and severity are dose-dependent.[1] Early recognition of AI and prompt treatment are a worthwhile clinical challenge in persons with dementia to optimize quality of life and prevent progressive, and even permanent neuroendocrine abnormalities.

1. Crowne E, Gleeson H, Benghiat H, Sanghera P, Toogood A. Effect of cancer treatment on hypothalamic-pituitary function. Lancet Diabetes Endocrinol. 2015 Jul;3(7):568-76.

B65 Resident Presentation

Giant type IV paraesophageal hiatal hernia: Etiology of dyspnea in an active nonagenarian

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Hiatal hernias (HH) can be classified into 4 distinct types, with varying degrees of involvement of the stomach. Type I hiatal hernias, known as sliding hiatal hernias, are characterized by a portion of the cardiac stomach protruding into the thoracic cavity, devoid of a hernia sac, and account for approximately 95% of all HH. Types II, III, and IV hiatal hernias are known as paraesophageal hiatal hernias (PHH), with type III accounting for 90% of PHH. Type IV PHH contain organs other than the stomach, such as the spleen, pancreas, or colon. PHH are further described as giant if more than 30-50% of the stomach is intrathoracic. With increasing severity of the degree of hernia and organ involvement, symptoms of the pathology also become more bothersome. We present a case of a healthy, active, independently living 94-year-old that presented with worsening dyspnea on exertion, acid reflux, retrosternal pressure, and early satiety. A CTA of the chest was obtained to rule-out pulmonary embolism and demonstrated a type IV giant hiatal hernia containing the entire stomach, a segment of the transverse colon, and the proximal duodenum. Given the presence of these structures contained in the hernia sac in the thoracic cavity, there was significant compression of the cardiopulmonary structures, including a marked decrease in the left hemithoracic volume. EGD demonstrated organoaxial gastric volvulus. Given the patient's acute worsening of symptoms, he underwent emergent laparoscopic hernia repair and gastropexy. Postoperatively, he did quite well following short-term rehabilitation and returned to living independently. HH usually become symptomatic with increasing age. A brief review of the literature revealed few cases of type IV giant PHH with a completely intrathoracic stomach, but all were in patients greater than 80 years of age. The relevance of this case is two-fold. First, worsening dyspnea in a nonagenarian necessitates a wide differential and although somewhat rare, PHH should be included in that list of possible etiologies. Secondly, this case underscores the importance of preoperative optimization in our geriatric patients as they increasingly undergo surgical procedures into the tenth decade of life.

B66

Shortness of Breath: A Common Presentation of Cardiac Amyloidosis

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Introduction

Dyspnea is a common initial complaint in the generalist's office. We present a case of cardiac amyloidosis presenting as isolated dyspnea in an elderly man.

Case Presentation

An 84-year-old man presented to cardiology clinic for one year of progressive dyspnea on exertion without other associated symptoms. His past medical history was notable for coronary artery bypass grafting (CABG) in 2007. Physical exam revealed a blood pressure of 161/78, heart rate 75 bpm at rest, and an oxygen saturation of 96% on room air. After walking 10 feet on flat ground, he became tachycardia to 102 bpm and his oxygen saturation fell modestly to 93%. The remainder of his exam was unremarkable.

A chest x-ray demonstrated an AV pacemaker and mild cardiomegaly. ECG was consistent with dual chamber pacemaker. Transthoracic echocardiogram (TTE) showed left ventricular ejection fraction of 60 % and thickened left ventricular walls. Left and right coronary angiogram revealed patent bypass grafts.

A technetium Pyrophosphate (PYP) scan was obtained to evaluate for possible transthyretin (TTR) amyloidosis given the patient's advanced age and thickened left ventricular myocardium. PYP scan showed increased uptake in the left ventricular myocardium consistent with TTR cardiac amyloidosis. Furosemide was started for management of volume status which improved his dyspnea on exertion. Other treatment options, including doxycycline /tauroursodeoxycholic acid (TUDCA), were also considered.

Discussion

Wild type transthyretin cardiac amyloidosis is responsible for sporadic cardiac amyloidosis in the elderly. Also termed "senile amyloidosis," it affects 25-36% of patients older than 80 years although severe symptoms are less common. Consequently, it is less frequently considered as a cause of dyspnea. Presenting symptoms include heart failure, angina, and arrhythmias. While amyloid deposition on histopathology is the gold standard, PYP scan has been shown to have 97% sensitivity and 100% specificity for amyloidosis in some studies. Treatment is currently focused on management of heart failure symptoms, but there are investigational drugs that target TTR production and degradation under study.

Conclusion

It is important to consider TTR cardiac amyloidosis in elderly patients who present with unexplained heart failure symptoms. PYP scan is a non-invasive tool for diagnosis and may mitigate the need for a tissue biopsy.

B67
Timing is Everything! Workup of New Neurological Deficits in the Elderly.

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As the average age of the general patient population continues to increase, it is vital that medical professionals be able to differentiate benign age-related changes from more severe medical diagnoses. Here we review a case of a 79-year-old patient who presented with concerning neurological symptoms that were unfortunately dismissed as age-related changes. This lapse ultimately delayed a diagnosis of Glioblastoma multiforme (GBM). GBMs are the most common primary malignant brain tumors in adults with a median age of diagnosis of 64 years. Presenting symptoms are variable and dependent on region of the brain affected; they may include headaches, seizures, and other focal neurological deficits such memory loss, motor weakness, visual symptoms, aphasias, personality changes, or cognitive decline. Prognosis for glioblastoma is generally poor with a median survival of 14 months and a dismal 10% 5-year overall survival. Optimal treatment relies upon early identification, maximal safe resection with focus on neurological preservation, and adjuvant concurrent chemotherapy and radiation therapy. The prognostic value of initiating treatment while the patient has a high-performance status cannot be overstated. In the case of our 79-year-old patient, she presented on multiple occasions over an extended period of time with weakness and recurrent falls that resulted in several fractures. Each separate presentation was repeatedly dismissed as an age-related sequela. By the time her diagnosis of glioblastoma was realized, the tumor was beyond consideration for resection and the patient's performance status had severely degraded. The patient and family then elected for hospice with comfort measures only. Per the American College of Radiology Appropriateness Criteria, CT head imaging is appropriate as part of initial workup in patients who present at minimum with a neurological deficit (or with a chronic headache with a new feature). For our patient, adherence to these criteria may have prompted additional neuro-imaging and revealed a smaller tumor that was amenable to surgery while the patient still had high functional status. This alternate series of events may have significantly improved the patient's clinical course.

B68
Bowel and Brain: A Catastrophic Cause of Acute Gastroparesis in an Older Adult

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Introduction: Geriatric consultants face a wide range of clinical scenarios with consult questions that can be unclear or underdeveloped. Provider biases associated with geriatric syndromes can potentially lead to premature closure and subsequent misdiagnosis. We describe a sobering case that highlights the importance of disciplined clinical evaluation that goes beyond "what" and asks "why".

Case: An 87-year-old African American man, a beloved husband and a deacon at a church, had a history of uncontrolled hypertension and type 2 diabetes mellitus (DM) with poor medication adherence. He led an active life until several weeks prior, when he developed progressive gait imbalance, falls, and vomiting. Upon admission to the medical service, his blood pressure was 189/87. On exam, he needed minimum assistance to stand using a rolling walker but his balance was severely impaired. His labs showed serum glucose in the 200s, Hemoglobin A1c 7.9 and Vitamin B12 200. He was started on anti-hypertensives, long acting insulin, vitamin B12 supplementation, and inpatient physical therapy. However, he grew progressively weaker and continued to vomit after eating. Gastric emptying study showed severe gastroparesis with 70% of radiotracer in the stomach after 4 hours (normal <10%). By hospital day six, he continued to decline with a need for total care. Increased lethargy prompted a Geriatrics consult for "depression and failure to thrive." He was very drowsy with slowed thinking and dysarthria. He had impaired left lateral gaze, mild right sided hemiparesis, and truncal ataxia with inability to sit up on his own. Given concern for acute/subacute stroke, brain imaging was obtained. He had acute left pontine and cerebellar stroke with diffuse chronic micro-hemorrhages and small vessel ischemic disease. His mental status further deteriorated and he was transferred to Neuro ICU.

Discussion: While DM is commonly associated with gastroparesis, CNS disorders such as brainstem strokes are under-recognized causes of impaired gastric motility. Pontine and cerebellar strokes can be difficult to diagnose as their initial presentations can be subtle with non-focal symptoms such as gait imbalance. Though this patient had DM and vitamin B12 deficiency, they were not sufficient to explain the acute/subacute development of gastroparesis. Recognition of risk factors for stroke and diligent performance of neurological exam provided important clues towards the correct diagnosis.

B69 Student Presentation
Analysis of a Workflow Redesign Intervention for Reducing Inappropriate Preoperative Testing in Cataract Surgery

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Robust randomized clinical trials indicate that routine preoperative (pre-op) testing for cataract surgery is inappropriate; nonetheless, most seniors undergoing cataract surgery still receive unnecessary tests. Reducing pre-op testing for low-risk cataract surgery would save billions of dollars for patients and hospitals and reduce exposure to potentially harmful tests. Our objective was to measure the impact of implementing a workflow redesign on rates of pre-op testing for cataract surgery.

We conducted a retrospective quasi-experimental analysis of patients undergoing cataract surgery at UCLA Health between 5/1/2013 and 7/1/2018, comparing changes in the rate of pre-op testing between intervention group (patients of 2 surgeons seen by hospitalists at a new dedicated pre-op clinic, n=65) and control group (patients receiving pre-op care by other primary care providers, n=1108). The intervention started on 1/1/2017 and consisted of a new pre-op clinic designed by a team of ophthalmologists, anesthesiologists, and hospitalists in which providers followed collaboratively-generated evidence-based guidelines for pre-op care. The primary outcome was the percentage of patients receiving pre-op testing within 30 days of surgery (labs, EKG or CXR); we measured differences in the pre-post changes in outcome between study arms using segmented regression analysis of interrupted time series.

Following the intervention, the rate of pre-op testing in the intervention group changed from 62% to 51%, with a large decrease in the two most commonly ordered tests: labs (41% vs. 12%) and EKGs (49% vs. 34%), while the rate of pre-op testing in the control group changed from 86% to 87%. Segmented regression analysis of interrupted time series confirmed that the observed decrease in pre-op testing in the intervention group compared to the control group was statistically significant (p=0.015).

The multidisciplinary clinical workflow redesign was associated with a substantial reduction in unnecessary pre-op testing for cataract surgery. Future work will examine the patient's perspective on the intervention and elucidate barriers to recruiting patients into the new pre-op clinic.

B70 Student Presentation
Over-treatment of Older Adults with Diabetes and Dementia

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BACKGROUND: Harmful effects of intensive glycemic control in adults with diabetes mellitus (DM) highlights the need for de-intensification of therapy in some patients, particularly those with Alzheimer's disease and related dementias (ADRD) with greater self-management challenges. However, the burden and potential adverse effects are unclear. This analysis seeks to quantify the extent of "over-treatment" of adults ≥ 65 years with DM and ADRD defined by glycemic control in AGS and ADA guidelines, and to determine associations with DM medication and/or healthcare utilization.

METHODS: We conducted descriptive and bivariate statistics using 2 years of EHR data from all primary care and endocrine clinics in the NYU Langone Health. Analyses included patients >65 years, with ADRD and DM diagnoses, on DM medication, and recorded HbA1c. Overtreatment was defined as an HbA1c of >7%. Other covariates analyzed included demographics, DM medications, and healthcare utilization.

RESULTS: Of those meeting inclusion criteria (n=803), 59.7% (n=479) were over-treated for DM. The over-treated group was 56.4% female, 69.1% white, and 19.2% Hispanic. This group had a mean HbA1c value of 6.3% ± .5, mean age of 79.5 ± 8.2, and mean number of PCP visits over 2 years of 8.7 ± 6.5. While those over-treated were less likely to be on insulin than those not over-treated, 70% (n=227) vs. 46% (n=221), respectively, those over-treated and on insulin were found to have statistically significant higher utilization of emergency department (64.3% (n=142) vs. 50.2% (n=114)) and inpatient visits (84.6% (n=187) vs. 67.8% (n=154)) than those not over-treated.

CONCLUSION: Many older adults with DM and ADRD are under tight glycemic control, despite the recommendation of recent literature and guidelines. This suggests the need for de-intensification of DM treatment in this population, and further research to operationalize de-intensification, while maintaining individualized patient health status and goals.

A1c	Over-treated (n=479), n, (%)	Not over-treated (n=324), n (%)
Mean A1c (%)	6.296% ± .447	8.31 ± 1.2
A1c<=5.7	57 (11.9)	0
5.7 >A1c <6.5	230 (48.0)	0
6.5>=A1c<7	172 (3.59)	0
7>=A1c<7.5	20 (4.2)	90 (27.8)
7.5>= A1c<8	0	75 (23.2)
8>=A1c<9	0	84 (25.9)
A1c>=9	0	75 (23.2)

*% do not add up to 100 due to rounding

A1c in Over-treated vs. Not Over-treated Adults with DM and ADRD

B71
Mentation: an Institute of Healthcare Improvement and Baystate Health GWEP Collaborative

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Introduction: The Institute of Healthcare Improvement (IHI) has identified 4 essential elements for Age Friendly Health Systems known as the 4M's: What Matters Most, Medications, Mentation and Mobility. Our Baystate Health GWEP interprofessional team (IPT) is an innovative Geriatrics/Palliative program providing consultations for frail older adults in the community. While Mentation has been a focus we aim to improve cognitive and mood assessments rates through this collaborative.

Methods: Our team consists of: advanced practitioner, registered nurse, social worker, community health educator, caseworker, medical assistant (MA) and a geriatrician. Clients are community health center NextGen ACO patients referred to IPT, or identified as high risk due to frequent hospitalizations or emergency room visit. We assess for depression using the Patient Health Questionaire-2 (PHQ2) and cognitive impairment using the Mini-Cog screen, Alzheimers-Dementia 8 (AD8), Montreal Cognitive Assessment (MOCA), Mini-Mental State Examination (MMSE).

Results: In 3.5 years we have seen 570 new clients for a total of 1327 visits in clinic and at home. 64% were female, 36% male, mean age of 75. 81 of these clients were seen since starting IHI collaborative. 46% had a history of depression. 25% had a history of dementia. Out of all clients seen, 83% had a PHQ2 screening and 67% had a dementia assessment within 12 months. If looking at clients with 3 or more visits, 93% had PHQ2 screenings and 78% had a dementia assessment. In terms of dementia assessments performed, some clients received more than one, given screening results. 43% of had an AD8, 36% a Mini-Cog, 25% a MOCA, 6% an MMSE.

Conclusion: Our innovative Geriatrics/Palliative team is focused on patient centered care for our frail older adults in the community. Our results show a consistently high rate of mood and cognitive assessments in lieu of complex psychosocial situations. Through the IHI collaborative, we identified areas of improvement such as: clarifying team member roles, MA consistently at second visit, and streamlining home visits for team efficiency through various tests of change. This has highlighted the importance of ongoing quality improvement for new models of care in order to maintain consistency and improve quality of care for patients and care-partners.

B72
Vitamin and Mineral Supplement Use in Long Term Care Residents: A Quality Improvement Project

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Background:

Polypharmacy in long-term care (LTC) residents continues to be a growing concern. Older adults, especially LTC residents, tend to take more prescription and non-prescription medications which can lead to polypharmacy as well as increased financial and nursing burden. These include dietary supplements, with vitamin and mineral supplements being most commonly used. Furthermore, there is a paucity of data regarding multivitamin and mineral supplement use in LTC residents and its association with malnutrition. The overall aim of this project is to examine prevalence of vitamin and mineral supplementation to reduce unnecessary supplements in LTC residents in one nursing facility in Baltimore, Maryland by 50% over a three-month period.

Methods:

This study was conducted in 155 bed nursing facility in Baltimore, Maryland. Inclusion criteria included all current non-hospitalized LTC residents of the facility who were prescribed any oral vitamin or mineral supplement in November 2018. Electronic medical records for these residents was searched for alternative medications, minerals and electrolytes, multivitamins, nutrients, and vitamins. Future Plan-Do-Study-Act (PDSA) cycles will include retrospective chart review on LTC residents to determine necessity of vitamin/mineral supplements including review medical diagnoses and recent applicable laboratory results; nutritional assessment; collaboration with medical providers to discontinue unnecessary supplements; and finally follow up provider prescribing practices three months after intervention.

Results:

Of 89 LTC residents, 77 were prescribed 163 vitamin or mineral supplements. Most commonly prescribed was Vitamin D (59 on Vitamin D +/- calcium and 44 on Vitamin D alone), calcium (36 on calcium +/- Vitamin D and 21 on calcium alone), multivitamin (29), potassium (17), and melatonin (16), thiamine (5), magnesium (4), omega-3 fatty acids (4), ascorbic acid (2), folic acid (1), and other (5).

Conclusions:

This is an important first step in highlighting the prevalence of vitamin and mineral use in LTC residents especially with the paucity of published data regarding this subject. Future PDSA cycles will focus on collaboration with medical providers to deprescribe unnecessary supplements, in order to ultimately reduce pill and nursing burden.

B73
Delirium Consultative Clinic: An Innovative Model of Care to Prevent Cascade of Problems after Delirium

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Introduction: We identified a critical gap in post-hospital care for delirium. In the current fractured health care system, the diagnosis of delirium seemed to be lost in the transition process without a structured approach towards follow up. We describe the implementation of a novel delirium clinic and provide preliminary outcomes data.

Methods: retrospective chart review of patients refered to the "Delirium Clinic" by in-patient geriatricians.

Intervention: Outpatient geriatrics consultation with a focus on memory, polypharmacy, function, goals of care, and caregiver burnout. Clinic note, an intake form, and patient/caregiver education material were developed to be embedded in electronic health record (EHR).

Results: Twenty-eight patients were referred by the inpatient geriatrics service during the 8 months' time period. Twenty-six patients were eligible and 9 (35%) were seen in the clinic. Overall mean age was 76 years and 39% were females. "Acute mental status change" was the reason for admission for more than half the patients. Post-hospital discharge, only 1 patient had notation of memory problems by primary care and 7 (36%) by home care nurses. In the clinic, 2 out of 9 (29%) patients were positive for delirium using 3D-CAM. There was a long delay from referral to be seen in the clinic (mean 159 days; range 7 to 415 days). Six-month mortality was 17% for those not seen in the clinic and 0% for those seen in the clinic. Readmission rate was high (30-day= total 19%; not seen in clinic 39% and seen in clinic 33%; 6-month= total 44%; not seen in the clinic 39% and seen in the clinic 56%). Emergency room visits in 6 months after discharge were overall 33%; 39% in not seen group; and 22% in the seen group. Interventions in the clinic included medication changes, referral to PT/OT/ST, referral to pharmacy consult, and neuropsychologist.

Discussion: We learned that cognitive assessment was not well documented at the outpatient visits. These patients had multiple hospitalizations, behavioral health diagnoses, medication changes and a cascade of medical problems. The interventions were geriatrics based (MD only) and the issues were considerably more complex to make a difference.

Conclusion: We describe a delirium consultative clinic and will further develop a delirium transitions program based on these results.

B74 Student Presentation
Assessment of Factors Related to Fall Severity in Community-Dwelling Adults in a Program of All-Inclusive Care for the Elderly

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Background: Fall risk assessment tools typically evaluate risk of falling based on risk factors such as medications, health conditions, and environmental hazards; however, few tools assess how these factors relate to fall severity. The goal of this study is to distinguish risk factors that contribute to injurious falls as defined by the National Database of Nursing Quality Indicators (NDNQI) and reported by Programs of All-Inclusive Care for the Elderly (PACE).

Methods: This longitudinal cohort study sought to identify fall risk factors in a PACE program located in Mattapan, MA. A site-specific Fall Risk Assessment Tool (FRAT) v.2 was performed at baseline and then all falls in the following 6 months were categorized as level F1 (no injury) through F5 (death) based on the NDNQI severity scale. A cumulative fall severity score was then calculated for each patient based on rate and severity of falls.

Results: The mean age of patients was 81.7 years (SD 9.9), average BMI was 27.8 (SD 6.6), and 78% were female. Statistically significant associations were found between fall severity and place of residence, cognitive impairment, and safety awareness. Patients in assisted living facilities (ALFs) had higher fall severity scores than those in nursing homes or living at home. Moderate cognitive impairment was associated with a significantly higher fall severity score compared to mild impairment; however the difference between moderate and severe cognitive impairment was not significant. There was a significantly lower fall severity score for patients who were usually aware of safety compared to those who were only sometimes or rarely aware (P=0.015). No associations were found between fall severity and medication classes although overall presence of fall-related medication was low with the exception of serotonin modulators (53% of the patients).

Conclusions: Older adults in ALFs, who have moderate cognitive impairment, or low safety awareness tend to suffer more severe falls in this PACE program. It may be prudent to focus additional resources and fall-prevention measures on this subset of patiients in order to decrease injurious falls. Additional studies to determine the impact of changes to modifiable risk factors and effective fall prevention strategies are the next steps planned for this PACE.

B75 Student Presentation
Association of Impaired Executive Function and 30 Day Hospital Readmission

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BACKGROUND: Unplanned early hospital readmissions are a public health challenge. Tools are available that identify those at increased risk of readmission, but they do not identify the potential cause of that readmission such that interventions can be targeted to the specific risk factors. We postulated that cognitive impairment, and specifically impaired executive function, would be a targetable risk factor for readmission particularly in those patients on multiple medications and managing their medications independently.

METHODS: An abbreviated version of Trail Making B test (TMBs), a measure of executive function, was administered to 704 patients over age 65 (average 75.6 yrs) prior to hospital discharge following admission for either CHF or myocardial infarction. Impaired executive function on this timed paper and pencil test was defined as a score greater than 30 seconds.

RESULTS: Of the total sample, 78% were taking >9 medications, 88% were taking one or more high risk medication, 32% reported living alone, 49% reported managing their medications independently, 60% had impaired TMBs (>30sec) and 29% had TMBs scores >60 sec. Impaired TMBs (>30sec) was associated with an increased RR of readmission within 30 days of 1.6 (1.08-2.5). With TMBs >60 sec, RR of readmission was 1.8 (1.2-2.7), and in those living alone and managing their medications independently this RR increased to 3.7 (1.4-10.1). Risk of 30 day readmission was further increased if independently managing their medications and taking >9 medications, RR 4.1 (1.2-13.2).

CONCLUSIONS: Cognitive impairment and specifically impaired executive function is extremely common, but largely unrecognized in this population. Medication errors are a common cause of hospitalization. The interaction between impaired executive function and the number of medications and self-management of medications suggests that medication errors may be driving the observed association with readmissions. TMBs is an abbreviated form of the longer Trail Making B test of executive function that is easier to administered

and can be completed in less than 90 seconds. It can therefore be readily adopted by discharge planners to identify patients who would need assistance managing their medications so that appropriate measures can be initiated at the time of discharge to address this risk.

B76
Indications for Sedative-Hypnotics in a Geriatric Primary Care Clinic and Directions for Future Discontinuation

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Background:
Benzodiazepines and other sedative-hypnotic medications have been repeatedly associated with cognitive impairment and an increase in falls and hip fractures in the geriatric population. However, benzodiazepines and other sedative-hypnotics still encompass close to 25% of inappropriate prescriptions in this population.

Methods:
Drug specific data collection was completed on the patients seen in the last six-month period in Senior's Clinic from all 14 physicians and 2 nurse practitioners. The compiled list then underwent individual chart review to identify the drug in question and indication for use. A committee comprised of 1 pharmacist, 1 nurse practitioner, 2 physicians, 1 psychologist and 1 social worker discussed and examined the chart reviewed data.

Results:
A total of 163 out of approximately 1800 patients were identified as being prescribed sedative-hypnotics in the Senior's Clinic. The average age was 80.7 years. 62 of 163 (38%) were found to be taking zolpidem and 32 of 163 (20%) were found to be taking lorazepam. 81 of 163 (50%) prescriptions were for insomnia and 52 of 163 (32%) for anxiety. Some patients in the chart review had initiated and/or completed a taper of sedative-hypnotic medication with assistance from physicians/nurse practitioners, pharmacists and our Senior's Clinic behavioral health practitioners.

Conclusions:
Given the known dangers of sedative-hypnotic medications, deprescribing has become a tool commonly used to stop these high-risk medications. In 2014, the EMPOWER trial used a brochure-based method to demonstrate that direct-to-consumer education can result in a safe and successful avenue for shared decision making and cessation of sedative-hypnotics. As identified above, the two primary indications for these medications in our population are insomnia and anxiety. With growing support of integrated behavioral health in our clinic and others, incorporating group and individual therapy aimed at the behaviors underlying the need for sedative-hypnotic medications should be assessed in the context of shared decision-making interventions for deprescribing.

B77 Student Presentation
Implementation of a Supportive Transitions of Care Program for Veterans with Serious Illness

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Background: The Coordinated Transitions of Care Program (C-TraC) improves the quality of care transitions. We adapted this program to address the needs of veterans with serious chronic illness.

Methods: The CDC's Replicating Effective Programs model was used to preserve core features of C-TraC while addressing veterans' supportive care needs through an iterative process. A nurse case manager (NCM) identified patients on the acute care service of a tertiary care VA hospital admitted with advanced cancer, renal, heart failure or lung disease, dementia, failure to thrive or stroke with functional impairment (Palliative Performance Score (PPS) ≤60). Patients receiving hospice care were excluded. In addition to providing transitional care, the NCM assessed care needs and symptoms, explored patient values, facilitated documentation of goals of care, and put needed resources in place. The NCM called the patient after discharge and made additional calls as needed.

Results: Between January 2017 and June 2018, 138 veterans with a mean age of 76 (±10.4) were enrolled. Half had a primary diagnosis of cancer, 35 (25.7%) had CHF, and 24 (17.6%) had COPD. The average PPS was 55 (±6.4). The most common symptom was insomnia (71%). The NCM reviewed goals of care and advanced directives in 100% and documented discussions with 80%. The initial consult lasted 41 (±17) minutes; the average number of phone calls during follow-up was 6.1 (±7.8). The NCM directly facilitated referrals to palliative care or hospice in 25%, VNA bridge to hospice programs in 56%, and referrals to other providers or services in 77% of patients. The NCM facilitated completion of Life Sustaining Treatment orders for 44 Veterans and advanced directives for 45. Two-thirds of patients were enrolled in hospice upon follow-up. Of the 65 veterans who died, 79% were in hospice care. The average length of stay in hospice was nearly 2 months (55.4 days).

Conclusions: Adaptation of the C-TraC model to include a supportive care component is feasible and results suggest high fidelity to program goals. Comparison of outcomes to a matched reference cohort is nearly completed.

B78 Student Presentation
Virtual Reality and Dementia: A Feasibility Study

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Background: This preliminary study aimed to explore virtual reality (VR) via wireless goggles as therapeutic recreation for people with dementia (PWD) on hospice. Specifically, we explored acceptability of VR and problems and/or benefits associated with its use in this population. There is currently no formal research published regarding use of recreational VR for PWD in the hospice setting.

Methods: Participants were a convenience sample of PWD cared for by a local hospice agency. Participants viewed a YouTube VR beach scene using Lenovo's Mirage Solo with Daydream for ≤30 minutes in the presence of the primary investigator (PI) and sometimes caregivers. The PWD could remove the goggles at any time. Pain Assessment IN Alzheimer's Disease (PAIN-AD) scores were recorded at baseline, every 5 minutes during use, and 5 minutes after headset removal. After, the PWD were asked if they enjoyed the activity and if they would do it again. The PI called the primary caregiver ≥ 3 hours later to assess for any changes from the PWD's baseline. Statistics were calculated using SAS version 9.4.

Results: Of 25 PWD (mean age 85 years; n=22 female), 12 had a Functional Assessment Staging Scale (FAST) score ≥ 7 and 5 had a FAST <7. Mean VR usage time was 12 minutes (SD 11.6 min; range 0-30 min; n=5 used VR ≤ 1 min; n=5 used VR = 30 min). Fourteen reported enjoying the VR and 12 would do it again (n=4 unable to respond verbally). Two stopped VR early due to a ≥ 2-point increase in PAIN AD score from baseline per protocol. At phone follow-up, 1 PWD was reported to have increased hallucinations and another to be more tearful. There was no statistically significant difference between dementia type and usage time or dementia severity and usage time.

Conclusions: VR use was generally safe and enjoyable in this population of PWD. However, two participants had worsened baseline behavioral and psychological symptoms of dementia (BPSD) after VR use. Future research will need a larger sample size with a control group. We hypothesize that in the right setting, VR can provide meaningful activity and enhance quality of life for PWD, and could potentially be a non-pharmacologic intervention for BPSD.

B79

The Impact Of The Annual Wellness Visit (AWV) On Cognitive Screening

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Abstract: Dementia is under-recognized in primary care settings. Benefits of early detection of dementia, proactive care, and patient-centered management are recognized in several studies (Borson 2013). Centers for Medicare & Medicaid Services introduced the AWV in 2011 to incentivize preventive care for older adults. In 2017, Montefiore Medical Center, Bronx NY implemented cognitive screening, as a required component of the AWV, and we describe its performance.

Methods: The Montefiore Medical Group (MMG) provides primary care to over 40,000 older adults in underserved neighborhoods. A template for the AWV was built into our electronic health record, EPIC. All patients that present for their AWV are asked a cognitive screening question about "difficulty with memory or confusion." Patients answering affirmatively undergo testing with the Picture Based Memory Impairment Screen (PMIS) for cognitive impairment (Verghese, 2012; Malik, 2018). The AWV cognitive screening question was piloted by licensed practical nurses in 5 MMG sites. The charts of patients with an abnormal PMIS were reviewed for demographics; new neurological and psychiatric diagnosis; and referrals to subspecialists and community-based organizations (CBOs).

Results: 5,870 AWV were completed from July 2017 – Oct 2018. Clinical staff performed the PMIS on 442 who had a positive response to the cognitive screen question. Cognitive impairment was identified in 32% (142/ 442) with PMIS < 5. Mean age of those with abnormal PMIS 80 + 9 years, 76 % female. New neurological and psychiatric diagnosis included: Dementia 52% (63/142); MCI 4% (5/142); memory loss 19% (23/142), and depression 3% (4/142). Referral to subspecialists: 11% (13/142) Geriatrics; 49% (60/142) Neurology and 39% (47/142) were referred to CBOs.

Discussion: Implementation of the AWV in a large primary care network was successful in identifying older adults with memory impairment. The PMIS was readily integrated into the workflow of the AWV. There was a 2.4% (142/5870) prevalence of an abnormal screening test in this population. Implementation of the AWV resulted in newly diagnosed dementia patients and new referrals to specialists and CBOs.

B80 Encore Presentation

The Development and Implementation of the Duke Elder Family/ Caregiver Training (DEFT) Program

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BACKGROUND: Decline in functional reserves and comorbidities complicate the recovery of older adults following a hospital discharge. Consequently, the assistance of family and friends (caregivers) while convalescing at home is needed. Many caregivers feel ill prepared to care for their loved ones at home. The aim of the project was to develop and implement a scalable and sustainable caregiver training program that is integrated in hospital discharge care

METHODS: Implementation trial of DEFT involving Duke University Hospital and Duke Regional Hospital. The DEFT provided face to face caregiver training before discharge and telephone support up to two weeks of hospital discharge. Adult caregivers of patients 55 years and above and discharging to home were eligible to receive DEFT training and support. Outcomes included caregiver preparedness and readiness for home caregiving, satisfaction towards DEFT training, and 30-day patient readmission rates.

RESULTS: The DEFT leveraged the use of EPIC/Maestro for consult from hospital providers and designed its workflow to integrate its training as part of Duke's hospital discharge process. Five graduate students from Duke School of Nursing and three geriatric nurse practitioner fellows participated in the DEFT caregiver program for course credits or rotation. In 10 months of launching, DEFT received more than 200 consults. Of these, 76 were trained. Improvements in levels of caregiver preparedness and readiness for hospital discharge were observed within 14 days of training. All caregivers who participated were either very satisfied or extremely satisfied with the DEFT training. Patients whose caregivers received DEFT had lower rate of 30-day readmissions.

CONCLUSION: The DEFT program was feasible and produced favorable preliminary outcomes. Lessons learned included optimizing training schedule and location for caregiver convenience. The use of technology for training should be considered for scalability. Cost-effectiveness analyses are in order.

B81

The Return on Investment for the Nurse-Run Medicare Annual Wellness Visit, More than Just Dollars and Cents

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Adults aged 65 and older make up over fifteen percent of the total U.S. population and over the next two decades, over 1 in 5 adults will be the age of 65 or older (2018 Senior Report). According to the American Geriatrics Society, the supply of geriatricians will not meet the needs to meet the growing population. (AGS State of Geriatric Workforce). To address this gap, the Dartmouth Centers for Health & Aging's Geriatric Workforce Enhancement Program (GWEP), has created trainings and other resources to transform primary practice towards a more team-based, geriatrics focused, integrated approach to implement the nurse-run Medicare's Annual Wellness Visit to increase practice efficiencies, revenue, and optimize quality of care for older adults.

The Return on Investment (ROI) for the nurse-run Medicare Annual Wellness Visit has significant financial benefits but the ROI goes beyond dollars and cents. Implementing the nurse-run AWV in a rural practice in Vermont showed a doubling of the AWVs performed. As demonstrated in one model, implementing a nurse-run AWV in a practice that in currently using a physician-run AWV model increases revenue by $303,312 (404%) and Relative Value Units (RVU) by 7,560 (376%) per year.

There are multiple, additional, benefits to implementing the Nurse Run Annual Wellness Visit model. There has been a noted increase in compliance with Medicare AWV protocols when run by nurses. Clinicians will often change the focus of the visit whereas nurses can ensure that the requirements of the AWV are met. There is also an observed increase in job satisfaction with both nurses and other providers. Through the AWV, nurses are able to work at the top of their license with the types of functions they are required to perform. Nurses are also able to have more variety in their daily activities, are able to connect with and across disciplines, and can further increase their own clinical skills. Additionally, providers can ease their workload by delegating the AWV to their team, can be more focused on issues that matter most to the patient increase continuity of care, and free up their time to be available for follow-up, acute, and chronic care and disease management.

B82

Addressing Acute Kidney Injury in the GIFTS Program: a Quality Improvement Project

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Background: The Geriatric Inpatient Fracture Trauma Service (GIFTS) was founded at Massachusetts General Hospital in September 2011 as a co-management model of care between orthopedics and geriatrics to address the significant morbidity and mortality associated with acute fragility fractures in older adults. Since conception, GIFTS has focused on improving quality of care while reducing medical complications. This service sees around 450 patients per year, and data has been collected to assess what our populations most common medical complications are.

METHODS: A baseline data cohort of patients seen from January 2017 to August 2018 (n=589) was reviewed and data was collected and analyzed on a spreadsheet.

RESULTS: The mean age was 80.2 years old, 75% were female and 57% were hip fractures. AKI occurred in 86 (15%) of our patients. Of these 86 patients, 24% had AKI present on admission and 76% developed AKI during the hospital stay. A majority of our patients had a history of CKD (65%) and were pre-renal on admission (57%). 64% had no fluid guidelines for the service to follow.

DISCUSSION: We feel addressing incidence of acute kidney injury is important, as studies have shown it is independently associated with increased risk of mortality, length of stay and hospital costs. At present, there is no standardized fluid management protocol, and often we hear our orthopedic and medicine colleagues are afraid of giving fluids to our frail, elderly patients. Without guidelines to follow, fluid administration is widely variable and may be inadequate based on ageism fears.

These findings represent a great opportunity for intervention with a standardized fluid management protocol in hopes of reducing AKI in our GIFTS patients. Going forward, our aim is to create and test a standardized fluid management protocol for patients in the GIFTS service with a goal of reducing incidence of AKI by 10% by April 2019. Our process improvement project is currently underway.

REFERENCES: Mehta S, ChauhanK, Patel A, et al. The prognostic importance of duration of AKI: a systematic review and meta-analysis. BMC Nephrol. 2018;19(1):91. Published 2018 Apr 19. doi:10.1186/s12882-018-0876-7

B83

Patient and Caregiver Benefit from a Comprehensive Dementia Care Program

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Background: Persons with Alzheimer's disease and other dementias require comprehensive care that spans health systems and community-based organizations. This study examined the clinical outcomes of a health system-based nurse practitioner dementia co-management program and identified subgroups who were more likely to benefit.

Methods: Observational, pre- and post-intervention study of 551 persons with dementia and their caregivers at an urban, academic medical center who had 1-year follow-up evaluations and data on clinical outcomes. Measurements included: patient Mini-Mental State Examination [MMSE], Functional Activities Questionnaire [FAQ], Cornell Scale for Depression and Dementia, Neuropsychiatric Inventory Questionnaire [NPI-Q] Severity) and caregiver (Modified Caregiver Strain Index, Patient Health Questionnaire-9, NPI-Q Distress, Dementia Burden Scale-Caregiver [DBS-CG])

Results: At year 1, persons with dementia improved on all scales except MMSE and FAQ; caregivers improved on all scales. Using validated instruments, 334/551 (61%) of patients and 300/463 (65%) of caregivers demonstrated clinical benefit based on the NPI-Q Severity and DBS-CG, respectively. When considering benefit as either patient, caregiver, or both, 392/512 (77%) demonstrated benefit. At 1 year, patients with fewer baseline behavioral and depression symptoms were more likely to maintain low behavioral symptoms (a preventive benefit) and those who had more behavioral symptoms at baseline were more likely to improve (a therapeutic benefit). Caregivers of persons who had fewer baseline behavioral and depressive symptoms or were male were more likely to maintain low caregiver burden at 1 year (preventive). Caregivers of persons who had worse baseline behavioral symptoms, had higher caregiver burden, or were male were more likely to improve (therapeutic).

Conclusions: Participation in a health system-based comprehensive dementia care program was associated with improved scores on measures of patient and caregiver symptoms. Over three-fourths of participants had either patient and/or caregiver clinical benefit. Participants with more severe symptoms and caregivers who had more symptoms of burden were more likely to have therapeuitc benefit and might be prioritized if resources are limited.

B84

Engaging the Patient to Prevent Injurious Falls in the Hospital

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Background:

Injurious falls are the most frequent cause of preventable harm in hospitalized older adults. Despite decades of efforts involving fall risk stratification and multifactorial fall prevention interventions, injurious falls continue to occur, even in hospitals with robust fall prevention best practices. Patients consistently underestimate their fall risk. The aim of this quality improvement project was to decrease injuries from falls through patient engagement and patient-centeredness.

Methods:

This multi-disciplinary quality improvement project aimed to increase patient understanding of fall risk factors and engagement in safe behavior choices. Common themes in historical falls included toileting and ambulation without staff assistance. Baseline patient surveys identified opportunities to improve knowledge and commitment to safe behaviors. The patient-centered intervention combined individualized fall risk factor education with a verbal agreement to foster a partnership between the patient and the care team in the fall prevention plan of care. The completed Fall Prevention Plan was posted in the patient room. Measures included pre/post fall data and surveys of patients and nurses on two medical and two surgical nursing units. Counterbalance measures focused on impacts on nursing workflow.

Results:

Implementation of the Fall Prevention Plan was associated with a 26% decrease in the percent of unassisted falls, a 37% decrease in falls, and a 16% decrease in falls with injury. In the pilot sample, patients' ability to verbalize fall risk factors increased by 27%. Nursing surveys revealed increases in perceptions of both the effectiveness and efficiency of fall prevention practices. Nursing staff on four diverse inpatient units have successfully incorporated the Fall Prevention Plan into daily practice.

Conclusions:

A patient-centered tool to engage patients in safe behaviors was associated with decreases in falls and fall-related injuries. Patient engagement is a promising strategy to reduce preventable harm, deliver patient-centered care, and empower patients to partner with the care team to achieve safe navigation of the hospital environment. Future study with a research design is planned to quantify the impact of this individualized patient engagement intervention on behavior commitment and fall-related outcomes.

B85

A pilot study of the effectiveness of "A Matter of Balance" Falls Prevention Workshop in reducing fall risk factors among older adults

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BACKGROUND: One in four Americans over the age of 65 fall each year. Three million older adults are treated in emergency rooms annually for fall related injuries, 800,000 patients are hospitalized, and 27,000 deaths are attributed to falls. The cost of fall injuries in 2015 was $50 billion. MetroHealth has nearly one elder per day admitted to the trauma service. Older adults who fall often become more fearful, isolated, and depressed. These factors lead to decreased mobility which increases their risk for further falls. This study aimed to reduce fall risk factors among participants through increased awareness.

METHODS: Two "Matter of Balance" falls prevention workshop series were presented to a total of 14 older adults, aged 56 – 88, during the months of Aug. and Oct. 2018. Participants were identified by the falls screen in the EPIC EMR. This program is designed to reduce fears of falling and increase activity levels. The participants met twice a week for four weeks in their respective groups. Each workshop addressed risk factors associated with falls and participants brainstormed ideas to reduce or eliminate those risk factors. Simple exercises were also introduced and practiced during five of the eight sessions which focused on increasing strength, flexibility, and balance.

RESULTS: Surveys were given to participants on the first day and the last day. After taking the class, 86% reported an increase in their ability to reduce falls with 100% stating they were "sure" or "very sure". Additionally, 43% reported an increase in their ability to build strength and 36% reported an increase in their ability to become steadier, with 93% responding "sure" or "very sure" to both questions. When asked about exercise, 71% reported they had increased activity levels over the course of the workshop with 50% reporting they were exercising three or more times a week.

CONCLUSION: After taking the "Matter of Balance" workshop series, most of the participants reported an increase in their abilities to prevent falls, increase strength, and increase activity levels. These findings indicate that this program is a valuable tool for increasing awareness among older adults on ways to reduce fall risk factors and thereby reduce falls. The 2019 ACO measure regarding falls included screening assessment and intervention. This program is an easily administered program that can be attached to a geriatric clinic.

B86

Quality Improvement Project to Decrease Potentially Inappropriate Medications in a Geriatric Primary Care Clinic.

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Background: Polypharmacy is associated with negative health outcomes in geriatric patients. Decreasing exposure to potentially inappropriate medications (PIM) in the elderly population is a challenging process.

Methods: Patients receiving care at a VA-based geriatric primary care clinic were screened by geriatric fellows for exposure to PIMs prior to their geriatric clinic appointments between September and October 2018. Patients identified with exposure to PIMs based on previous visit's medication list prompted a discussion about the indication of the PIM and, if appropriate, alternative treatment or dose reduction. Patient education materials related to PIM usage were prepared and added to binders available to the physician in the exam room. For example, if a PIM was being used for insomnia, the NIH 'A Good Night's Sleep' AgePage was given to the patient in addition to discussion around sleep hygiene. Outcomes of these conversations were recorded in a spreadsheet logging number of identified PIMs,

appropriateness of discontinuing, changes, substitutions, or discontinued PIMs, and estimated duration of intervention. Barriers faced were also recorded.

Results:

Eleven patients in the weekly half-day clinic were identified to be on a total of 19 PIMs. There was a dose reduction, discontinuation, or medication substitution for 72% of the patients who underwent physician discussion. Six (55%) of the 11 patients discontinued a PIM. Accuracy of medication list, patient apprehension of worsening symptoms, limited visit time, and active symptoms requiring continued PIM exposure were some of the identified barriers to discontinuing PIMs. Average estimated duration of pre-chart time and discussion was 22 minutes per patient.

Conclusions: There are many challenges in decreasing patients' exposure to PIMs. Deprescribing PIMs during office visits and having easy access to patient education materials related to PIM usage and alternatives can lead to decreased PIM exposure. Barriers to this intervention, such as physician time were identified, and future interventions would focus on increasing efficiency.

B87 Resident Presentation, Encore Presentation

Evaluation of Statin use in Nursing Facility Patients with Diabetes given Goals of Care

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Background: The use of statins late in life is a clinical controversy. There is concern that statins are over-utilized in older adults, given increased risk of adverse events and prolonged time-to-benefit. Goals of care can guide the optimization of medication regimens, especially when guidelines are lacking. This work aims to describe and assess statin utilization in relation to goals of care in nursing facility patients with diabetes.

Methods: A chart review was performed on patients with diabetes in a skilled nursing facility over a 12 month period. The primary endpoint was appropriate statin utilization based on goals of care. Statin use was defined as "appropriate" in patients with advanced goals of care. Statin use was considered "inappropriate" in those with limited goals of care. The Pennsylvania Orders for Life Sustaining Treatment (POLST) document was used as a surrogate marker for goals of care. Patients who indicated "do not attempt resuscitation" (DNR), "comfort measures only," and/or "limited additional interventions" on the POLST were considered to have limited goals of care. Those with "cardiopulmonary resuscitation" and/or "full treatment" had advanced goals of care.

Results: A total of 160 patients were included, under the supervision of 16 different physicians. The average age was 82 years-old and the majority were long-term-stay residents. The average Charlson Comorbidity Index was seven. Only 33 patients (20.6%) had a history of CVA/TIA or MI. The average number of medications per patient was 12. Ninety-nine patients (62%) received a statin. Of the patients with available dosing data (n=99), 41.3% (n=66) received a moderate intensity agent. Sixty-eight patients (42.5%) indicated DNR code status. For the primary outcome, the prevalence of appropriate statin utilization was 0.52 ± 0.08 [95% CI 0.44, 0.60]. The majority of patients with DNR code status remained on a statin (n=42, 61.7%).

Conclusions: We observed substantial statin utilization, even among a population of advanced-age nursing facility patients with a high comorbidity index. Statin utilization was appropriate based on goals of care in approximately 50% of patients. This highlights an opportunity to optimize medication therapy in half of this population based on goals of care, a key component of medication appropriateness in older adults. A pharmacist-led deprescribing service could potentially fill this gap in care.

B88

Increasing Completion of Advance Directives in a Safety Net Geriatrics Clinic

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Background:

In May 2018, approximately 2% of patients in our safety net health system had advance directives (AD) on file in the electronic medical record (EMR). Our inter-disciplinary team (IDT) of physicians and social workers aims to increase the percentage of patients in our primary care geriatrics clinic with AD on file in the EMR to 5% by July 1, 2019.

Methods:

We constructed a process map and used a fishbone diagram to facilitate root cause analysis of factors contributing to the low AD completion rate. We are performing iterative Plan-Do-Study-Act (PDSA) cycles to address contributing factors and tracking data on a monthly basis.

Results:

The IDT determined that a root cause is inadequate patient education about advance care planning (ACP). A survey indicated patient interest in learning about AD and willingness to learn in a group setting. Providers favored group education due to time constraints of clinic appointments.

Our first PDSA cycle began with implementation of an ACP class in June 2018. The monthly class involved a presentation by a physician and social worker. After the class, the social worker completed follow up phone calls with attendees. From June through August, a total of 16 patients attended the classes. We administered knowledge assessments before and after the class, and scores improved from an average (avg.) of 71% correct on the pre-test to 88% correct on the post-test.

In September, the IDT decided to modify the class content for the next PDSA cycle because of concerns that the health literacy level was too high for our patient population. We simplified the presentation content and replaced text with videos where possible. From September through November, a total of 15 patients attended the classes. In September and October, the avg. pre-test score was 61%, and the avg. post test score was 90%. In November, we modified the assessment to reflect the new class content. The avg. pre-test score was 58%, and the avg. post test score was also 58%.

Thus far, 5 patients reported they have completed AD, but none of them have been filed in the EMR.

Conclusions:

Implementing an ACP class has increased patient-reported AD completion at our safety net geriatrics clinic but not the number of AD filed in the EMR. Future PDSA cycles will focus on increasing awareness of the class, improving follow up, and ensuring that AD are actually filed in the EMR.

B89 Student Presentation

Quantifying Discrepancies in Two EHR-Generated Medication Lists at Hospital Discharge

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Background: Stroke care transitions remain highly fragmented in the United States, leading to poor patient and caregiver outcomes. Although medication management is a key element of transitional care, discrepancies persist. Moreover, patient safety initiatives to improve medication management largely neglect the effect of duplicate EHR documentation, which may generate discordant medication lists.

Methods: We conducted a secondary analysis of the Michigan Stroke Transitions Trial (MISTT), a pragmatic randomized controlled trial to assess a home-based case management program, alone or in combination with online resources, among stroke survivors and their caregivers. Survivors were enrolled from three unaffiliated hospitals in Michigan. We compared medication lists embedded in two documents generated at hospital discharge: 1) clinical summary intended for patients, and 2) discharge summary intended for physicians/nurses (reference list). We used a validated protocol to classify discrepancies (omission/addition, dose/frequency/route discrepancy, or substitution) among a subgroup of Medicaid beneficiaries (n=24) to pilot test our protocol and analysis.

Results: The average age of Medicaid-enrolled stroke survivors was 55.2 (range 29-74) with a mean NIH stroke scale of 5.9. Patients were discharged from the hospital with an average of 11.0 (range 2-26) medications. Overall, three patients (12.5%) had medication discrepancies, with an average of 10.3 discrepancies per patient. When comparing clinical summaries with discharge summaries, we identified 21 omission/addition discrepancies, 6 dose/frequency/route discrepancies, and 4 substitutions. Of particular concern, 38.7% of these discrepancies involved high-risk drugs, including opiates, anticoagulants, insulin, and cardiac medications.

Conclusion: Preliminary results suggest EHR-generated medication lists embedded within two unique hospital discharge documents may contain discrepancies, which often involve high-risk classes of drugs. Ongoing analysis involves the entire MISTT cohort (n=241), including Medicare beneficiaries. Future work will elucidate etiologies of these EHR-generated medication list discrepancies and identify potential solutions.

B90

Improving Care for Senior Patients: Developing the 360° Caregiving Solution to Identify and Address Unmet Social Needs

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Background: As part of a collaborative, multi-phase quality improvement study to provide comprehensive care for senior patients of a geriatric-focused medical clinic, a technology-enabled care coordination model (i.e., 360° Caregiving Solution) was developed. The goal was to identify and address unmet social needs and facilitate ongoing communication across clinical and community settings to enable seniors to age in place.

Methods: In Phase 1 a formative assessment was conducted to understand patients' needs and the processes associated with addressing needs. Phase 1 findings informed the development of 360° Caregiving Solution in Phase 2, which included creating a senior-specific social needs screener, follow-up assessments and care navigation workflows. These workflows, key data points and demographic data from the EMR were used to configure the technology-enabled care coordination platform. Extensive user testing was completed, including establishing bi-directional communication pathways across settings. After initial feasibility and testing were completed, piloting the 360° Caregiving Solution began (Phase 3; ongoing).

Results: During Phase 2, user feedback were incorporated to refine the components of the care navigation model, including modifying the social needs screener and adapting the care navigation workflows to overcome barriers and improve Phase 3 implementation. Preliminary findings from the initial 3 months imply that 360° Caregiving Solution is a feasible model to screen and provide care navigation for senior patients, where 47 out of 121 patients screened positive for an unmet social need and 18 received assistance.

Conclusions: Phase 2 culminated in the development of 360° Caregiving Solution model to address the full range of senior patients' needs using technology-enabled comprehensive care navigation. Systematically screening for unmet social needs and responding by

bridging to the community-based setting may be facilitated by technology. As Phase 3 progresses, there will be process and outcome evaluation to assess the impact on senior patients' health and well-being.

B91 Student Presentation
The Effect of Low-Frequency Vibration on Timed Up and Go Performance in Elders at High Fall Risk

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Low-frequency whole-body vibration has been found to improve muscle function and proprioception; however, the effect of localized vibration in elders at high fall risk has not been explored. We investigated the effect of various low vibrational frequencies in elders at low risk(LR) and high risk(HR) of falling while performing an instrumented Timed Up and Go (iTUG) test.

Participants were recruited from the NIH-funded Arizona Frailty Cohort of community-dwelling adults ≥65 and classified as low risk(LR) or high risk (HR) using the STEADI. A low-frequency vibratory device (programmed to 30Hz and 40Hz) was positioned on each calf along with two motion sensors. The iTUG was performed three times (no-vibration, 30Hz, and 40Hz vibration): standing from a seated position (STS1), walking 3-meters (W1), turning (T1), walking back (W2), turning (T2), and siting to a seated position (STS2). The mean percent difference in iTUG component duration between vibration and no vibration were analyzed using repeated measures ANOVAs.

Ten LR consisted of 3 males and 7 females aged 72.9±2.8 years. Ten HR consisted of 3 males and 7 females adults aged 83.6±9.6 years who reported 3.0±4.6 falls within the prior year. The difference in duration between LR and HR was significant for T1 and the combination of T2 with STS2 tasks (p=0.0203 and p=0.0394, respectively). HR participants had improved performance, a decrease in task duration, for T1 (-17% with 30Hz and -13% with 40Hz) and the combined task of T2 with STS2 (-2% with 30Hz and -32% with 40Hz). Overall, vibration decreased performance in LR (9% with 30Hz and 16% with 40Hz) for T1 and the combination of T2 with STS2 (13% with 30Hz and 18% with 40Hz). There was no interaction effect between frequency and group (p>0.5355)

The vibratory effect differed between low and high fall risk individuals during the complex tasks of turning and sitting. This indicates vibration affects high fall risk individuals differently and may improve lower-extremity proprioception, benefiting them in performing daily activities of living. By increasing the performance of lower extremity sensory reflexive feedback loop, vibration may help coordinate complex tasks and reduce the associated risk of falling.

B92
Polypharmacy and dietary supplement use in older women: don't ask, don't tell.

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Background: The concurrent use of two or more dietary supplements (DS) with prescription medications, is prevalent among older women. This population, with multiple co- existing chronic diseases, also experience complex polypharmacy.

The rationale for this study was to assess the prevalence and patterns of DS use and concurrent polypharmacy among women 60 years and older and the risk for drug-supplement interactions.

Methods: This cohort included women 60 year and older, patients at Physicians at Sugar Creek whose physician requested a complete list of dietary supplements as part of their routine care. We assessed the prevalence and patterns of supplement use in those were using four or more prescription medications. Study reviewed by IRB.

Results: 300 women completed a DS inventory, the prevalence for concurrent use of four or more prescription drugs and two or more DS was 74%. Four or more DS were used by 43.7% of this group. Multivitamins were used by 46.7%, calcium and vitamin D use was reported as 42% and 45% respectively. Other DS were reported as; magnesium 9%, turmeric 10 %, glucosamine and bone supplement 12.2%, vitamin B12 19 %, biotin 11%, vitamin C 15%, vitamin E 7%, omega 3's 13% and fish oil 11%. The majority were self- prescribed and not previously disclosed to the physician. The most common prescribed medications were antihypertensive, thyroid medication and statin therapy. Most common risks observed were: magnesium use in the setting kidney disease, vitamin E use with risk for heart failure, biotin use with potential for interference with cardiac troponins and thyroid and other laboratory tests.

Discussion: The prevalence of concurrent prescription drug and DS are substantial. By educating patients nonjudgmentally on the importance of discussing DS we overcome the most common reasons for non-disclosure "my doctor didn't ask" and the patient not knowing it was important to mention.

Maher R, Hanlon J, Hajjar E. Clinical consequences of polypharmacy in elderly. *Expert Opin Drug Saf*. 2014; 13(1):57-65.

Clarke TC, Black LI, Stussman BA, Barnes PM N, R.L.

Trends in the use of complementary health approaches among adults: United States, 2002–2012. *Natl Health Stat Report*. Feb 2015; National Center for Health Statistics (Number 79):1-16.

Manson JE, Bassuk SS. Vitamin and Mineral Supplements What Clinicians Need to Know. *JAMA*. 2018; 319(9):859–860.

B93
Instrumented Trail-Making Task to Identify Cognitive-Motor Impairment and Assess Cognitive Frailty

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Practical tools which can be quickly administered are needed for measuring subtle changes in cognitive-motor performance over time. Frailty together with cognitive impairment, or "cognitive frailty", are shown to be a strong and independent predictor of cognitive decline over time. In this study, we examined the efficiency of a new tool we designed called instrumented trail-making task (iTMT) platform in identifying cognitive-motor impairment in older adults.

Forty-two older adults (age = 75 ± 10 years, BMI = 27 ± 5 kg/m^2, female = 40%) were recruited. Using Montreal Cognitive Assessment, 15 subjects were classified as cognitive-normal and 27 were classified as cognitive-impaired. Using Fried Frailty Criteria, 13 subject were classified as robust and 29 were classified as non-robust (pre-frail and frail). In addition, 12 young-healthy subjects (age = 27 ± 5 years, BMI = 25 ± 4 kg/m^2, female = 33%) were recruited to establish a healthy benchmark. Subjects completed the iTMT test, using an ankle-worn sensor, which transforms ankle motion into navigation of a computer cursor. The iTMT test included reaching five indexed target circles (including numbers 1 to 3 and letters A&B placed in random order) on the computer screen by rotating the ankle joint while standing. Test completion time, as well as ankle rotation velocity and power generated during the test were assessed.

Averagely, subjects with cognitive impairment spent significantly more time to complete the iTMT test than cognitive normal subjects ($p = 0.018$, *Cohen's d* effect size = 0.77) and young-healthy controls ($p = 0.002$, $d = 1.23$). Compared with young-healthy controls, the cognitive normal group spent more time to complete the iTMT test, but the difference didn't reach statistical significance. Both ankle rotation velocity and power generated during the iTMT test were significantly reduced in the non-robust group when compared with the robust group and young-healthy group. Both parameters were efficient to discriminate between the three groups ($p < 0.050$, $d = 0.94$-2.24).

This study demonstrated the feasibility and efficacy of the iTMT platform with promising results in identifying cognitive-motor impairment and potential application in assessing cognitive frailty. The proposed platform could be also used as an alternative to dual task walking test, where gait assessment may not be practical. Future studies need to confirm these observations in larger samples.

B94
Prevalence of social frailty and its association with physical frailty and disability in community-dwelling older adults: Aging Study of PyeongChang Rural Area

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Background: We aimed to evaluate the prevalence of social frailty and its association with physical frailty, geriatric syndromes, and disability in community-dwelling older adults. **Methods:** We conducted a cross-sectional analysis of 408 community-dwelling older adults (mean age, 75 years; 58% women) in the Aging Study of PyeongChang Rural Area. A 5-item social frailty index was administered (range: 0-5); 1) going out less frequently; 2) rarely visiting the homes of friends; 3) feeling unhelpful to friends and family; 4) being alone; and 5) not talking with someone every day. Social frailty was defined as ≥2 positive responses. Physical frailty was assessed according to the Cardiovascular Health Study (CHS) frailty phenotype criteria. We used logistic regression to examine whether social frailty can identify older adults with activity-of-daily living (ADL) disability, independently of age, sex, multimorbidity, and physical frailty. **Results:** Social frailty was present in 14% of men and 25% of women and only moderately correlated with physical frailty (Spearman correlation = 0.385; p<0.001). Compared with social frailty, physical frailty was more strongly correlated with cognitive impairment, depressed mood, sarcopenia, dismobility, and malnutrition risk. Nonetheless, social frailty (odds ratio, 2.16; 95% confidence interval, 1.20-3.89) was independently associated with ADL disability. The predictive power for ADL disability was maximized by using both frailty indices (C statistic 0.73) compared with either frailty index alone (C statistic: 0.71 for social frailty and 0.68 for physical frailty). **Conclusions:** A 5-item social frailty index can identify older adults with disability who are not identified with physical frailty alone.

B95
Adaptive Behavior Assessment and Intervention Tool (ABAIT)

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Background: Behaviors and psychological symptoms of dementia (BPSD) are problematic to caregivers. The Adaptive Behavior Assessment and Intervention Tool (ABAIT) is a BPSD management algorithm and personalized intervention program on an electronic platform that learns and suggests what interventions have worked for a given older adult with dementia.

Methods: Staff of a 120-bed nursing home participated in a needs survey, and an educational module that provides staff with information needed to respond to BPSD.

On a 16-bed wing, front-line staff piloted ABAIT by gathering data and entering meaningful intervention ideas at the time of crisis situations. The tool was rolled out over 8 months and staff were surveyed before and after the implementation.

In addition to qualitative survey results, minimum data set (MDS) data were compared with the same 8-month period from the previous year.

Results: Compared to the year before, significantly less "as needed" antipsychotic and psychoactive medications were used 929 vs. 445 (rate ratio (RR)-0.102 (-0.082 to -0.12)) during the intervention phase, and fewer psychoactive meds 756 vs. 339 (RR -0.114 (-0.090 to -0.14)). Other MDS reported data, such as falls, resident to resident altercations, and one on one staffing needs were no different.

Although some staff reported no benefit of the software in qualitative survey results, use of the platform increased over time, including 6-months post intervention, and the lead nurse reported improved problem-solving regarding behaviors in staff and dedication to the platform from early adopters.

Conclusion: ABAIT has been shown to reduce the need for antipsychotic medication use and has the potential to improve the quality of life of caregivers and older adults with BPSD.

B96
Potential Inappropriate Medication(s) (PIM) in Frail Older Adults in the Community

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Background: The Institute of Healthcare Improvement (IHI) is leading an Age Friendly Health Systems collaborative which has identified 4 essential elements of an Age-Friendly Health System known as the 4M's: What Matters Most, Medications, Mentation and Mobility. Baystate Health's HRSA supported Geriatrics Workforce Enhancement Program (GWEP) developed a new co-management approach using a "Geri-Pal" Interprofessional team (IPT) to improve quality of life for older adults in the community. These patients are at risk for polypharmacy; a key goal of this program is to identify and decrease polypharmacy and PIMs.

Method: Community Health Center NextGen ACO patients are referred to IPT, or identified as high risk. The RN and clinical pharmacist identify targeted meds defined by IHI (benzodiazepines, opioids, anticholinergics, OTC sedative/sleep medication, muscle relaxants, tricyclic antidepressants, and antipsychotics) and PIMs listed in the 2015 AGS Beers Criteria Pocket Guide Table 1. Medication reconciliations (MR) are done using actual drugs in the home, patients are educated on side effects (SE) of PIMs, concerns are discussed at weekly IPT meetings, recommendations are made to Primary Care Provider (PCP), and PIMs are tapered or discontinued (d/c) as appropriate, if patients and PCPs agree. Progress in deprescribing is reevaluated at subsequent visits.

Results: Since August 2018, PIMs were identified for 81 clients seen by the IPT. 58% have one or more PIM on their medication list. Specifically, 41% have 1 PIM, 43% have 2 PIMs, 9% have 3 PIMs, and 7% have 4 PIMs. 37% of all clients seen were receiving one or more IHI targeted medication.

Conclusion: Polypharmacy and use of PIMs occur in a majority of older adults seen by our IPT. Our model of care demonstrates the importance of comprehensive assessment especially in frail older adults. Studies have shown an increasing numbers of older adults are evaluated in the emergency department for conditions related to drug SEs. Therefore, medication assessment is critical given the need to identify potential SEs and prevent hospitalizations. Our IPT approach facilitates collaboration with the PCP and patient allowing for education and facilitates deprescribing of PIMs.

B97

Implementation of Patient Priorities Care (PPC) within a VA Geriatrics Clinic

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BACKGROUND

Patient Priorities Care (PPC) is an approach to decision-making for older adults with multiple chronic conditions (MCC). PPC trains facilitators to have structured conversations with patients to identify their priorities (the outcomes that matter most given what care they are willing/able to do or receive). Clinicians then align care to achieve patient priorities rather than focusing on multiple single-disease guidelines. We piloted PPC in a VA geriatrics clinic and compared it to usual care (UC) for multimorbid adults.

METHODS

This retrospective cohort study (n=30 PPC, 30 UC) describes changes made by clinicians after Veterans with MCC had conversations with PPC facilitators in a VA geriatric clinic. UC Veterans were matched by prognosis, same primary clinician, and visit timeframe. Coders used a standardized rubric to assess documented care within medical records. Changes to care examined include medications added/removed, referrals made/avoided, self-care recommendations, and recommendations for social engagement.

RESULTS

Although PPC and UC patients were seen by the same clinicians, patients receiving PPC had fewer added medications (mean difference -.43, t(58)=-1.99, *p*=.05); more unnecessary medications removed (mean difference .43, t(58)=2.19, *p*=.03); received more recommendations for self-care aligned with priorities (mean difference .32, t(57)=2.14, *p*=.03); received more recommended consultations with desired care, including podiatry, occupational therapy, home health care, transportation, and dermatology (mean difference .50, t(58)=2.06, *p*=.04), and more recommendations for care and services to facilitate social interactions (93% versus 0, *p*<.0001 Fisher's Exact Test).

CONCLUSIONS

PPC produced documented changes in care that better align with patient priorities within the routine care workflow of a busy geriatrics clinic. Our results provide initial evidence that structured priorities conversations can change the way clinicians provide care for older adults with MCC.

B98 Student Presentation

Impact of Radiographic and Surgical Delay on Hip Fracture Outcomes in the Elderly

C. V. Hannan, B. Y. Shi, J. M. Jang, U. Srikumaran. *Johns Hopkins, Columbia, MD.*

Background

340,000 hip fractures occur annually in the United States, costing the healthcare system an estimated $12 billion. Though recent studies have identified 24 hours as an inflection point for optimal outcomes, the appropriate wait time for hip fracture surgery remains controversial. Very few studies have analyzed the effect of surgical delay on postoperative opioid requirement. In this single center retrospective study, we hypothesized that patients treated more efficiently in the emergency department would enjoy shorter hospital stays, consume less pain medication, and demonstrate lower mortality.

Methods

We conducted a retrospective analysis of 513 consecutive patients at least 60 years old who received surgical intervention for low energy hip fractures from 2015 to 2017. Patients were divided into cohorts based on time from presentation to surgery as well as time to 1st radiograph. Outcomes measured included opioid requirement, length of stay, and 30 day and 1 year mortality. After unadjusted analyses to compare outcomes were performed, logistic regressions controlling for sex, age, body mass index, Charlson Comorbidity Index, day of week, and procedure type were subsequently performed.

Results

The overall 30 day and 1 year mortality rates were 3.5% and 15.4%, respectively. Surgery beyond 36 hours was associated with higher odds of 30 day (OR 13.5, p=0.034) and 1 year mortality (OR 4.6, p=0.006) as well as longer length of stay (154 vs. 121 hours, p<0.001). Surgery beyond 12 hours was associated with an increased opioid requirement of 9.6 morphine equivalents (p=0.035). Increased time to first radiograph, increased age, and need for total hip arthroplasty were significantly associated with increased surgical delay.

Conclusions

Early radiographic evaluation is associated with earlier surgical fixation of hip fractures, supporting the adoption of multidisciplinary streamed care pathways. Patients may enjoy better short-term outcomes if care teams aim to reduce wait times to 12 hours. This study found no difference in mortality for wait times up to 36 hours.

Patient Outcomes

Time to Surgery	N	Mean Time to 1st hip XR (hrs)	30 Day Mortality Rate (%)	1 Year Mortality Rate (%)	24 Hr Post Op Morphine eq. used	Total Morphine Equivalents used	Length of Stay (hrs)
Within 12 hours	26	1.2	3.8	11.5	10.9*	21.3	122
12 to 24 hours	142	1.8	2.8	12.7	19.0	34.2	124
24 to 36 hours	173	1.7	1.2*	11	14.3	32.4	121
36 to 48 hours	69	2.1	5.8	23.2	15.2	37.6	154
48 to 60 hours	55	1.7	0	16.4	18.6	48.1	162
More than 60 hours	48	2.2	14.6	29.2	17.3	53.5	274

B99

Developing Quality Measures for Seriously Ill Adults

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Background: Attention to serious illness care has grown in recent years, driven by pressure to manage health costs, and awareness that patient goals and the care they receive are often misaligned. This attention has spurred calls for person-centered serious illness care measures. This pilot study seeks to facilitate the development of such measures by examining the feasibility of implementing two approaches addressing preferences and individualized goals: structured serious illness conversations (SIC) and goal attainment scaling (GS).

Methods: Eleven diverse U.S. sites serving seriously ill individuals participated in a pilot to implement structured SIC or conduct GS. The eleven sites engaged 197 seriously ill adults, 18 years or older, in SIC and/or GS. Sites received training and submitted data in 2018 on the information elicited during SIC and GS encounters, including preferences, individualized goals and encounter details.

Results: Study participants were on average 74 years of age. The majority were female (50.3%), White (67.0%), English-speaking (95.9%), had Medicare (74.1%) and in the Northeast (45.7%) or South (24.9%) census region. Participants reported an average of 3 chronic conditions; most had a cardiac condition (52.3%).

Overall, 179 individuals had a SIC encounter and 153 had a GS encounter. Most had a home (versus phone or other) encounter (62.6% SIC; 63.4% GS).

Among individuals with a SIC encounter, 93.3% had their values assessed; about two-thirds (64.2%) reported patient-provider concordance on information-sharing preferences (i.e., patient wanted information on their condition, provider shared it; patient did not want information, provider did not share), and on perceptions of their

condition (64.2%). Among those with a GS encounter, most (73.9%) specified an improvement (versus maintenance) goal, established next steps (85.6%), and had GS details documented (83.0%). Half of providers shared GS details with patients (51.6%). Patients and providers both rated their goal difficulty as 2, on a 0-3 scale (3 being most difficult), but patient-provider concordance on ratings occurred in only 36.6% of cases.

Conclusions: Findings suggest that sites can implement SIC and GS with seriously ill adults, but results revealed gaps – especially in information-sharing. Future work will examine the impact of SIC and GS on health outcomes.

B100
Implementing a geriatric fracture program within a complex environment

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Background:

Geriatric-orthopaedic comanagement models have been demonstrated to improve patient outcomes. The Cedars-Sinai Geriatric Fracture Program (GFP) was developed through collaboration among Orthopaedics, Geriatrics, and the Inpatient Specialty Program (ISP), a dedicated hospitalist group. Cedars-Sinai is an academic medical center with a pluralistic medical staff that includes faculty, several hospitalist groups, and private practitioners. The GFP was introduced in July 2018 as a quality improvement pilot to provide standardized treatment for geriatric fracture patients. The pilot began with the ISP group, with the intention of expanding the GFP to all patients if it proves successful. This analysis evaluates the preliminary impact of the GFP on time-to-surgery (TTS) and length of stay (LOS).

Methods:

A multidisciplinary team was created by adding a geriatric Nurse Practitioner (NP) and consulting geriatrician, who provided training for ISP physicians and nurses on a dedicated inpatient orthopaedic unit. Standardized GFP clinician documentation templates and checklists based on NSQIP and AGS best practice guidelines were implemented in the Epic EHR. The NP rounds with the hospitalists to ensure fidelity to the GFP workflow.

Results are based on outcomes for patients age $\geq$ 65 admitted to the hospital for fracture from 7/1/2018 – 9/30/2018. Patients who would have been co-managed by the same faculty surgeons and ISP were admitted to the multidisciplinary GFP team (n = 42). The comparison group is all other patients who were admitted by other hospitalist groups and private physicians during the same period (n = 91). The Wilcoxon Rank-Sum test was used to compare TTS and LOS between the two patient groups.

Results:

A nearly significant decrease in median TTS with GFP (19.3 vs 23.3 hours, p=0.053) and a trend toward decreased median LOS (4.0 vs. 5.0 days, p=.079) was observed.

Conclusion:

The Cedars-Sinai GFP pilot shows potential for multidisciplinary team management with participants trained in best practice for geriatric perioperative care model to decrease time to surgery and length of stay, in a complex health system. Next steps will include measuring adherence to a newly developed delirium protocol, delirium incidence, 30-day readmissions, and post-discharge follow-up with a geriatrician for bone health assessment, as well as extension of the model to additional patients.

B101 Resident Presentation
Adverse events following endoscopic retrograde cholangiopancreatography (ERCP) in the elderly: A tertiary center experience

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Background: ERCP is a relatively safe procedure used for both diagnosis and treatment of pancreaticobiliary-tract diseases. Rare but serious complications following ERCP include bleeding, perforation and death. Our objective was to determine the incidence rates of specific adverse events following ERCP, with a special focus on the elderly.

Methods: Data were prospectively entered into a database of 4433 ERCP's over 17 years at an academic referral center. We retrieved 1960 ERCPs performed in the elderly (>65 years). We analyzed the database for post-ERCP complications such as bleeding, pancreatitis, infection, perforation and death. Subsequently we compared the incidence rates of adverse events between patients >65 years(elderly) and those <65 years.

Results: Incidence rates of adverse events in elderly were as follows: perforation 0.3%, pancreatitis 0.8%, bleeding 1.3%, cholangitis 0.04% and death 0.2%. Comparison of the incidence rates between elderly and those <65 years is shown in table 1. The incidence of bleeding, perforation, cholangitis, and death were similar in both groups. Elderly patients had lower rates of pancreatitis compared to those <65 (0.8% v/s 2.7% p=0.0001).

Conclusions: ERCP is a safe procedure in the elderly and overall risk of adverse events is low. Bleeding is the most common adverse event following ERCP. Although rare, serious complications such as death following ERCP are more likely to occur in the elderly. Interestingly post ERCP pancreatitis is less common in the elderly when compared to those <65 years, this could be due to decreased ability of the elderly to mount an immune response. Physicians should be cognizant of these rare but potential post-ERCP complications in the elderly. Our data combined with previous studies can be useful in discussing the risks and benefits before pursuing the procedure.

Table 1:

	≥65 years (n=1960)	<65 years (n=2473)	p value (significant = <0.05)
Death	*4 (0.2%)	0 (0%)	-
Perforation	7 (0.3%)	8 (0.3%)	0.84
Cholangitis	9 (0.4%)	14 (0.6%)	0.62
Pancreatitis	17 (0.8%)	67 (2.7%)	0.0001
Bleeding	26 (1.3%)	25 (1.2%)	0.32

* Number of adverse events (incidence rate)

B102 Student Presentation
Evaluation of a Pharmacist-Driven Intervention to Reduce Deliriogenic Medication Use in a Health-System Wide Delirium Reduction Pathway

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Background: Pharmacists have an important role in recommending safer medication use in patients at risk for delirium. We aimed to examine the beliefs and attitudes of pharmacists and providers regarding the current pharmacist-driven intervention to reduce deliriogenic medication use in a health-system wide delirium reduction pathway.

Methods: Online surveys using the Likert scale were administered to a randomly selected group of pharmacists, and providers to assess their beliefs about the effectiveness and personal burden of the workflow to reduce deliriogenic medication administration. This workflow includes a one-time medication review by pharmacists with recommendations written in a consult note. In addition, chart review was done to determine if pharmacy recommendations were implemented.

Results: Fourteen pharmacists and twenty-three providers were surveyed and we found different beliefs about the current workflow. 29% of pharmacists and 62% of providers agreed the current delirium prevention system helps reduce use of deliriogenic medications. 86% of providers agreed that pharmacist recommendations were valuable to reduce delirium, but only 44% of pharmacists believed that providers followed their requests to change medications. However, in a random sampling of 76 chart reviews, 83% of recommended changes were made by the provider.

Conclusion: Our study revealed that pharmacists at our institution may be less confident in their role of the current delirium reduction pathway while the providers they work with are quite likely to trust and implement their recommendations. The data will be used to redesign the pharmacy workflow using increased education and protocols.

B103 Resident Presentation
Acceptance Rates and Sustainability of Pharmacist Recommendations for Short-Stay Veterans
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Background: The prevalence of polypharmacy and inappropriate prescribing in older adults has increased with the growing geriatric population. Polypharmacy contributes to increased risk of adverse drug events (ADEs), drug interactions, and poor medication adherence. Although literature has demonstrated reduced incidence of ADEs and hospital readmissions with implementation of pharmacist recommendations, the acceptance rate varies. The purpose of this quality improvement initiative was to examine the acceptance rates of pharmacy recommendations at the South Texas Veterans Health Care System Community Living Centers (CLCs), and the sustainability of those recommendations following discharge.

Methods: A retrospective chart review was conducted for veterans admitted to the CLC between January 2017 and December 2017. Participants were excluded if the CLC stay was < 2 weeks or > 90 days, and if patient was admitted for hospice. Acceptance rates were determined through review of the medical record. Sustainability of recommendations was determined through review of primary care physician notes within 6 months post-CLC discharge. Other information collected included age, sex, number of medications at admission and discharge, and category of recommendations made.

Results: A total of 48 patients met inclusion. Mean age was 66 years (SD±11.7) and 96% were male. Of 320 recommendations made by pharmacists, 85.6% were accepted. Most recommendations made were in the following categories: vitamin deficiency (19.1%), cardiology (18.1%), pain (12.8%), and gastrointestinal (11.9%). Only 28 patients had follow up data for analysis with 46.4% having all, 35.7% having some, and 7.1% having no recommendations continued. Additionally 10.7% had recommendations that did not require continuation.

Conclusions: Although most recommendations made by pharmacists were accepted and continued, there is still room for improvement. Based on these initial results, we conclude a larger sample is needed to provide a more accurate representation of provider acceptance rates and sustainability. Information collected will be used to provide education on how the interdisciplinary team can better collaborate to optimize patient care.

B104
A New Approach to Dementia Care: Cognitive Consults Integrated within the Primary Care Practice
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Background: A new case of dementia is diagnosed worldwide every seven seconds and management of a spectrum of cognitive disorders has fallen under the purview of primary care providers (PCP). Several barriers impact the delivery of dementia care in the community setting, including lack of time and confidence with management. Access to specialty clinics is limited; there is a need to develop a high-value model of dementia care into primary care settings.

Methods: To address this gap, Geriatric Medicine fellows embarked on a multi-phase quality improvement (QI) project. A needs assessment survey of PCPs (n=63) was conducted. In response, a cognitive consult service was developed and integrated into the primary care setting. The consultations were performed in clinic or home. Utilizing rapid cycle change, we created a standard template of tools in line with both American Academy of Neurology and Alzheimer's Association dementia management quality measures. CMS code 99483 for Cognitive Assessment and Care Planning Services was utilized.

Results: In the needs assessment survey, PCPs were asked to rate their confidence in several domains. Forty percent reported seeing patients with cognitive impairment at least weekly. Low confidence was found in making the diagnosis (65%) and referral to community resources (73%). PCPs indicated high importance for clarifying diagnosis (55%) and assistance with behaviors (73%). Participant comments called for better access to community resources, family support, and home visits.

Twenty-seven evaluations were completed, 78% of which were in the office setting. Formal cognitive testing was performed in 26 patients (96%), measurement of ADLs was recorded in 25 (93%), depression screening in 21 (77%), safety checklist in 23 (85%). The Neuropsychiatric Inventory-Questionnaire was recorded in 23 (85%). Nineteen patients (70%) were diagnosed with dementia; 9 had a prior diagnosis, and 10 were made during the visit. Pharmacotherapy for dementia was recommended in 9/19 (47%).

Conclusions: Our fellowship program successfully integrated a cognitive assessment service in the primary care setting. We have several opportunities for measurable advancement. In the future, we will continue with process improvements to create a standardized, sustainable model of care where cognitive evaluations are embedded with or performed by the PCP in the community.

B105
Using an Evidence-Based Order Set for Seniors with COPD in Skilled Nursing Facilities
K. N. Schroeder. *Population Health, Park Nicollet, St. Louis Park, MN.*

Background: Seniors with Chronic Obstructive Pulmonary Disease (COPD) often have multiple comorbidities which contribute to the complexity of their condition and often lead to high utilization of hospital services. Park Nicollet's Next Generation Accountable Care Organization (NGACO) implemented a new intervention using evidence-based COPD guidelines in an order for patients transferring from their hospital to a Skilled Nursing Facility (SNF) to test whether this would reduce potentially avoidable Emergency Room (ER) visits and hospital readmissions for these patients[*].

Methods: We implemented a COPD order set for use when patients transfer from a hospital to a SNF. The objective was to have clear evidence-based orders for SNF clinicians to follow that are specific to identifying early warning signs and preventing an escalation of respiratory symptoms that might otherwise lead the patient back to the ER or hospital. A retrospective utilization review was done

to evaluate participants' ER visits and readmissions within 7 days of the start of the intervention. Providers and SNF nurses using the order set were also surveyed to gather feedback for Plan-Do-Study-Act cycle testing, which informed iterative improvements on the intervention.

Results: The SNF order set was used with 52 seniors with COPD between 6-1-2018 and 11-15-2018. Of those patients, 0 were readmitted to the original discharging hospital within 7 days. Three patients (5.7%) returned to the ED within 7 days, however, 2 of these 3 patients were evaluated for non-respiratory conditions. 100% of surveyed SNF nurses agreed or strongly agreed that the COPD order set was helpful. Staff indicated that the order sets were particularly helpful due to the challenges they face with frequent staff turnover. Also, 80% of hospitalists using the order set provided favorable responses.

Conclusions: Clear, diagnosis-specific order sets can positively impact the care for patient's symptom management when transitioned to a SNF and reduce the risk of inappropriate escalation of symptoms and potential higher use of expensive resources. The COPD order set was implemented was implemented with minimal cost. We will continue to evaluate the effectiveness of this intervention through surveys and data collection, as well as analysis of NGACO full claims data for the ACO patients engaged.

B106
Increasing Availability of Tai Chi to Veterans Through a Train the Trainer Course

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Background

A collaborative team was formed to develop a multi-component Tai Chi (TC) program for Veterans. To initiate the program, a 5-week (32 hours) train the trainer course was led by a master TC trainer. Upon completion of the course requirements, certification to teach TC required learners to pass a written exam and a mock TC class demonstration. The purpose of this project was to evaluate how well this course met learners' needs and determine if it was effective in making TC more available to Veterans.

Methods

Learners completed course evaluations after TC instructor certification and three months later. The first evaluation included questions on self-efficacies in teaching, previous exercise and TC experience, personal effects, plans and perceived barriers for teaching TC. The follow-up evaluation asked open-ended questions regarding the respondent's experience since certification and what barriers existed if not yet teaching.

Results

Fifteen employee volunteers enrolled in and completed the course. Learners were mostly white (67%) females (67%) with a median age of 50 years. All learners agreed that the training provided the skills, materials and confidence to lead TC classes, indicating high self-efficacy. Although 73% had regularly participated in vigorous exercise prior to attending the TC classes, none had previous TC experience. Most (93%) indicated experiencing positive health benefits from the training with no negative effects. All stated they would begin teaching TC within 3 months. Perceived barriers were class space issues (33%), insufficient leadership support (20%), work scheduling conflicts (20%) and lack of willingness/motivation of Veterans to participate (13%).

The 3-month follow up indicated that ten (67%) were teaching Veteran classes including more than 150 Veterans to date. For those not teaching, barriers included lack of class space (40%), conflict with work schedule (20%) and lack of leadership support (40%).

Conclusions

Overall, learners indicated their needs were met and they felt prepared to teach TC classes, despite being inexperienced with TC. The course was successful with 67% of new instructors teaching TC to Veterans.

B107
If a tree falls in the forest: Improving communication of falls in long-term care (LTC)

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Background: Communication between physicians and staff in the LTC setting is often burdensome and inefficient. A prior study of LTC residents followed for one year reported an average of nearly 50 phone calls per resident per year and nearly one-quarter of the calls resulted in no new orders. Many calls have been shown to occur after hours, with falls accounting for a large percentage of reported events. This fellow-led quality improvement project aimed to first determine and then reduce the number of fall-related calls from LTC staff to the on-call physician.

Methods: Data were collected regarding call characteristics. Through use of a Pareto chart, we determined that resident falls were the most common reason for physician-staff communication. A falls algorithm was subsequently created to help LTC staff determine which falls required immediate verbal contact with the on-call physician and which required only an informational page (no direct verbal contact needed). The algorithm was piloted during the 11pm-7am shift at one LTC facility where the Director of Nursing and the night charge nurse were educated on the use of the algorithm.

Results: Over a four-week period, one LTC facility accounted for 31% of all calls (32/102). Non-injurious falls that otherwise required no intervention accounted for 25% of the calls from this facility (8/32). This was followed by change in clinical condition at 22% (7/32) and routine lab results at 16% (5/32). The falls algorithm was initially well-received by the facility leadership, however the algorithm was not followed correctly due to varying knowledge by the charge and changing primary nurses. Further education regarding the algorithm and its implementation is in progress; and other methods of influence will be employed.

Conclusion: Non-injurious falls are common in the LTC setting and often lead to non-value-added calls. Interdisciplinary teams can develop and implement a falls algorithm with the goal of optimizing communication regarding non-injurious falls. Applying quality improvement principles (i.e. Pareto chart, stakeholder input into algorithm, piloting, Plan-do-study-act cycles) and improving motivation and ability at the personal, social, and system level can change behavior and improve efficiency.

B108
Advanced Practice Nursing Visits to Address Polypharmacy and Medication-Related Problems in Older Adults

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BACKGROUND:

Older adults are at particularly high risk for medication-related adverse events. Older adults tend to have more comorbidities and see more specialists, often resulting in high rates of polypharmacy. Furthermore, age-related changes in pharmacodynamics and pharmacokinetics result in an increased risk for serious adverse events. We sought to implement a quality improvement project to address polypharmacy and medication-related problems in older adults.

METHODS:

Primary care geriatricians refer patients for a Polypharmacy in Late Life (PILL) visit to an Advanced Practice Nurse (APN) who

specializes in geriatrics as an ad hoc consult or upon receiving a best practice alert trigger if the patient is on 12 or more medications, there is concern for medication nonadherence, or patients are on potentially inappropriate medications. PILL visits involve a brown bag medication review, assessment of patients' ability to manage medications, and assessment for several medication-related problems such as discrepancies, high-risk medications, and inappropriate medications. APNs assess each medication regimen for complexity and make changes to improve simplicity and safety of the medication regimen whenever possible.

RESULTS:

Seventy-six PILL visits were performed over 2.5 years. Patients seen had a mean age of 79.1, were taking an average of 13.7 medications, and took medications a mean of 2.8 times a day. The majority of patients seen used a pillbox (73%), managed their own medications (55%), and admitted to experiencing side effects (53%) and making mistakes with their medications (51%). Thirty percent found the cost of their medications burdensome. The most common medication-related problems found in PILL visits were high-risk medications and drugs without an indication. Other medication-related problems included drugs on the Beers Criteria, anticholinergics, medications causing adverse effects, and untreated or undertreated indications. Medication discrepancies were found for 77% of patients, with a median of 2.5 discrepancies per patient. APNs found that the medication regimen could be simplified in 76% of patients, and they made changes to patients' medication regimens in 98% of visits.

CONCLUSIONS:

Geriatric APN PILL visits are extremely valuable to identify and resolve medication discrepancies in older adults and to identify opportunities to improve the simplicity and safety of medication regimes in older adults.

B109

Frail elderly patients: is a different approach required to reduce readmission?

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Background: Early readmissions of elderly patients after an episode of hospital care are common and constitute a crucial patient safety outcome. To reduce readmission in this population, in our hospital we developed an " in hospital geriatric co-management team (GCMT)". The general functions of it were the development of management protocols to reduce risk of falls, delirium and immobility, adequacy of treatment and care, family support, early discharge planning and joint monitoring post hospital discharge. This strategy reduced readmission to 10%.

Objectives:

To evaluate readmission after discharge from hospital in elderly patients and to compare the rate and causes of readmission between frail and no frail elderly patients within 30 days of discharge.

Methods: A retrospective cohort study was conducted using register data. Older adults aged 65 or more that were discharged in a tertiary care teaching hospital between June 2017 and September 2018. The FRAIL scale was used to identify frail patients. All patients were managed by GCMT.

Results: view table

Conclusions:

Frail elderly patients had more frequent readmissions and higher mortality in the first month after discharge when compared with non-frail counterparts. Due to its greater complexity, they should be identified and approached differently.

Results

Characteristics	No Frail patients (FRAIL ≤ 2) (n= 263)	Frail patients (FRAIL ≥ 3) (n = 708)	p
Median age	86 (81-90)	89 (84-91)	<0,0001
Female	72.24% (190)	73.41% (519)	0,7
Barthel Index	90 (80-100)	50 (10-75)	<0,0001
Median IADL (Lawton)	5 (2-7)	0 (0-2)	<0,0001
Charlson Index	1(1-3)	2(1-3)	<0,0001
Admission last year	17% (46)	38%(268)	<0,0001
Dementia	20% (54)	30% (209)	0,005
Previous resident in long term care	5% (14)	17 (122)	<0,0001
Polypharmacy >5	58% (150)	68% (473)	<0,006
Delirium	33% (85)	55% (353)	<0,0001
Median length of hospital stay	6 (3-10)	7 (4-11)	0,04
Hospital mortality	1% (3)	7% (52)	<0,0001
Readmission within 30 days % (IC 95%)	7,5 (4,8-11,5)	12,5 (10,2-15,3)	0,003
Survival within 30 days % (IC 95%)	98 (95,8-99,4)	92,6 (90,4-94,3)	0,008
Mortality within 30 days % (IC 95%)	1,6 (0,6-4,2)	7,3 (5,6-9,5)	0,008
Main reasons for readmission			
Respiratory deseases	10% (26)	19%(136)	0,001
Traumatological conditions	31% (81)	16% (117)	<0,0001

B110 Encore Presentation

Community-Based Dementia Care: Integrating Medical & Caregiver Support

M. A. Noel, C. D. Johnson, V. H. Templeton. *MemoryCare, Asheville, NC.*

Background: MemoryCare, a community-based non-profit organization, has 19 years of experience delivering an outpatient medical and care management model for persons with Alzheimer's disease and other types of dementia. Absent a cure or effective disease modifying treatment, developing cost-effective models of care that address the needs of caregivers alongside the medical management of the disease has potential to maximize quality of care, address safety issues, and enhance the patient/caregiver experience. This study reports three years (2015-17) of the program's data on acute care utilization by patients as well as caregiver surveys on program impact and satisfaction.

Methods: Physician and care manager teams incorporate caregiver education, training and support into the evaluation and medical management of the patient. After the initial evaluation, families and referring physicians receive a written care plan that is amended over time as the patient's dementia progresses. All components of the dementia care planning CPT code, 99483, are addressed within an annual cycle. Caregivers have full access to a resource library, workshops, and staff for educational materials and support. The program collects basic socio-demographic and clinical data on all patients and caregivers served and conducts an annual impact survey to primary caregivers. Hospitalization, readmission, and emergency department utilization rates are collected annually through the health system database for the subset of patients residing in the primary service county who have been enrolled a minimum of one year.

Results: An average of 1053 patients and 3513 caregivers are served annually by the program. Caregiver satisfaction surveys reveal high levels of overall satisfaction, increased dementia-specific knowledge, improved perceived ability to manage challenging behavioral aspects of dementia and perceived greater ability to maintain the person with dementia in the home setting. Program data reveal lower hospitalization (202/1000 person years), ED utilization (383 ED visits/1000 person years) and re-hospitalization rates (5.3%) compared with published national data for persons with dementia (Alzheimers Dement 2018;14(3):367-429).

Conclusions: These findings warrant further study of the impact of broader inclusion of caregivers as team members into clinical care models for persons living with dementia.

B111 Student Presentation
Osteoporosis Education Initiative Improves Screening in Population Notoriously Under Managed Residing in Long-Term Care

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BACKGROUND: Estimates as to the number of long-term care residents who are diagnosed and managed for osteoporosis are limited. Available studies support that osteoporosis is under diagnosed and under treated in this population.

METHODS: A retrospective review of patient charts comparing the number of residents screened, diagnosed, and treated for osteoporosis in long-term care facilities affiliated with the Lake Erie College of Osteopathic Medicine (LECOM) before and after the implementation of a facility wide initiative to improve osteoporosis education. The education initiative consists of an osteoporosis education coordinator who educates residents and their families on osteoporosis treatment benefits and provide screening and treatment guidelines from the United States Preventative Services Task Force and National Osteoporosis Foundation.

RESULTS: Prior to the implementation of the osteoporosis education initiative at the LECOM long term-care center none of the residents that met eligibility for screening and/or treatment for osteoporosis were actively being treated with pharmacological therapy for osteoporosis. Through the duration of this retrospective review of charts, seventy-one residents and their medical powers of attorneys were provided education regarding osteoporosis screening and available treatment. Of the residents who received standardized education on osteoporosis, seventy-two percent of those residents desired to undergo bone density screening for osteoporosis and referral for medication management.

CONCLUSION: Implementation of an osteoporosis initiative to provide education to current residents in LECOM long-term care facilities notably improved the number of long-term care residents screened and ultimately managed for osteoporosis. This study suggests that application of standardized osteoporosis education for residents of long-term care facilities may ultimately improve screening and treatment rates in a population that is at high risk for devastating and costly fragility fractures and notoriously under managed for this disease.

B112
Community-Based Serious Illness Care: A SMART Goal Taxonomy

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Background : Goal-based measures are needed to encourage goal-based serious illness care planning and delivery. As the foundation for goal-based measure development, we are adapting a pre-existing goals taxonomy (Jennings, L.A., et al. "Patient and care-giver goals for dementia care." Quality of Life Research 26.3 (2017): 685-693, and Clair, C., et al. "Refining a taxonomy of goals for older adults with functional limitations to inform care planning." Unpublished manuscript.) to address the goals of community-dwelling seriously ill patients. This abstract describes: 1) how seriously ill patients' goals cluster within the existing domains, 2) which goals are most common, and 3) which goals are expressed but not included in the taxonomy.

Methods: Eleven sites delivering community-based serious illness care participated in a learning collaborative to develop and test quality measures. Sites received training and submitted data on patient-selected SMART (specific, measurable, attainable, relevant and timely) goals. 8/11 sites serve home-bound elderly with limited life expectancy. 197 adults engaged in goal attainment scaling. Sites reported 213 goals for 153/197 patients. Two coders classified 77 and 76 goals, respectively, then reviewed the other's classifications and reconciled differences through consensus.

Results: Age distribution was 23% < 65, 38% between 65 and 79, and 39% 80+. Goals fit in the existing taxonomy. 8 domains contained the following number of goals: Physical Quality of Life (QOL) (106), Social and Emotional QOL (44), Independence (23), Access to Services and Supports (13), Housing (11), End-of-Life Care (8), Medical Care (7), and Caregiver Goals (1). The most frequent goals were to improve or maintain health (24), be physically active (19), control pain (19), go on a trip or outing (19), manage physical symptoms (11), avoid falls (10), and continue to live at home (10). New goals included hospice transition, comfort, hobbies, being in nature, and managing anxiety.

Conclusions: With minor modifications, seriously ill patients' goals fit within an existing goals taxonomy that will be used to develop goal-based serious illness care measures. Except for managing pain, seriously ill patients' goals are mostly non-medical, focusing instead on maintaining or improving function to allow participation in activities and independence.

B113
Antipsychotic Use Among PACE Participants with Dementia: Rare, but Variable when Indicated

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BACKGROUND Since 2012, efforts to limit the use of antipsychotics (AP) among frail elders with dementia have become widespread, with the exception of a limited set of indications. However, other evidence based indications are targeted. We used the setting of the Programs for All Inclusive Care for the Elderly (PACE), to characterize AP use over 2012- 2016, accounting for a broader set of indications.

METHODS *Population:* All PACE participants with a dementia diagnosis, from 2012 (79 PACE Organizations [POs]) to 2016 (109 POs).

Data: Part D pharmacy data, diagnostic data submitted by POs to CMS. *Analyses:* Participants with dementia organized into 3 Groups: (A) Dementia without complications, (B) Dementia plus a serious mental illness, behavioral disturbances, or delirium, and (C) Dementia plus a comorbidity such as anxiety disorders. We divided Group B into those where the majority of patients were treated with antipsychotics-such as schizophrenia, and those where patients with indications for AP use were more likely to not receive AP - such as dementia with behavioral distubance (DwBD). We divided participants who used APs into any use, and long term use (LT), to account for new enrollees who had not had medication debridement. We examined whether use was greater for terminal year behaviors. For DwBD with no other AP indication, we examined the 31 POs with at least 20 eligible patients, and examined use among the highest and lowest third of programs ordered by AP use rate.

RESULTS Participants with dementia grew from 9888 to 13,784. Group A saw decline in Any/ LT use (9.2%/3.5% --> 5.1%/2.1%), Group B (38%/23%--> 34%/22%), Group C (19%/9%-->8%/4%). Among Group A, 50/109 POs in 2016 had no AP use, while 60 POs had no use in Group C. Among Group B (n=9608 in 2016), use ranged from 0% to 69%. AP use In the 31 POs with 20+ DwBD, 13% in low v 40% in highest tertile. In the same POs, there was little difference AP use in Depression (9.8% v 7.6%). Terminal year accounted for <20% of AP use.

CONCLUSION AP use in PACE is rare in absence of evidence-based indications. Among patient with indications, the majority of patients are managed without AP. Among POs with significant number of participants with Dementia with behavioral disturbances, the 3x variation in use may offer areas for improved diagnosis and management.

B114

Fall Prevention Visit in a Residency Primary Care Clinic

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Background

Falls are a leading cause of morbidity and mortality among elders. The CDC developed the Older Adult Fall Prevention Program – **S**topping **E**lderly **A**ccidents, **D**eaths and **I**njuries (STEADI) which screens patients with a standardized questionnaire and suggests interventions for high risk patients (STEADI score ≥ 4). Recent US Preventive Services Task Force Evidence Report and Systematic Review found multifactorial interventions were associated with a fall-related benefit. Our experience creating a fall specific visit to implement these interventions is described.

Methods

Providence St. Vincent is a community residency clinic. Patients 65 and older presenting for a clinic visit were screened by a medical assistant for falls with the STEADI questionnaire. Patients with STEADI scores ≥ 4 are considered to be at risk for falls. Patients with a positive screen were offered a falls specific visit. Those patients were brought back for a visit where they met with an RN who took a falls history, measured orthostatics, checked Get Up and Go, and provided education on foot wear, home safety and exercise. RN reviewed their findings with a provider. A fall prevention plan was developed around eight modifiable risks as recommended by CDC in the STEADI program. These were orthostasis, medications & substances, bone health, feet and foot wear, vision, gait&balance, functional status and home safety.

The primary endpoint was frequency of fall specific visit in patients with STEADI ≥ 4. Secondary endpoints wore number of patients >65 that were screened for fall risk using STEADI questionnaire and patients with STEADI ≥ 4.

Results

4,670 patients >65 had office visits over an 12-month period. 1,620 patients were screened with STEADI. 1,406 (87%) patients screened were found to have STEADI≥ 4. 85 patients had a fall specific visit.

Conclusions

Screening of elderly patients for fall risk showed that the majority were high risk for falls. This should prompt further interventions to reduce falls. We were able to develop a fall specific visit that allowed for an inter-disciplinary team to work with a patient and develop a personal fall prevention plan based on their modifiable risks.

B115 Student Presentation

Trajectories of Long Term Care Needs Among Older Australian Women in Residential Aged Care

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Background: Over one-third of Australians enter residential aged care (RAC) at some point in later life when their care needs are no longer be fulfilled at home or in the community. Women are more likely than men to enter and stay longer in RAC. Nearly 70% of residents in RAC are women. There is a paucity of evidence on how care needs change in the last few years of life. We aimed to identify trajectories of care needs according to three domains: activity of daily living (ADL), behavioral and complex health care.

Methods: The sample consisted of 3,063 participants in the 1921-1926 birth cohort of the Australian Longitudinal Study of Women's Health (ALSWH), who were in RAC for more than six months from 2008-2014. Analysis was based on linked data from ALSWH surveys, the need-based aged care funding instrument (ACFI), and national death index. Core care needs while in RAC were measured from ACFI across three domains: ADL (0-100), behavioral (0-100) and complex health care (moderate/low vs. high). From the date of RAC admission, participants were followed bi-annually up to 5 years. Group-based multi-trajectory modelling was used to identify clusters of women who followed similar trajectories across the three domains of care needs. Factors associated with membership of different clusters were ascertained using multinominal logistic regression.

Results: We identified five distinct trajectories of care needs across three domains. The shapes of the five trajectories were increasingly linear/curviliear across time, with scores/levels ranging from 20-95 for ADL, 10-70 for behavioral, and 0-1 for complex health care. Women in the first trajectory (15%) had relatively low care needs across all three care domains. In contrast, those belonging to the fourth trajectory (22%) consistently had the highest care needs. The other trajectories varied from low- to high-level care needs. Higher age at admission in RAC and overweight/obese women had increased odds of belonging to the high care needs trajectories compared to the low trajectories group.

Conclusions: The differential trajectories of care needs identified in our study will facilitate long term care planning and service delivery among older Australian women in RAC, noting groups with the greatest need and the increasing acuity of need over time.

B116 Resident Presentation

Geriatric Trauma Intensive Care Patients: Complications and ICU Readmission

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Background: Geriatric trauma is an increasing cause of morbidity and mortality. Leading mechanisms of trauma are falls and motor vehicle accidents. The care of older adults admitted to the intensive care unit (ICU) is challenging with comorbidities, cognitive impairment, and often complex goals of care. We investigated trends in complications of older adults admitted to the trauma ICU and etiologies of unplanned readmission to the ICU.

Methods: In this cross sectional quality improvement study, we reviewed 105 patients aged 65 and older admitted to a trauma intensive care unit from July, 2017 to September, 2018 who had inpatient geriatrics consultation. Patients with head injury (maximum head abbreviated injury severity [AIS] score ≥3), were excluded due to the pervasive effect of head injury on outcomes. Number of injuries was defined using the Injury Severity Score (ISS). Clinical Frailty Scale (CFS9) was assigned by the geriatrics consult team. Complications were defined as unexpected clinical events requiring ICU-level care.

Results: The average age of patients was 77.6 with 52% women. 91% of patients were screened for frailty. Common complications of patients in the trauma ICU were transfusion dependent anemia (24%), pneumonia either from aspiration, hospital acquired or ventilator associated (24%), and tachyarrhythmia and NSTEMI (22%). Delirium occurred in 45% of patients. 14% of patients had unplanned readmission to the ICU due to hypercapnic respiratory failure from sedation or pneumonia (36%), hypoxemic respiratory failure from volume overload or pneumonia (27%), or hypovolemic shock from blood loss (18%). Patients with unplanned readmissions to the ICU were more frail with mean CFS9 of 4.7 (CI 4.4-5.0) vs. CFS9 of 3.9 (CI 3.6-4.2) and more likely to have a diagnosis of dementia at 36% (CI 35%-37%) vs. 25% (CI 24-26%). Age, gender, ISS score did not differ among the group readmitted versus those not readmitted.

Conclusions: Older adults admitted to the trauma ICU experience a high rate of complications. Those patients with unplanned readmissions to the ICU had higher frailty scores and more likely to have a diagnosis of dementia. Over-sedation, pneumonia and volume overload were leading causes of readmission to the ICU. These data highlight the importance of early geriatrics assessment in assisting in the management of older adults in the trauma ICU.

B117

The GRACE Delirium Prevention Program

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Background: Delirium in hospitalized older adults has severe ramifications. In 2008, the GRACE program began as a comprehensive protocol on medicine units to identify and prevent delirium of hospitalized patients ≥ age 80 at Beth Israel Deaconess Medical Center. The online medical record was adapted to suggest GRACE interventions during admission order entry. In 2014, the GRACE program was automated into the workflow, enabling the program to expand into a hospital wide multidisciplinary care initiative. However, adherence to and clinical impact of the GRACE program is currently unknown. The goals of this quality improvement project are (1) determine which elements of GRACE are standard practices and identify barriers to adhering to the full protocol; and, (2) determine what corrective actions are needed based on the findings from #1.

Method: We began conducting chart reviews of patients ≥ age 80 admitted to medical and surgical floors in October 2018 to test adherence to fifteen GRACE program elements. We have determined elements that were least utilized.

Results: 33 patient charts were reviewed to assess adherence to the GRACE program, divided into nursing and physician interventions. Physician interventions were least utilized, especially regarding use of high-risk medications. Higher doses of analgesics and anti-psychotics not recommended by the GRACE program were ordered for 18/33 and 5/33 of patients, respectively. Benzodiazepine dose ≥ 3 mg/day were not ordered for any patients. Orders to hold overnight vitals and encourage ambulation were only ordered for 4/33 and 15/33 of patients, respectively. This is likely because there is no automated intervention in place to prompt the provider to reconsider ambulation and vital sign frequency after the admission date. Each shift, nurses screened 26/33 of patients for delirium using the Richmond Agitation-Sedation Scale and 10/33 of patients using Test of Attention.

Conclusions: Our results indicate that automated interventions did not result in full adherence and widespread implementation of the GRACE program was not sustained. We plan to arrange interviews of physician and nursing leaders to identify barriers to the program's full use. Then, we intend to implement corrective measures and measure improvement in adherence. Our goal is to quantify the clinical impact of the GRACE program by measuring how its adherence affects incidence of delirium, length of stay, readmission, medical cost, and discharge disposition.

B118

POSH-DREAM: Mobile Point-of-Contact Delirium Risk Assessment & Identification

<u>M. Heflin</u>, J. N. Browndyke, S. Lagoo, N. Loyack, C. Frede, H. Barrett, A. Mathis, M. Yanamadala, A. Barbeito. *Durham VAMC, Durham, NC.*

Background: Postoperative delirium (POD) is a common complication among older adults with pre-existing cognitive impairment. Prevention of POD requires coordination and communication regarding preoperative cognitive measures and postoperative delirium screening. We aim to link preoperative cognitive assessments and postoperative screening through routine use of tablet-based screening tools. Methods: The VA Perioperative Optimization of Senior Health (POSH) program aims to decrease postoperative complications in older Veterans undergoing elective surgery. POSH eligible Veterans include all individuals over age 85 or those over age 65 with multiple medical conditions, >5 medications, possible cognitive impairment and/or functional decline. Among POSH veterans scheduled for postoperative admission to the ICU, we introduced routine preoperative cognitive assessment with the Montreal Cognitive Assessment (MoCA) and postoperative delirium screening in non-intubated patients with the

3D-CAM with an ultimate goal of using handheld tablet devices to measure both. Initial implementation included training team members in both preoperative and postoperative settings in performance of respective screening tools, acquisition of tablets, and creation of a secure online database for data capture. Results: Twenty-three veterans with a mean age of 72 years had both preoperative MoCA and postoperative 3D-CAM. Of these, 3 patients screened positive for delirium postoperatively. An additional 15 did not develop delirium and 5 had positive components on the 3-D CAM but an overall negative screen for delirium (i.e. subsyndromal delirium). The project demonstrated the feasibility of use of tablet computers for administration of the MoCA and other measures in the preoperative clinic. Challenges included acquisition and approval for use of equipment and applications and integration of the new devices into the flow of a busy multidisciplinary clinic. Conclusion: We successfully introduced a program for screening older veterans for POD risk preoperatively and postoperatively. Data collection and analysis for the preoperative data has been transitioned to mobile data acquisition and mobile POD screening in the postoperative setting. Use of handheld devices allow for easier comparison of pre- and postoperative data and improved efficiency in diagnosis and management of POD.

B119

Systematic Approach to Implementing CPOE Drug-Age Medication Alerts

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Background: Computerized Provider Order Entry (CPOE) systems with integrated clinical decision support provide warnings to prevent potentially unsafe events. The Leapfrog Hospital Survey includes a CPOE standard, requiring drug-age alerts for older adults. Although over a thousand of these alerts exist in our CPOE referencing the Beers, STOPP and HEDIS criteria, our hospital system has been cautious with implementation due to a concern for alert fatigue in the clinical setting. We aim to prioritize the implementation of available drug-age alerts and categorize their severity based on current clinical evidence and frequency of medication use.

Methods: Drug-Age alerts available in our CPOE were evaluated in two phases. Firstly, we identified 152 medications which were either listed explicitly in the Leapfrog guidance or categorized for alerts due to Beers or STOPP criteria in our CPOE database. A new alert rubric was created for implementation including: "Contraindicated", "Precaution", or "No alert". Contraindicated medications are listed in STOPP and either had high or moderate quality evidence according to Beers. Precaution medications are not listed in STOPP but have moderate evidence in Beers. Medications recommended for no alerts are not listed in STOPP and have low evidence in Beers. Secondly, we will focus alerts further based on the inpatient utilization.

Results: Of the 152 medications evaluated, 84%(n=128) were initially recommended as contraindicated alerts, 2% (n=3) precaution alerts, and 4% (n=6) no alert. Fifteen medications (10%) were not found in current versions of Beers or STOPP criteria; thus, also to be "No alert". Medications recommended as contraindicated alerts were listed on the STOPP criteria and either had high (n=27) or moderate (n=101) quality evidence according to Beers.

Conclusion: CPOE systems provide opportunities to warn of potentially unsafe medications with alerts and are required by Leapfrog. Alerts provided to EHR's are a good starting point; however, may not align with current guidelines, and may need modifications for the inpatient setting. In the second phase, we will examine the medications' inpatient utilization to derive recommendations that are likely to impact patient care.

B120

Using Quality Improvement to Improve Falls Evaluation and Documentation

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Background:

Evidence suggests that a multidisciplinary falls management strategy that includes physical therapy and exercise programs, medication reconciliation, vision and podiatry assessment, 25-OH Vitamin D repletion, postural hypotension and cognitive evaluation, can reduce falls incidence in older adults.

At the Mount Sinai Hospital geriatric outpatient clinic, we observed poor rates of a standardized approach to patients with falls. In this QI project, we aimed to identify barriers to a falls work up and the implementation of an intervention to improve this process.

Methods:

A retrospective chart review was performed by fellows on their patients with falls to characterize the overall approach to these patients over a 6 months period. Using the process map and root cause analysis tools, lack of standardization and education were identified as the major contributing causes for incomplete falls work up. Based on the identified gaps, we developed an evidence-based standardized order set in the electronic medical record for patients with falls. Educational and instructional lectures about the order set were delivered to providers. A prospective chart review to measure incorporation of the multidisciplinary strategy via the order set was completed.

Results:

Since implementation of the evidence-based falls order set, chart review of 25 patients with positive falls history showed improvement in most of the falls evaluation domains:

Cognitive evaluation (pre 84%; post 92%), medication reconciliation (pre 72%; post 76%), gait evaluation (pre 36%; post 52%), DME evaluation (pre 16%; post 48%), physical therapy referral (pre 92%; post 92%), 25-OH vitamin D level (pre 40%; post 52%), orthostatic hypotension evaluation (pre 8%; post 24%), ophthalmology evaluation (pre 12%; post 28%) and podiatry evaluation (pre 16%; post 20%).

Conclusion:

Implementation of a standardized protocol for falls management coupled with an educational intervention can improve the overall process of falls management. Future directions include further efforts towards improving ease of use of this order set, as well as improving awareness among providers to increase its use.

B121

Triple assessment of falls "TAF" test: a new approach to determine fall risk

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Background: Patient falls in healthcare is a major concern in the United States, resulting in 30% - 50% of fall injuries. Inpatient rehabilitation facilities (IRFs) managing complex patients with significant physical and cognitive impairment post discharge from the hospital are especially at higher risk. Currently, Morse Fall Scale (MFS), is commonly used to determine fall risk. This scale is comprehensive, but subject to variation in nursing assessments, causing inaccuracies. The goal of this study was to identify a more objective fall risk assessment method, which is quick, accurate and decreases personnel variability.

Method: Retrospective analysis on 104 patients admitted between Jan 1 - April 30, 2018 at the IRF of a large academic medical center was done. Components from three standardized fall risk assessment tools were utilized: transfer component of the Functional Independence Measure (FIM) instrument, the Timed Up and Go Test (TUG-T), and the visuospatial/executive function of the Montreal

Cognitive Assessment (MoCA). This new test was titled, "Triple Assessment of Falls" (TAF) test. The MFS and TAF were completed by nursing and therapy teams within the first 24 hours of admission. Patients with MFS >= 44 were considered high fall risk and < 44 as low fall risk. Patients who could safely transfer with supervision level of assistance (FIM > 4) were classified "FIM negative", while those who needed some assistance to safely transfer (FIM 1-4) were classified "FIM positive". FIM Negative patients underwent further testing with TUG-T and visuospatial/executive portion of the MoCA. A TUG-T score of > 13.5 seconds or MoCA score of < 3/5 were considered as higher fall risk. In TAF, we differentiated three categories; FIM + were high fall risk, FIM- and MOCA or TUGT + were intermediate risk, and FIM- and MOCA and TUGT- were low fall risk.

Results: Out of 104 patients, 11% (n=11) had falls. Out of these 11 falls, only 36% (n=4) were high fall risk, while 64% (n=7) were low fall risk on MFS. However, on TAF, 91% (n=10) were high fall risk, 9% (n=1) were intermediate risk and none (n=0) were low fall risk.

Conclusion: The TAF test is more effective and accurate in predicting patients' falls than MFS. It is more objective, checks physical and cognitive function of the patient, as well as includes nursing perception of fall risk, and requires less time to administer.

B122

Person-Centered Goals in Behavioral Health for Older Adults

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Background

Health care goals are very individual. Engagement in setting personal goals positively impacts participation in treatment and outcomes. Insights is a no-fee, time-limited psychotherapy program provided to older adults with mild to moderate symptoms of depression and/or anxiety. Evidence-based therapies (EBTs) are provided in the home by licensed therapists. Participants set goals for treatment, which are tracked. Here we report findings from the program that support the importance of incorporating person-centered goal attainability in treatment plans.

Methods

Data on person-centered goals was collected as part of program operations. Goal-setting discussions identified participants' goals for therapy, such as "I want to feel alive again" or "I want to stop worrying all the time." Goals are documented and a program intervention is selected (Cognitive Behavioral Therapy (CBT), Interpersonal Psychotherapy (IPT) or Program to Encourage Active Rewarding Lives in Seniors (PEARLS)). Validated screening tools are used to measure program outcomes and are recorded at baseline and at the end of active treatment. These tools include depression (PHQ9) and anxiety (Geriatric Anxiety Scale or GAS). We report on 211 clients who have completed treatment.

Results

A total of 415 individuals were assigned to an EBT; 48 disenrolled prior to treatment. To date, 211 completed therapy and 123 completed therapy and maintenance (mean number of sessions, 14.0 [sd 9.5]. Mean participant age was 68.4 (11.4), 26% were men, and 22% were caregivers; therapy was provided in English (65%), Spanish (34%), and Korean or Vietnamese (1%). Barriers to primary care were reported by 49% (7% uninsured) and to mental health services by 87% (access 73%, language 16%, insurance limits 14%). Primary mood outcomes (baseline to end of active treatment) did not differ by demographic characteristic, language, caregiver status or EBT. PHQ-9 scores decreased from 11.3 to 5 (p<0.001) and GAS 11.7 to 6.1 (p<0.001). At the end of treatment, outcome of the person-centered goal was obtained as "met, partially-met and not-met." Accordingly, decrease on PHQ-9 scores was: "Met" (N=164) 6, "Partially Met" (N=14) 4, and "Not Met" (N=9) 2.

Conclusion

Along with improvement in mood from EBTs, early outcomes suggest that attainability of person-centered goals may be an important indicator of improvement and crucial in engaging participants in treatment.

B123
Daylight Saving Time and Nursing Home Falls

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Background: Daylight saving time (DST) is practiced throughout much of the United States and involves advancing the clock forward 1 hour in the spring and back 1 hour in autumn. Numerous studies exist exploring the impact that DST may have on various factors, including vehicle associated injuries, myocardial infarctions, and work related accidents. To our knowledge, the effect of DST on the nursing home population has never been explored. Falls are an important incident measure in nursing homes and are the focus of many studies looking to reduce such events. Based on prior studies looking at the potential complications of DST in the community, we chose to evaluate the impact of DST on fall incidents in the nursing home setting. Given the regimented schedule of the nursing home environment, nursing home residents may have less capacity to adapt to DST transitions. Therefore, we hypothesized that there would be an increased incidence of falls among nursing home residents after DST transition periods.

Methods: We reviewed the incident reports from a single nursing home facility in Pittsburgh, Pennsylvania from January 2016 to August 2018. Fall incidents were reviewed for both 1 week prior and 1 week after each DST transition period as well as 3 weeks prior and 3 weeks after. Spring and autumn DST transitions were analyzed both together and separately.

Results: There was no statistically significant difference in falls when falls 1 week before a DST transition (n = 25) were compared to falls 1 week after a DST transition (n = 33) ($P = 0.36$) or when falls 3 weeks before a DST transition (n = 83) were compared to falls 3 weeks after a DST transition (n = 79) ($P = 0.81$). Additionally, there was no statistically significant difference when events in the spring and autumn were analyzed separately.

Conclusion: From our data, there does not appear to be a correlation between DST transitions and fall incidents in the nursing home setting.

B124
5-Cog study: Screening for cognitive impairment coupled with clinical decision support improves provider response in primary care.

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Background: Cognitive impairment including dementia (CID) is under-diagnosed in primary care. Furthermore, there is a low rate (32% in prior studies) of primary care physician (PCP) action in response to positive screening tests. Clinical decision support systems (CDSS) have been shown to improve processes of care. We assessed the impact of a novel cognitive screening paradigm (5-Cog) coupled with a CDSS on physician behavior around diagnosis and management of CID.

Methods: We recruited patients aged 65 years and older with cognitive concerns and no prior diagnosis of CID in a primary care practice serving an urban, multi-ethnic, socioeconomically disadvantaged population. Community-dwelling participants were assessed with the 5-Cog screen, which includes the Picture-based Memory Impairment Screen, timed gait, and a figure match test. Participants were given a token signaling study participation to present to their PCP at the same visit. Results of the 5-Cog and a decision menu were provided to the PCP via the electronic medical record. Medical records were reviewed for evidence of CID-relevant physician action (defined as new CID diagnosis, or CID-relevant laboratory or imaging tests, referrals, or medications) within 90 days of the visit.

Results: Of 84 participants (78% women, 36% aged 75 years or older, 45% self-identified as Hispanic-Latino, 48% as African-American), 38 (45%) screened positive on the 5-Cog. 33 (87%) of participants who screened positive received CID-relevant action compared to 16 (35%) of those who screened negative (RR 2.5, 95% CI = 1.6, 3.8).

Conclusion: Coupling a screening test for CID with a decision menu embedded in the medical record at point of care improved physician response in this pilot study.

B125
West Palm Beach Veterans Administration Medical Center Blind Rehabilitation Center (BRC): Successful Program to Effectively Educate and Train Visually Impaired Elderly Veterans in the Use of the High Technology ORCAM Device.

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Visual loss is a major problem in the elderly affecting approximately 16% of those 80 years and older and negatively impacts function and quality of life. It can severely limit function and quality of life (QOL). The high technology OrCam is a portable, visual, wearable system that clips on to glasses and is designed to recognize and speak. This technology can address 4 major domains including the ability to discern text, identify store-products, read printed money, and allow facial recognition and has been shown to improve function and (QOL) in the visually impaired. There is, however, limited data as to the effectiveness of teaching this technology to the elderly. The (BRC), therefore, created a unique structured program for education and teaching for the elderly in the use of this technology. METHODS: In July 2017 the OrCam device education and training program was initiated by the (BRC) in elderly Veterans with severe visual impairment. The Veterans chose which of the domains was most suited to their needs at home and included discerning text, identifying store-products, reading printed money, and facial recognition. The training was conducted 5 days a week for 4 hours a day for 2 weeks for inpatients as well as outpatients. The education was provided in a step-wise fashion and consisted of an orientation, learning how to mount the device on the glasses, charging the unit, and learning to properly align the desired image. The broader areas of text reading were taught first followed by the more difficult areas of using the device and reading bar codes in a store. The Veterans were taught at what distance to hold objects for identification and how to program the device for facial recognition. RESULTS: Over a period of seventeen months 18 cognitively intact Veterans 65 years and older, average age 77.1 years, range 65-94, successfully completed the OrCam training. Pre-and -post training assessments performed demonstrated that the objective educational goals were reached in 18/18/ reading, 18/18 facial recognition, 14/14 in product recognition, and 5/5 money reading. In conclusion: The (BRC) education and training program was highly effective in teaching elderly the use of the high technology OrCam device.

B126 Student Presentation

A Pilot Study Assessing the Feasibility of a Remote Telemedicine Delirium Assessment Tool

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Background: Assessment of delirium outside of the hospital setting is currently limited, as clinical assessments for delirium require a face-to-face encounter. This limits the ability to feasibly perform frequent delirium assessments in the post-discharge setting. We sought to examine the acceptability of a remote videoconference-based delirium assessment tool in an older population.

Methods: We conducted a prospective pilot study at the UNC Geriatric Specialty Outpatient Clinic from June – August 2018. Investigators utilized HIPAA-compliant doxy.me videoconferencing services on a tablet device to assess subjects for delirium with the 3-minute Diagnostic Interview for Confusion Assessment Method (3D-CAM). Subjects were then assessed face-to-face with the 3D-CAM. We obtained qualitative data on the acceptability of the tablet-based diagnostic tool through surveys and an open-ended interview. We also compared the results of the face-to-face assessments with the remote assessments to assess test validity.

Results: We enrolled 30 subjects (median age 77.80 years; 87% female, 100% white and non-Hispanic). Face-to-face delirium assessments were consistent with remotely performed delirium assessments in terms of diagnosis. A bipolar Likert scale revealed overall videoconferencing interface satisfaction with the subjects average rating of 8.16 and above on a scale of 0-9 with higher scores indicating more satisfaction. A one-way ANOVA revealed no significant difference in mean responses in any domain by age category.

Conclusions: The use of telemedicine in assessment of delirium in older adults is promising. Remote videoconferencing-based delirium assessment is an acceptable method for delirium assessment in the clinic setting. Our next step will be to assess the acceptability and validity of this assessment method in the home setting.

B127

PROACTIVE GERIATRIC CONSULTATION FOR ELDERLY HIP FRACTURE PATIENTS REDUCES PERIOPERATIVE MORTALITY RATE, 2 YEARS FOLLOW UP STUDY.

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BACKGROUND: Traumatic hip fractures are a significant cause for functional deterioration, morbidity, and mortality in the older population. Following hip fracture repair interventions, older patients are susceptible to various medical complications - wound and systemic infections, VTE, delirium, pressure sores, and exacerbation of chronic medical conditions. Delayed identification and treatment of these complications may increase the length of stay, morbidity, and mortality and increases the risk of functional deterioration and unwanted institutionalization. Geriatricians are trained to perform early identification and treatment of these complications as well as to direct a multidimensional discharge plan. In the current study, we made an adjustment to the standard care of older hip fracture patients by employing a proactive geriatric consultation. Geriatricians served as an integral part of a multidisciplinary team providing care for older patients in the orthopedic division. The geriatricians conducted an early post-operative evaluation and continued follow- up in selected patients.

DESIGN: a Retrospective single-center cohort study.

SETTING: Orthopedic division of a large tertiary academic hospital.

METHODS: Retrospective data were collected for the years 2014-2017. (The intervention took place between 01.2015 and 31.12.2015). Time from operation to geriatric consultation and perioperative mortality (30 days from operation) were compared for patients during the intervention period (2015), the year before and the 2 consecutive years following the intervention.

RESULTS: During the intervention period, time from operation to geriatric consultation decreased (98 hours to 74 hours median time, P <0.001). During 2016 time for consultation further decreased to raise back in 2017. During intervention year mortality rate was reduced significantly compared with the previous year (7.2% to 4.7%, P=0.03). Mortality rate was further reduced during the post-intervention years (3.8% and 4.4% for the years 2016 and 2017, respectively).

CONCLUSIONS: Integrating geriatricians into the multidisciplinary orthopedic team and applying a proactive geriatric approach led to reduced postoperative mortality rate. This trend was sustained during post-intervention years.

B128 Student Presentation

Development of the Cognitive Abilities, Life with Meaning-Complex (CALM-C) Program

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Background: Among Veterans Affairs (VA) nursing home residents, there is an increasing prevalence of dementia and psychiatric illness. Behavioral problems associated with these comorbid illnesses result in staff burnout and poor quality of life for patients and caregivers. As this population of veterans is projected to increase, there is an urgent need to develop an effective care model to best care for them. We will describe the development of the CALM-C program, a comprehensive care model to manage challenging behaviors of veterans with dementia and psychiatric illness.

Methods: During phase one of development, the interdisciplinary team at the Community Living Center (CLC) of the San Francisco VA Medical Center met weekly to identify the target population of the CALM-C program (residents with dementia and psychiatric illness) and identify the needs of this particular patient population. During phase two, the CALM-C care model was designed. The development team interviewed front line staff in various disciplines to solicit suggestions. Interventions were scored according to impact to patients and staff using the Likert scale ratings and consistency of opinion across disciplines. Interventions were selected, a staffing model was created, and outcome measures were identified.

Results: Reviewing medical records, 70% (60/86) of CLC long-stay residents need regular mental health care. 47/86 (55%) have psychiatric illness in addition to a neurocognitive disorder. There has been a 32% increase in residents with these issues since 2012 along with a rising rate of verbal/physical abuse toward staff and other residents. CLC staff identified 41 new ideas to potentially improve the care of veterans with dementia and psychiatric illness. The CALM-C working group selected the highest scored 11 ideas to be considered for implementation. Interventions included more frequent interdisciplinary rounding, hands on education for nursing staff, a sensory room, and more single bedrooms.

Conclusion: There is a high prevalence of veterans with dementia and comorbid psychiatric illness, and this population of veterans is projected to increase as the population ages. These veterans are challenging to manage and thus we developed a comprehensive care model, the CALM-C program, to be implemented at the CLC to reduce staff burnout and improve quality of life for patients and caregivers.

B129

Reducing Medicare 30-day readmissions through interdisciplinary geriatric primary care

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Background: The Center for Successful Aging (CSA) located at MedStar Good Samaritan Hospital specializes in primary care for older adults with complex medical and psychosocial needs. The CSA utilizes an interdisciplinary, person-centered, risk stratified approach to care for this population. When patients are admitted to the hospital, the CSA team actively manages transitions of care to prevent hospital readmissions through weekly high-risk rounds. The objective is to assess the impact of this intervention on Medicare 30-day All-Cause Readmissions.

Methods: This is a retrospective review of patients admitted to a MedStar hospital between May 1, 2017 and September 30, 2018 who were identified as high-risk and proactively managed in the Center's high-risk rounds. MedStar utilization data and manual chart review were utilized to identify any inpatient admissions within 30 days of each identified hospital discharge.

Results: A total of 140 inpatient admissions managed post-discharge by the CSA were identified (108 unique patients). 14 patients had a 30-day readmission, a 9.3% unadjusted 30-day readmission rate. For comparison, the unadjusted CY2015 rate for Good Samaritan Hospital was 17.6%. The FY2016 risk standardized national Medicare rate was 15.2%. The admitted patients had a median age of 80.5 years, 65% were female, and 61% African American. Based on a prior analysis of this population, multimorbidity is common with high rates of heart failure (43%), diabetes (43%), dementia (39%) and chronic obstructive pulmonary disease (18%).

Conclusions: These preliminary findings suggest that proactively managing a medically complex group of older patients in an interdisciplinary ambulatory geriatrics practice can substantially impact the unadjusted Medicare 30-day All-Cause Readmission Rate. It is likely, based on the multimorbidity of this population, that an adjusted rate would suggest an even greater impact of this intervention.

B130

Differences between High-Need High-Risk Vulnerable Veterans offered a Frailty Clinic Assessment

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Background: Using predictive analytic modelling with national data, the Veterans Affairs (VA) Geriatrics and Extended Care Data Analysis Center (GECDAC) identifies vulnerable Veterans as "High-Need High-Risk" (HNHR), as likely requiring Home Based Primary Care (HBPC) enrollment. GECDAC's "Selection Score" (including Ambulatory Care Sensitive Conditions, skilled home care services, etc.) aims to enhance the stratification (higher score indicates greater need for HBPC).

Methods: We piloted C4, an outpatient care model with *C*omprehensive Geriatric Assessment, *C*are plan based *C*are-Coordination and *C*o-management for 50 HNHR patients with their primary care teams. We assessed Rockwood Frailty Index (RFI), physical and mental function, access, and mobility. We compared patients who came to our clinics, to those who completed a baseline needs assessment (BAN), but did not come for C4.

Results: We invited 152 HNHR older veterans, of whom 47 came to C4 intervention, and 53 completed the BAN (C4 comparison). Among those who came to C4, 26 (55%) were frail (RFI ≥0.25) and

21 (45%) pre-frail (RFI >0.1<0.25). Only 3 (6%) frail C4 subjects were clinically determined to need HBPC referral. The correlation coefficient between selection score and RFI was 0.13 (p=0.37). Table 1 shows the differences between the groups.

Discussion: In this pilot, the majority of identified HNHR Veterans who came to C4 did not need HBPC. There was little correlation between selection and frailty scores, and between frailty scores and need for HBPC. We surmised a potentially greater need for face-to-face clinical assessment in the comparison group veterans who declined the C4 intervention, yet had more ADL and IADL deficits.

Conclusion: The current HNHR selection may need further, albeit practical, complimentary assessments, to better define those at the highest need for long-term support programs like HBPC.

TABLE 1.	Intervention (n=47) Mean (Standard deviation)	Control (n=53) Mean (Standard deviation)	p-value
Age	70.5 (5.3)	74.1 (7.1)	0.005*
Selection Score	0.55 (2.64)	1.85 (2.65)	0.02*
CAN Score	94.3 (6.6)	94.9 (6.1)	0.62
Jen Frailty Index	7.1 (1.2)	7.0 (1.2)	0.68
Barthel's ADL Score	91.9 (10.8)	82.4 (19.5)	<0.01*
Lawton's IADL Score	7.0 (1.3)	5.6 (2.2)	<0.01*

B131

FEASIBILITY OF TRANSITIONAL CARE MANAGEMENT FOR OLDER PATIENTS AT A TERTIARY CANCER CENTER

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Background

Older adults with multiple comorbidities have complex care needs and having cancer further adds to this complexity. Quality and patient safety are compromised during the vulnerable period when patients transition between care settings due to high rates of medication errors, incomplete or inaccurate information transfer, and lack of appropriate follow-up care. Transitional care is defined as a set of actions designed to ensure coordination and continuity of health care during this period. Furthermore, Transitional Care Management (TCM) aims to improve medication safety, promote medication self-management and reduce 30-day readmissions.

Methods

Patients 65 and older admitted with complex care needs were referred for TCM which included these 3 key steps; 1) identify areas of concern that needs follow up in outpatient setting, 2) telephone coaching for patient/caregiver and 3) follow up visit with a geriatric provider within 14 days. Adequate coordination of care was achieved through communications with internal/external providers, home service agencies and pharmacists.

Results

37 patients were referred from 2015-2018. Average age was 81 (69-94), 49% female, 57% married, 65% with college or advanced degree, 95% spoke English, 75% were White. 84% had functional dependencies. Polypharmacy and multiple comorbidities was common among all patients. Cognitive impairment was present in 19% and depression/anxiety were present in 32% of patients. All patients who were referred received phone call/coaching except for 4, who were unreachable. 13 patients did not meet the criteria for TCM, because they were not able to be reached by phone or did not show for visit. Of all 37 patients only 1 patient was readmitted within 30 days. Interventions included; management of acute/chronic conditions, cancer treatment related symptoms, pain, nutritional deficits, advanced care planning, coordination of care and referrals for necessary services.

Conclusion

We showed that Transitional Care Management program can be successfully instituted at a Tertiary Cancer Center to a subset of population. We believe empowering patients and caregivers through coaching and coordinating care across various settings helps to avoid fragmented

care ultimately improving outcomes. Further study is being planned to provide TCM using innovative tools and to assess the impact of TCM on meaningful outcomes such as 30 day readmission rate.

B132
Development of National POLST Paradigm Quality Indicators
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Background: The POLST (Physician Orders for Life-Sustaining Treatment) model is widely used in the care of older adults throughout the United States. National POLST Paradigm standards encourage all state programs to engage in quality assurance activities. However, there is a need for further guidance to assist programs in identifying and measuring important quality metrics, particularly for those with limited funding or research expertise.

Methods: National POLST Paradigm Research and Quality Assurance Committee members engaged in a multi-step process to create and refine quality indicators. First, quality indicators were generated based on a review of National POLST program standards. The committee focused on identifying quality indicators that were structural, process-oriented, and outcomes focused. The second step was to identify indicators that were realistic for implementation by individuals and organizations without specific funding or research expertise. Finally, methods for measurement were created.

Results: Quality Indicator 1:If the POLST form is properly completed and valid, it will include the minimum required elements and no conflicting orders. Quality Indicator 2 (Approach 1):If 100% of patients/residents have a POLST form, it is likely being used inappropriately. Quality Indicator 2 (Approach 2):If a patient/resident is appropriate for a POLST form, they have been approached by appropriate facility staff for an advance care planning conversation that may include a discussion about the POLST Paradigm. Each quality indicator includes suggestions for easy, intermediate, and advanced projects that can be implemented by organizations, communities, and statewide.

Discussion: Work on the National POLST Paradigm Quality Indicators Toolkit is on-going and will be disseminated to POLST state programs, on the POLST website, and other stakeholder networks. Organizations, communities, and states using the POLST model are encouraged to incorporate regular, systematic measurement of quality indicators to help ensure the quality of their POLST program.

B133 Student Presentation
Leveraging Exercise to Age in Place (LEAP): Engaging Older Adults in Community-Based Exercise to Combat Social Isolation
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Background: Socially isolated older adults face increased health risks and Medicare costs. While group exercise has been associated with important health benefits, e.g. decreased falls, their impact on social isolation has not been widely studied. Moreover, most older adults do not achieve recommended activity levels. Over three years, we aim to engage >2000 cognitively intact, predominantly low-income, older adults in community-based exercise programming to improve social connectedness. We seek to identify barriers to enrolling older adults into community-based exercise and develop recruitment strategies targeting these barriers.

Methods: We searched PubMed for literature on older adult community-based exercise interventions that were implemented in the U.S. from 2000-2018 and discussed enrollment issues. Strategies extracted and adapted to LEAP recruitment include health system referrals (exercise prescriptions), onsite enrollment with a Community Health Coach; and self-referral via flyers or friends/family.

Results: Identified participant barriers include transportation and language and cultural gaps. Program barriers include finding reliable community partners and maintaining program interest. Since July 2018, in partnership with two community organizations, we have established seven program sites and recruited 200 participants: 22 health system referrals, 111 onsite, and 65 self-referrals. Of these, 96% have enrolled in an exercise program and 38% are low-income (<$51,000/year).

Conclusion: LEAP recruitment strategies enrolled a diverse community-dwelling population through collaboration with a health system (Cedars-Sinai) with interdisciplinary referrals and partnership with community organizations to implement community-based exercise and address social isolation in older adults. Next steps include maintaining an adaptable protocol targeting enrollment barriers, implementation of transportation assistance for participants, and analysis of program engagement on outcomes of social connectedness.

B134 Student Presentation
Expanding the Concept of Geriatric Oncology at an Educational Institute
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The Society of International Geriatric Oncology has provided guidelines to achieve a better outcome for older cancer patients. Providers and institutions are significantly lagging behind to incorporate these guidelines into their clinical practice. We at Texas Tech HSC Amarillo have taken an innovative approach to educate providers and spread awareness through the community in an inter-disciplinary approach.

Methods: An Interdisciplinary Geriatric Oncology project was developed with three major goals. 1) Start a comprehensive Geriatric oncology clinic (CGOC) 2) Educate the area care providers about the care of older cancer patients. 3) Increase awareness in the community about cancer and provide them with free cancer screenings.

Results: 1) CGOC was established with an interdisciplinary team consisting of a geriatrician, geriatric Nurse practitioner, pharmacist, nutritionist, social worker, and a nurse. This team provides comprehensive geriatric assessment, social worker and nutritional needs to the older cancer patients. 2) Education: Geriatric oncology team has developed educational tools including small workshops, lectures, grand rounds, and symposium about concepts in geriatric oncology. 3) Awareness and cancer screening programs: The team has innovated a combined program of education and multiple types of cancer screenings in one setting. This way an individual who comes to the event receives education about every type of cancer that was offered.

In less than 6 months, along with providing care to older cancer patients this interdisciplinary approach has also resulted in educating concepts of geriatric oncology to more than 200 students, faculty and other caregivers from SOM, SOP, and SON. More than 160 participants received cancer screenings and education about multiple cancer types through community health fairs and cancer screening events.

Discussion:
Integrating Comprehensive Geriatric Oncology Clinic, education, and multiple cancer screenings in an interdisciplinary manner is an excellent approach to best utilize available resources for maximum community benefit with time and cost-effectiveness at an educational

institution. In this manner, we expect to streamline the care and improve the quality of life of cancer patients while reducing the stress and burden on them and their families.

B135

Excessive duration of oral iron supplementation among ambulatory older adults

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Background: Iron supplements are commonly prescribed in older adults for iron deficiency. Side effects include abdominal discomfort, nausea, and constipation. In the authors' experience, iron is often prescribed indefinitely. In iron deficiency anemia, the hemoglobin generally rises within 2 weeks of initiating oral therapy, and iron stores are typically replenished after 3-6 months. Clinical guidelines recommend that iron tablets should be continued for a further 3 months beyond this[1]. Therefore, the appropriate duration of iron supplementation to correct iron deficiency is approximately 6-9 months. This study aimed to assess geriatric primary care providers' knowledge of these clinical guidelines, and the prevalence of iron supplementation for periods exceeding 9 months.

Methods: We surveyed 11 primary care physicians in our geriatric primary care clinic. The survey consisted of 3 questions to assess knowledge of iron supplementation. The 3 questions regarded: time to the earliest hemoglobin rise, time to the replenishment of iron stores, and the recommended duration of therapy after iron stores are replenished. We also analyzed a random cross-sectional sample of patients of this clinic with current iron tablet prescriptions, to measure the length of time between the original prescription and the sample date, to which is referred hereafter as the duration-to-date (DtD).

Results: Ten of the 11 physicians completed the survey. Two (20%) correctly answered the question on the time to the earliest hemoglobin rise. Nine (90%) knew the correct time taken for replenishment of iron stores. Two (20%) correctly identified the recommended duration of therapy after replenishment of stores. Of the 40 sampled patients in our clinic, 33 (83%) had a DtD of over 9 months. The median DtD was 30 months.

Conclusions: We found evidence of an excessive duration of iron supplementation among older adults at a geriatrics ambulatory practice. This may be due in part to a lack of knowledge regarding clinical guidelines among providers. Quality improvement to assess the effectiveness of educational interventions and implementation of a standard protocol to recheck iron stores after 9 months of therapy is warranted.

Reference

1. Goddard AF, James MW, McIntyre AS, *et al.* Guidelines for the management of iron deficiency anaemia. *Gut* 2011;**60:**1309-1316.

B136

Reducing hospital associated complications in older people: Results from the CHERISH cluster randomised controlled study

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Background: Hospital-associated complications of older people (HAC-OP) include incident delirium, functional decline, new incontinence, falls and pressure injuries. These are associated with longer hospitalizations and reduced discharge home. Evidence-based strategies to reduce HAC-OP remain poorly implemented. This study aimed to implement a multi-component ward-level intervention ("Eat Walk Engage") to reduce HAC-OP and length of stay in acute care older patients.

Methods: Pragmatic cluster randomized clinical trial enrolling inpatients age 65 years or older, admitted for 3 days or more to eight acute medical and surgical wards in four Australian public hospitals. One ward in each hospital was randomized to implement "Eat Walk Engage", a multicomponent program facilitating multidisciplinary practice changes to improve mobility, nutrition care and cognitive engagement at ward level. Primary outcomes were length of stay and any new HAC-OP. Secondary outcomes included individual HAC-OP and discharge home. Analyses were adjusted for age, sex, co-morbidities, admission functional and cognitive status, elective status and hospital.

Results: Implementation commenced on the four intervention wards in January 2016. Between October 2016-March 2017 we enrolled 539 participants (265 intervention, 274 control); 305 (57%) were age 75 years or older and 269 (50%) were female. Median length of stay was 6 days in intervention (IQR 4 to 9 days) vs 7 days in control (IQR 5 to 10 days), adjusted hazard ratio 0.96 (95% CI 0.80-1.15). HAC-OP occurred in 115/248 (46%) intervention vs 129/249 (52%) control, adjusted OR 1.07 (0.71-1.61). Delirium was significantly reduced, occurring in 37 (14%) of intervention vs 69 (25%) control participants, adjusted OR 0.58 (0.36-0.94). In the intervention group, 199/259 (77%) participants were discharged home compared with 180/271 (66%) control, adjusted OR 1.46 (95% CI 0.94-2.25).

Conclusions: Within 12 months of implementation, "Eat Walk Engage" showed a significant reduction in delirium and may have improved discharge home, although length of stay and other HAC-OP were not significantly reduced. Detailed understanding of implementation at each site will inform continuing program development.

B137

A Diagnosis and Treatment Strategy to Reduce Antibiotic Prescribing for Suspected Uncomplicated Cystitis in Older Nursing Home Residents

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Background: The majority of antibiotic use for suspected UTIs in older nursing home residents is unnecessary/inappropriate and may result in increased antibiotic safety complications including Clostridium difficile (C. Diff.) infections. We sought to determine the effectiveness of a multifaceted strategy for diagnosis and treatment of suspected uncomplicated cystitis in non-catheterized elderly residents.

Methods: This 12-month study had a randomized, single-blind design involving residents with suspected uncomplicated cystitis from 25 nursing homes. Interventions for health professionals included a one-hour webinar; pocket sized educational cards, symptom monitoring forms, clinical vignettes, and physician order sets for the diagnosis and treatment of suspected uncomplicated cystitis. Monthly coaching teleconferences were held for health professionals in the intervention homes. Facilities received quarterly feedback reports regarding the management of suspected uncomplicated cystitis. Control group homes received usual care that only included general information on the importance of antibiotic stewardship. The main outcome was unnecessary exposure to antibiotics for asymptomatic bacteriuria. Secondary outcomes were C. diff. infections, hospitalizations and death.

Results: There were fewer asymptomatic bacteriuria cases treated with antibiotics in intervention compared to control homes (adjusted incident rate ratio [AIRR] 0.74; 95% confidence interval [CI] 0.59-0.94). C. diff. infection rates were also lower in intervention homes than controls (AIRR 0.35; 95% CI 0.19-0.64). Incidence of hospitalizations or death were no greater in intervention than controls (AIRR 0.97; 95% CI 0.77-1.22 and AIRR 0.93; 95% CI 0.75-1.16, respectively).

Conclusions: A multifaceted strategy improved antibiotic prescribing and related safety (C. Diff.) without adversely impacting

other outcomes. Such interventions could be incorporated into federal nursing home requirements for antimicrobial stewardship and Quality Assurance Performance Improvement (QAPI) programs. A larger study with a greater focus on implementation is needed.

B138

A Multicomponent Intervention to Reduce Multidrug-Resistant Organisms in Post-Acute Care Facilities in Michigan

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Background: Multicomponent interventions involving chlorhexidine bathing reduce burden of multidrug-resistant organisms (MDROs) in acute care, including methicillin-resistant *Staphylococcus aureus* (MRSA) and vancomycin resistant enterococci (VRE) reduction, although mixed effects on resistant Gram-negative bacilli (R-GNB). Less is known about interventions that reduce MDROs in new post-acute care (PAC) patients.

Materials/methods: A cluster randomized trial was conducted at 6 PAC facilities from 2016-18. Three facilities adopted a multicomponent intervention that included: 1/hand hygiene education; 2/distribution of hand sanitizers to staff including environmental services & patients; 3/chlorhexidine bathing; 4/enhanced barrier precautions for high-risk patients; & 5/monthly data feedback. Three facilities continued usual care including universal precautions & study visits by research personnel to collect outcome data. Cultures were collected from multiple body sites & high-touch surfaces in patient rooms at baseline, day 7, 14, 21, 30, & monthly up to 6-months. We measured time to new acquisition for MRSA, VRE & R-GNB using Cox proportional hazard model. In exploratory analysis, we evaluated MDRO prevalence as a dyadic outcome: culture results from the patient and matched environmental sites at each visit, using Actor-Partner Interdependence Model (APIM).

Results: 245 PAC patients were enrolled (113 intervention, 132 control). Over 806 study-visits, 3,646 patient & 5,592 environmental cultures were obtained. Mean participant age was 72.5 yrs (45% male, 54% white). After covariate adjustment, the intervention reduced new MRSA acquisition by 73% (intervention, 2.4/1000 pt-days vs. control, 8.0/1000 pt-days, HR .28, 95%CI .09,.82). VRE (HR .82, 95%CI .40,1.67) & R-GNB (HR 1.17, 95%CI 0.67,2.04) acquisition was not reduced. The APIM model showed the intervention reduced the overall prevalence of MDROs for environmental and patient colonization by 47% (OR .53, 95%CI .30,.91).

Conclusions: Our multicomponent intervention decreased new acquisition of MRSA among PAC patients & reduced the overall prevalence of MDROs in patients & their environment.

B139

Adverse Events in Long-term Care Residents Transitioning from Hospital Back to the Nursing Home

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Background: Transition from hospital to nursing home is a high-risk period for adverse events (AEs) in long-term care (LTC) residents. AEs include harms from medical care including failure to provide appropriate care. Previous investigators have studied AEs in older adults newly admitted to nursing home after hospitalization and the general LTC population. In the current study, we report the incidence, type, severity, and preventability of AEs in LTC residents transitioning from hospital back to LTC. **Methods**: We randomly

selected 32 nursing homes located in the six New England States from a pool of facilities participating in a regional quality collaborative. Using an adaptation of the Institute for Healthcare Improvement trigger tool approach, trained nurse abstractors reviewed nursing home records for the 45 days after a resident transitioned from hospital back to the nursing home. Two physicians then independently reviewed each potential AE to determine if harm occurred and to characterize the type, severity, and preventability of each event. When reviewers disagreed, they met to reach consensus. **Results:** We identified 379 AEs among 762 discharges. Most AEs related to resident care (n=197; 52.0%) with pressure ulcers, skin tears, and falls with injury representing the most common types of events in this category. Healthcare acquired infections (28.5%) and adverse drug events (16.9%) were next most common. Most AEs were characterized as "less serious" (52.0%). However, 38.3% were deemed serious, 7.4% life-threatening, and 2.1% fatal. In terms of preventability, 70.4% of AEs were preventable with less serious events more often considered preventable or ameliorable (73.7%) compared with more severe events (66.9%). In addition, resident care related AEs such as fall with injury, skin tear, and pressure ulcer were more commonly deemed preventable (87.8%) than adverse drug events (60.9%) or healthcare acquired infections (45.4%). **Conclusions**: AEs are common among LTC residents transitioning back from hospital. Special prevention efforts focused on the post-hospitalization period for LTC residents are necessary.

B140

Racial and Ethnic Differences in Multimorbidity Development and Progression over Time

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Background: Multimorbidity (≥2 co-existing chronic diseases) is associated with poor health outcomes above and beyond the risk attributable to individual component diseases. In the US, underrepresented racial and ethnic middle-aged and older adults have substantially higher prevalence of multimorbidity. Identifying timing and onset of multimorbidity development and progression by race/ethnicity is of clinical and public health significance.

Methods: We used 1998-2014 Health and Retirement Study (HRS) data (N=7,878). To track and identify multimorbidity development in 7 chronic conditions (arthritis, cancer, diabetes, heart disease, hypertension, lung disease, and stroke) and their accumulation, we examine HRS study participants at the earliest age of study eligibility (between age 51-55 at first interview) and all subsequent follow-up interviews. We specified negative-binomial GEE models of chronic disease accumulation over time and identified differences in rates of accumulation for non-Latino white (white), non-Latino black (black), and Latino middle-aged and older adults. We applied trimmed inverse probability weights (IPW) to account for differential losses to follow-up (drop-out and mortality); adjusted models account for differences in education, sex, and BMI.

Results: On average, chronic diseases are accumulating over time for all study participants (0.13, p=0.002). At baseline, blacks have a higher disease count (0.26, p=0.027), while Latinos have fewer (-0.137, p=0.04) diseases relative to whites. However, Latinos accumulate disease more rapidly (0.024, p=0.006), but blacks did not differ from whites. Education (-0.04) and BMI (0.01) were significant (p<0.001), but sex did not differ.

Conclusions: Black adults have higher initial levels of multimorbidity burden. On average, blacks develop multimorbidity by ages 59-63 (after 8 years of follow-up) yet Latinos and whites do not develop multimorbidity until ages 63-67 (after 12 years of follow-up).

By ages 59-63 the trajectory of the counts of multimorbidity for Latinos crosses over the trajectory for white adults, as Latinos accumulate disease faster than white or black adults.

B141
Predictors of Hip Fracture among Frail Older Adults Treated with Bisphosphonates

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Background: Bisphosphonates are effective at preventing hip fractures (fx) among frail older adults, but many patients still fracture while on treatment and may benefit from additional preventive interventions. Little data are available to target such efforts. We identified predictors of hip fx among frail older adults prescribed bisphosphonates.

Methods: We conducted a retrospective cohort study using 2008-2013 linked national Minimum Data Set (MDS) assessments and Medicare claims. Participants were long-stay nursing home residents $\geq$ 65 yrs without recent osteoporosis medication use who initiated bisphosphonates. A priori defined characteristics were measured via the MDS or claims before drug initiation. The outcome was hospitalized hip fx in Part A claims. We used multivariable Fine and Gray regression models accounting for the competing risk of death to estimate hazard ratios (HR) and 95%CIs for potential predictors of hip fx.

Results: The mean age of bisphosphonate initiators (N=17,753) was 83 (8) yrs, 85% were female, and 50% had moderate-severe cognitive impairment. The incidence rate of hip fx was 1.94/100 person-yrs. Age >=75 to 85 (vs. >=65 to <75, HR=1.25, 95%CI 1.02-1.55), female sex (HR=1.33, 95%CI 1.06-1.67), white race (vs. black race, HR=1.87, 95%CI 1.36-2.58), body mass index (BMI) 18.5-24.9 (vs. >=30, HR=1.93, 95%CI 1.53-2.42), history of vertebral fx (HR=1.40, 95%CI 1.14-1.72), and prior falls (HR=1.18, 95%CI 1.03-1.36) were associated with higher rates of hip fx after prescribing bisphosphonates. Independent ability to transfer (vs. total dependence, HR=3.11, 95%CI 1.83-5.30) and occasional urinary incontinence (vs. frequent, HR=1.45, 95%CI 1.18-1.78) were also important predictors. Dementia, diabetes, psychoactive drug use and 25 other characteristics were unassociated with post-prescribing hip fx.

Conclusions: In addition to traditional risk factors (e.g., normal BMI, history of fx), functional characteristics (ability to transfer and urinary continence) were associated with higher hip fx rates among frail older adults prescribed a bisphosphonate. Psychoactive drugs and comorbidities, including dementia, did not help to identify individuals at risk of hip fx. These results can be used to target post-prescribing falls and fx prevention efforts among frail older adults on bisphosphonates.

B142 Resident Presentation
Advance Care Planning in Older Adults with Hip Fracture: Room for Improvement

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Background: Hip fracture in older adults is associated with a high degree of mortality. For this reason, advance care planning (ACP) is a key component of care in this population. However, the prevalence, need for, and predictors of ACP engagement in older adults who sustain a hip fracture are unknown.

Methods: We used the Health and Retirement Study (HRS) linked to Medicare claims to identify participants aged 65 years and older, who sustained a hip fracture, and died between 2000 and 2014. HRS surveys completed by proxies after death of the participant were used to determine the need for surrogate decision-making at the end of life and the presence of ACP, defined by either advance directive (AD) completion or surrogate designation. Multivariate logistic regression was used to identify independently associated clinical and sociodemographic predictors of ACP engagement.

Results: Of the 606 participants, mean age at the time of hip fracture was 84.8 years (± 7.5), 76.7% were female, 87.8% were white, and 10.6% resided in a nursing home. The median time from hip fracture to death was 33.1 months (interquartile range 9.1 - 66.3). At the time of death, 51.8% of all participants had completed an AD and 65.3% assigned a surrogate decision-maker, while 27.7% had not engaged in any ACP. One-third (N=197) of the cohort required surrogate decision-making at the end of life. In this subset, 59.1% had completed an AD and 74.4% designated a surrogate, while 20.3% had no ACP prior to death. For all participants with hip fracture, ACP was less likely in non-white individuals (AOR 0.15, 95% CI (0.08, 0.28); p=<0.001) and those with less than a high-school education (AOR 0.54, 95% CI: 0.34, 0.83; p=0.006), and those with a net worth below the median of the cohort (AOR 0.44, 95% CI: 0.29,0.76; p=0.002). No clinical factors, such as age, comorbidity, or functional status were found to be associated with ACP.

Conclusion: A considerable number of older adults with hip fracture required surrogate decision-making at the end of life, of which one-fifth had no ACP prior to death. ACP engagement was significantly less likely in non-whites and those with low levels of education and wealth. Clinical care pathways should incorporate ACP discussions, with attention to these disparities, into the management of patients with hip fracture.

B143
Adding a brief cognitive assessment to a validated prognostic index significantly improves its 5-year mortality prediction in older adults

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Background: Mortality prognostic models for older adults do not include cognition as a predictive factor due to limited prior epidemiologic data on cognition. Our objective was to determine if a shortened Survey-Adapted Montreal Cognitive Assessment (MoCA-SA) adds to the predictive value of a known prognostic index.

Methods: We used the National Social life Health and Aging Project (NSHAP) 2010-11, a nationally-representative sample of 3,199 community-dwelling adults age 60-99 years. Cognition was measured using MoCA-SA scores grouped into three pre-defined categories: Normal (24+ pts), Mild Cognitive Impairment (MCI) (18-23 pts), and Dementia (<18 pts). The Lee Prognostic Index (range 0-18) is a cumulative measure of age, behaviors, function, and comorbidities shown to predict long-term mortality. We used logistic regression to determine if there was a significant interaction between MoCA-SA scores and Lee index scores in predicting 5-year mortality.

Results: The sample was 54% female, had a mean age of 72 years, MoCA-SA score of 22 (SD=4.5), and mean Lee index of 7 (SD=3). The MoCA-SA was highly predictive of 5-year mortality (10% in normal, 23% in MCI, 35% in dementia, p<0.01). In regression analysis, there was a significant interaction term between the MoCA-SA and the Lee index in predicting mortality (p<0.01); among those with low Lee index scores (0-5 points) there was a 7.5 fold increase in mortality rates by cognitive group (2% to 15%), whereas in those with high Lee index scores (10+ points) there was only a 1.5 fold increased mortality (32% to 48%) (Table). Addition of the MoCA-SA to the Lee index resulted in an increased AUC of 0.775 to 0.790 (p<0.01).

Conclusion: A version of the MoCA, the MoCA-SA, improves the discrimination of the Lee index to predict 5-year mortality in older adults, particularly at low Lee index scores. This may reflect the role that early cognitive changes can play in

mortality risk even in the absence of unhealthy behaviors, loss of physical function, or comorbidities.

Five year mortality by Lee Prognostic Index and MoCA-SA Subgroups

Lee Prognostic Index (Range 0-18 points)	Overall (n=3,199)	Normal (n=1,486)	MCI (n=1,178)	Dementia (n=535)
0-5 points (n=1,254)	4%	2%	6%	15%
6-9 points (n=1,365)	19%	13%	20%	29%
10+ points (n=580)	41%	32%	42%	48%

B144

Patient and family involvement in medication decisions on discharge to hospice care

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Background: We have previously reported that healthcare providers make an average of 15 medication decisions (e.g. to continue, discontinue, or initiate medications) when patients transition from the hospital to hospice care. However, little is known regarding the frequency of patient and family involvement in these decisions and factors associated with involvement during this transition.

Methods: This was a retrospective cohort study among patients discharged directly from Oregon Health & Science University Hospital to hospice care between January 1, 2010 and December 31, 2016. Data were collected from a 20% stratified sample by year using an electronic repository of medical record data and manual review of patients' discharge summaries. Patient/family involvement was defined as documentation of patient or family member discussion surrounding medication decisions in the discharge summary. We used logistic regression to determine patient and admission characteristics associated with documentation of patient or family member involvement in medication decisions.

Results: Among 348 discharges to hospice care, most patients were male (54%) and >65 years old (51%). Documentation of patient/family involvement in medication decisions occurred in 75/348 (22%) of discharges. Patient and family member involvement significantly varied over time (p=0.01), thus all estimates are adjusted by the year of discharge to account for this imbalance. Increased Charlson co-morbidity index (adjusted odds ratio (aOR): 1.09, 95% confidence interval (CI): 1.01 to 1.2) and having a diagnosis of cancer (aOR: 2.0, 95% CI: 1.2 to 3.4) were associated with an increased likelihood of patient/family member involvement in medication decisions. In addition, patients admitted to the intensive care unit during the index admission were less likely to have patient/family member involvement (aOR: 0.55, 95% CI: 0.32 to 0.94). Patient/family involvement was not significantly associated with the number of medications received on discharge to hospice (p=0.47).

Conclusions: Patient/family involvement in medication decisions was documented in less than 25% of discharges to hospice care.

B145

Cost Trajectories as a Measure of Functional Resilience after Hospitalization in Older Adults

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Background: Validated measures of functional recovery after health stressors that can be operationalized in large datasets are needed. We examined whether trajectories of cost can be used as a marker of functional recovery after hospitalization.

Methods: Secondary analysis of the National Health and Aging Trends Study (NHATS) linked with Centers for Medicare and Medicaid Services (CMS) data. Community-dwelling older adults with a first hospitalization occurring after any annual survey were included (N=1169). Monthly total cost trajectories were constructed for each individual beginning at the date of hospital discharge. Growth mixture models identified "classes," or groups of patients with similar trajectories. Multivariate models related cost classes to 6 functional outcomes, controlling for pre-hospitalization function and lead time.

Results: Hospitalized patients were 53% female, mean age 77 years, 56% without IADL disability at baseline. Four distinct cost trajectory classes describing common recovery patterns were identified – persistently high, persistently moderate, low-spike-recover, and low-variable. Cost class membership was significantly associated with change in Activities of Daily Living, Instrumental Activities of Daily Living, Short Physical Performance Battery, and grip strength (p<0.005 for all), but not gait speed (p=0.08). The strength of association was generally strongest for the low-variable group, and intermediate for the low-spike-recover and persistently moderate groups. For example, the proportion of patients who maintained or improved SPPB score was 46.8% in the persistently high, 49.2% in the persistently moderate, 52.7% in the low-spike-recover, and 57.2% in the low-variable groups. In models adjusted for known predictors of functional outcome (age, race, gender, surgical procedure, hospitalization length of stay, Charlson index) the magnitude and direction of association was maintained but statistical significance was lost, indicating that cost trajectories mirror traditional predictors of recovery.

Conclusions: Cost trajectories are associated with functional recovery following all-cause hospitalization in older adults, offering a potentially useful new outcome in administrative data.

B146

Quantifications of biological aging predict disability and mortality in older adults in the Duke EPESE

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BACKGROUND: Methods to quantify biological aging have been proposed to measure age-related decline in system integrity for population surveillance and evaluation of geroprotective therapies. However, quantifications of biological aging have been little studied in geriatric populations.

METHODS: We investigated two methods to quantify biological aging from clinical biomarker data, the Klemera-Doubal method (KDM) and the homeostatic dysregulation (HD) method, in a cohort of N=1,543 older adults aged 71-102 years (35% male, 53% African American). We parameterized Klemera-Doubal and homeostatic-dysregulation algorithms from analysis of US NHANES data (N~45,000). We compared algorithms derived from analysis of mixed age and race/ethnicity samples to algorithms derived from older-age (65+) and individual race/ethnicity samples. We conducted criterion validity analyses using measures of disability and mortality as end-points. We analyzed counts of ADLs and iADLs using negative binomial regression. We analyzed time-to-death using Cox regression. Models were adjusted for age, sex, and race/ethnicity. Effect-sizes are reported in terms of 1-quintile differences in biological aging.

RESULTS: EPESE participants with older Klemera-Doubal Biological Age reported more dependence in ADLs (IRR=1.12 95% CI [1.05–1.19], p<0.001) and iADLs (IRR=1.12, 95% CI [1.06–1.20], p< 0.001), and had an increased risk of death (HR=1.12, 95% CI [1.08–1.16], p<0.001) compared to participants with younger biological ages. Repeating the analysis with homeostatic dysregulation produced similar results. Using age- and race/ethnicity-matched NHANES subsets to develop biological aging algorithms did not strengthen associations with criterion variables.

CONCLUSIONS: Quantifications of biological aging derived from analysis of a mixed-age and race/ethnicity sample predicted disability and mortality in black and white older adults. Using older-age- and race/ethnicity-specific samples to develop biological aging algorithms did not improve performance in criterion validity testing.

B147

Functional and Physical Impairment Among Older Adults With History of Traumatic Brain Injury

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Background: Traumatic brain injury (TBI), common among older adults in the United States, may cause long-term functional and physical impairment and is associated with other chronic neurobehavioral conditions.

Methods: We examined data from a random sample of 1148 respondents without dementia to the 2014 Wave of the Health and Retirement Study (HRS), a nationally representative survey of older adults, selected to participate in a comprehensive TBI survey. Participants reported no prior TBI (n=737) or prior TBI (n=411). We compared functional impairment (difficulty with ≥1 of 11 basic or instrumental activities of daily living) and physical impairment (difficulty with ≥1 of 8 physical activities) between TBI groups using logistic regression models adjusted for demographics and medical comorbidities. Via further adjusted regression models, we examined contributions of neurobehavioral symptoms (pain, sleep problems, depression, and subjective memory impairment) to TBI-related impairments.

Results: TBI-exposed (mean 33.6 years since injury) respondents were younger and less likely to be female, with higher prevalence of medical comorbidities, depression, pain, and sleep problems. TBI was associated with increased odds of functional (odds ratio [OR], 95% confidence interval [CI]: Unadjusted 1.55, 1.20-2.00; Adjusted 1.53, 1.15-2.03) and physical impairment (OR, 95% CI: Unadjusted 1.61, 1.25-2.08; Adjusted 1.62, 1.21-2.17). The association of TBI with functional and physical impairment was attenuated to varying degrees after adjustment for neurobehavioral symptoms.

Conclusions: In this population-based study of older adults without dementia, remote TBI was significantly associated with later functional and physical impairment, underscoring the public health importance of TBI prevention. Attenuation of the association between TBI exposure and functional/physical impairment by modifiable neurobehavioral symptoms suggests that post-TBI impairments may be mitigated by treatment of these frequently co-morbid conditions.

B148 Student Presentation

Systemic inflammation in midlife and late-life mobility: The Atherosclerosis Risk in Communities (ARIC) Study

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Background: Inflammation has been associated with greater disability among older adults. The effects of mid- to late-life inflammatory trajectories and how they interact with chronic disease to influence mobility is unknown.

Methods: High-sensitivity C-reactive protein (CRP) was measured over 20 years from mid- to late-life among ARIC participants in 1990-92 (visit 2 (V2)), 1996-98 (V4), and 2011-13 (V5). CRP was categorized as low (≤3mg/L) or high (>3mg/L) and classified as stable low (low at all 3 visits), stable high (high at all 3 visits), unstable low (low at any 2 visits) and unstable high (high at any 2 visits). We also examined relationships of CRP (cross-temporal using continuous measures and cumulative CRP averaged across all visits) with usual gait speed over 4 meters at V5. Linear regression models were used to examine CRP measures with late-life gait speed, adjusting for demographics, vascular risk factors and NSAID use. We tested for interactions by chronic conditions including obesity, diabetes and hypertension.

Results: 5,025 participants at V2 (mean age 55±5yrs, 42% males, 20% black) had CRP measured at all visits and V5 gait speed. Stable high CRP was associated with a 7cm/s (95%CI: 5.3, 8.6) slower gait speed, compared to stable low CRP. A 1-SD (4.6mg/L) higher cumulative CRP was associated with a 3cm/s (2.3, 3.5) slower gait speed. A 1-SD higher CRP at V2 (6.7mg/L) and V5 (8.6mg/L) was associated with a 1cm/s (0.6, 1.7) and 2cm/s (1.8, 3.0) slower gait speed, respectively. Chronic diseases did not modify the association between CRP and gait speed.

Conclusions: Anti-inflammatory interventions may have the greatest benefits on late-life mobility for those with chronically elevated inflammation, regardless of co-existing chronic obesity, diabetes or hypertension.

B149

MDRO Contamination of Privacy Curtains in Six Skilled Nursing Facilities in Michigan

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Background: Patient privacy curtains are high-touch surfaces that are cleaned infrequently and could contribute to pathogen transmission. The aim of this study was to evaluate curtain contamination with multidrug-resistant organisms (MDROs) in skilled nursing facility (SNF) rooms to inform curtain hygiene protocols.

Materials/methods: A prospective cohort study was conducted in six SNFs in MI from 2013-16. After obtaining informed consent, research staff obtained cultures from several patient body sites and high-touch surfaces in the patient's room upon admission, at day 14, 30 & monthly up to 6-months. 1521 samples were collected from privacy curtains (near the edge where they were most frequently touched) in 625 short-stay patient's rooms. We were particularly interested in concordance between patient colonization and curtain contamination with an MDRO at the same visit and whether this contamination was intermittent or persistent among those with 6 months of follow-up.

Results: A total of 334 (22%) curtain cultures (facility range 11.9%-28.5%) were positive for MDROs; including 210 (13.8%) with vancomycin-resistant enterococci (VRE); 94 (6.2%) with resistant Gram-negative bacilli (R-GNB); and 74 (4.9%) with methicillin-resistant *Staphylococcus aureus* (MRSA). No difference between private rooms (6/26 [23.1%]) and shared rooms (328/1492 [22.0%]) was observed. In 15.7% (238/1518) of sampling visits, patients and their privacy curtain were concurrently colonized with the same MDRO. Patient colonization with MRSA and VRE were each associated with contamination of the bedside curtain. For example, of the 210 visits where curtains were colonized with VRE, 57.6% of patients were also colonized with VRE. VRE was not detected on the curtain in 73.3% of visits when VRE was not found on the patient ($P < .001$). Among patients with 6 months of follow-up, curtain contamination was often intermittent.

Conclusions: Privacy curtain contamination with MDROs is common. Patients and their privacy curtain are often contaminated with the same MDRO. Further studies are needed to determine whether contaminated privacy curtains are a source of MDRO transmission to patients.

B150

Intimate Partner Violence in Middle-Aged and Older Women: Prevalence and Associated Health Conditions

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Background: Intimate partner violence (IPV) is prevalent in the U.S. and studies in younger women have shown it to be associated with a range of negative health outcomes, including depression, post-traumatic stress disorder (PTSD) and injuries. Recent United States Preventive Services Task Force recommendations indicate evidence to support routine IPV screening for women of childbearing age (age <45) but insufficient evidence for screening older women. In 2014, the VA implemented annual past-year IPV screening for women of all ages seeking primary care services at select sites. The objective of this study was to determine the prevalence of screening positive for IPV in the past-year (IPV+) among women age ≥45 years and the association of IPV+ with health-related conditions in these women.

Methods: Retrospective cohort study of 4,481 female VA patients age ≥45 years screened for past-year IPV with the Extended Hurt Insult Threaten Scream tool at 13 VA medical centers between 2014 - 2016. Prevalence of IPV+ was calculated for women ages 45-59 years ("middle-aged") and ≥60 years ("older"). The association between IPV+ and mental and physical health-related conditions (detected via clinical encounter diagnosis codes) in the 18 months following screening was evaluated in multivariable logistic regression models adjusting for race/ethnicity.

Results: Of 4,481 women screened, 2,937 were middle-aged (mean age 51.7) and 1,544 were older (mean age 66.6). Prevalence of IPV+ was 8.7% in middle-aged and 5.1% in older women. In adjusted models among older women, IPV+ was associated with subsequent diagnoses of anxiety (aOR 1.9, 95% CI: 1.1 – 3.3), depression (aOR 3.4, 95% CI: 2.2 – 5.5), PTSD (aOR 2.35, 95% CI: 1.4 – 4.1), headaches (aOR 2.3, 95% CI 1.3 – 4.2), and injuries/burns (aOR 2.2, 95% CI: 1.1 – 4.4). Similar associations were seen for the middle-aged group.

Conclusions: This study, which is the largest to evaluate screening for IPV in women over childbearing age, found that IPV remains both prevalent and morbid for middle-aged and older women, suggesting the need to expand routine IPV screening beyond the childbearing years. Screening for IPV in women over age 44 may improve detection and provision of evidence-based services to this vulnerable population.

B151

Development and Validation of a National Frailty Index

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Background: Despite the international guidelines' recommendation of routine assessment of frailty to provide evidence-based services to older people, aged care eligibility assessments in Australia do not use a frailty instrument part of its documentation. This project developed and validated a Frailty Index in Australia (FI-Aus) using routinely available data from the national aged care eligibility assessment program.

Methods: A cross-sectional evaluation of eligibility assessments performed between 2003 and 2015 was conducted. The FI-Aus was created using the deficit accumulation methodology. Descriptive statistics were employed and survival analysis (Kaplan Meyer and Cox regression models) were used to evaluate the risk of one and five-year mortality. The cohort was stratified into 8 groups by FI scores (cut points at 0.05).

Results: Data from 1021742 people (mean age, SD; 82, 7.3 yrs) were used to create the FI-Aus. The FI-Aus has 44 deficit constructs. The median FI score was 0.20 (range; 0-0.45) and the crude mortality rate at 1 year was 19% and at 5 years 52%. The FI score was significantly associated with mortality: group 2 (FI, 0.05 to 0.10) one-year HR, 1.30 (95%CI 1.26 -1.35), five-year 1.26 (95%CI 1.24-1.28); group 3 (FI, >0.10 to 0.15) one-year HR, 1.74 (95%CI 1.69 -1.79), five-year HR 1.55 (95%CI 1.53-1.58); group 4 (FI, >0.15 to 0.20) one-year HR 2.19 (95%CI 2.13 -2.25), five-year HR 1.82 (95%CI 1.79-1.85); group 5 (FI, >0.20 to 0.25) one-year HR 2.74 (95% CI 2.66-2.81), five-year HR 2.13 (95%CI 2.10-2.17); group 6 (FI, >0.25 to 0.30), one-year HR 3.51 (95%CI 3.41-3.61), five-year HR 2.58 (95%CI 2.54-2.62); group 7 (FI,>0.30 to 0.35), one-year HR 4.41 (95%CI 4.28-4.55), five-year HR 3.10 (95%CI 3.05-3.15), and group 8 (FI, >0.35), one-year HR 5.51 (95%CI 5.28-5.76), five-year HR 3.72 (95%CI 3.62-3.83).

Conclusions: A FI was successfully derived from an existing data source, minimising data collection burden, which can be used to inform decision making at the point of service recommendation. This FI can be used for confounding adjustment in new studies using this national data.

B152

Physical Frailty and the Risk of Dementia in a Longitudinal Cohort of Older Adults

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Background: Although physical frailty has been proposed as a risk factor for incident dementia, results in different studies are inconsistent. We determined the population-level association between physical frailty and subsequent dementia over 8 years. Methods: We used the nationally representative Health and Retirement Study (HRS) and assembled a cohort study with biennial interviews of 7338 community-dwelling older adults (mean age=74.4 years; 55% women) without ADL disability at the 2006 or 2008 wave. The five physical frailty criteria of the Cardiovascular Health Study defined individuals as robust (0), prefrail (1-2), and frail (3-5). A well-validated HRS cognitive assessment classified subjects as normal, cognitive impairment without dementia (CIND), or dementia, and those with baseline dementia were excluded. Dementia was tracked through 2014 using methods validated for HRS based on cognitive assessments of self-respondents, and reports of cognitive functioning provided by a proxy. Hazard models, considering death as competing risk, measured the association between physical frailty with incident dementia after adjusting for sociodemographics, comorbidities, smoking and drinking status, severe pain, poor hearing and vision, and CIND. We also explored interactions of physical frailty with CIND for the risk of dementia. Results: At baseline, 29% of subjects were robust, 56% prefrail, and 15% frail. Compared to robust individuals, those who were prefrail or frail had a higher risk of developing dementia (6% vs 14% vs 20%; adjusted sub-hazard ratio [aHR]=1.5, 95%CI=1.3-1.9 for prefrail; aHR=1.4, 95%CI=1.1-1.9 for frail). However, we found a significant interaction based on baseline cognitive status (P<.001). Among those who were cognitively normal at baseline, incident dementia developed in 3% of those who were robust, 8% (aHR=1.8, 95%CI=1.4-2.4) of those who were prefrail, and 12% (aHR=2.0, 95%CI=1.4-2.9) of those who were frail. In contrast, among those with CIND at baseline, frailty status was not associated with subsequent dementia (30% vs 36% vs 33%; aHR=1.1, 95%CI=0.8-1.4 for prefrail; aHR=0.9, 95%CI=0.6-1.3 for frail). Conclusions: Physical frailty is a strong predictor of incident dementia in community-dwelling older adults cognitively normal but not in those with CIND. Clinicians should monitor physical frailty alongside cognitive status when assessing the risk for dementia in independent older people.

B153

Changes in Anticoagulant Utilization in United States Nursing Home Residents with Atrial Fibrillation from 2011-2016

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Background:

Nursing home residents with atrial fibrillation (AF) are at high risk for ischemic stroke and bleeding events due to a high prevalence of risk factors. The most recent national estimate from 2004 indicated less than one-third of this high-risk population was anticoagulated. Whether direct-acting oral anticoagulants (DOACs) have disseminated into nursing homes and changed anticoagulant utilization is unknown. This study's objective was to describe anticoagulant use among US nursing home residents during 2011-2016.

Methods:

A repeated cross-sectional design was used to estimate the point prevalence on July 1st and December 31st of calendar years 2011-2016 among Medicare fee-for-service beneficiaries with AF residing in long-stay nursing homes. Nursing home residence was determined using Minimum Data Set 3.0 records. Part D claims for apixaban, dabigatran, edoxaban, rivaroxaban, and warfarin were identified and point prevalence was estimated by determining if the supply from the most recent dispensing covered each point prevalence date. Descriptive statistics characterized anticoagulant use overall, by class, and by medication. A Cochran-Armitage test was performed for trend in prevalence of anticoagulant use.

Results:

On December 31, 2011, 42.0% of 34,079 residents (median age: 85; Q1 79, Q3 90) were treated with an oral anticoagulant, of whom 8.6% used DOACs. The proportion receiving treatment increased to 47.5% as of December 31, 2016 (p<0.01); 48.2% of those treated received DOACs. Stroke risk was similar in 2011 (median CHA_2DS_2-Vasc: Q1 5; 4, Q3 6) and 2016 (median CHA_2DS_2-Vasc: 5; Q1 4, Q3 5). During 2011 and 2016 cross-sections, relative to treated residents, a larger fraction of untreated residents had cognitive impairment and used antiplatelets. As of December 31, 2016, demographic and clinical characteristics of residents using DOACs and warfarin were similar. Most DOAC users received standard dosages (79.8%) and used apixaban (54.4%) or rivaroxaban (35.8%) in 2016.

Conclusions:

Increases in anticoagulant use among US nursing home residents with AF coincided with declining warfarin use and increasing DOAC use. As of the end of 2016, approximately half of anticoagulated residents used DOACs.

B154

Handgrip Strength in Late Life Predicts Future Functional Impairment: The Kuakini Honolulu-Asia Aging Study

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Background: Grip strength in midlife has been shown to predict future disability and functional limitation, but few studies have examined this relationship in late life. Our objective was to study whether grip strength in functionally intact older men predicted future functional impairment over ten years of follow-up.

Methods: The Kuakini Honolulu Heart Program (HHP) is a longitudinal cohort study of Japanese-American men since 1965. The Kuakini Honolulu-Asia Aging Study started with HHP exam 4 (1991-93), when 3,741 men ages 71-93 years participated. Functional impairment was defined as any impairment in at least one of the following categories: self-reported ADLs, measured walk speed <0.4 m/s, or inability to do a single chair stand. Handgrip strength was measured using a handheld dynamometer. We excluded those with functional impairment at baseline, leaving an analytic sample of 1,381 men. We compared development of new functional impairment over 3, 6 and 10 years, by tertiles of handgrip strength using multiple logistic regression, adjusting for baseline age, height, weight, education, physical activity, pack-years smoking, prevalent chronic diseases and cognitive impairment.

Results: Weaker tertiles of handgrip strength predicted incident functional impairment at 3 years (42.6% vs. 35.3% vs. 28.7%, p<0.0001), 6 years (59.7% vs. 47.4% vs. 40.6%, p<0.0001) and 10 years (58.7% vs. 54.4% vs. 41.3%, p=0.0001). After adjusting for all factors and using the strongest tertile as reference, grip strength was associated with incident functional impairment at 3 years (weakest tertile OR=1.72, 95% CI=1.27-2.34, p=0.0005; middle tertile OR=1.43, 95% CI=1.08-1.88, p=0.01), 6 years (weakest tertile OR=2.11, 95% CI 1.52-2.92, p<0.0001; middle tertile OR=1.35, 95% CI=1.02-1.79, p=0.03), and 10 years (weakest tertile OR=1.68, 95% CI=1.10-2.56, p=0.02; middle tertile OR=1.55, 95% CI=1.08-2.23, p=0.02).

Conclusions: In elderly Japanese-American men with no functional disability at baseline, weaker handgrip strength was an independent predictor of future functional impairment. Measurement of grip strength in the oldest old may assist clinicians to identify patients at higher risk of functional decline and provide patients and caregivers with anticipatory guidance.

B155

Multimorbidity and mortality among Medicare beneficiaries:simple disease count, Elixhauser, and a new ICD-coded multimorbidity-weighted index for use in claims data

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Background: Most older adults have multimorbidity that profoundly affects physical functioning. We developed and validated a multimorbidity index that weights self-reported physician-diagnosed diseases by physical functioning. Herein, we mapped chronic conditions to ICD-codes using Medicare claims to develop a new multimorbidity index of ICD-coded conditions (MWI-ICD) for use in administrative data. We aimed to determine the association of the MWI-ICD with mortality and compare its performance with traditional multimorbidity metrics.

Methods: We included Medicare-eligible participants in the nationally-representative Health and Retirement Study of Americans with ICD9CM diagnoses in 2006 and follow-up through 2016. The MWI-ICD, simple disease count, and Elixhauser were examined continuously and categorically. The distribution was examined through skewness and the Kolmogorov-Smirnov test for normality. Incident rate ratios for models with the best performance (lowest AIC) were estimated using Cox proportional-hazards and compared using Concordance statistics.

Results: In 2006, 10,488 participants had mean (SD) age 75.0 (8.6) years, MWI 8.9, disease count 5.3, and Elixhauser 3.1. After follow-up, 4487 (43%) deaths occurred. There was left-censoring of multimorbidity, worst in Elixhauser (Kolmogorov-Smirnov 0.17 vs 0.12 in MWI). More participants had a multimorbidity of 0 with Elixhauser (14.1%) vs MWI (4.8%). Participants with the highest quartile MWI had more than triple the hazard rate of mortality than those in the lowest quintile (HR 3.40, 95%CI: 3.12-3.70, C-statistic=0.64). For disease count, the HR was 2.13 (95%CI: 1.96-2.32, C-statistic=0.59), and for Elixhauser the HR was 3.54 (95%CI: 3.27-3.83, C-statistic=0.64) for the highest vs lowest quintiles.

Conclusions: A new multimorbidity-weighted index that weights ICD-coded conditions to physical functioning was significantly associated with mortality. MWI-ICD had the widest distribution compared with Elixhauser and simple disease count and least left-censoring of multimorbidity. MWI-ICD provided a better fitting model than disease count and was comparable to Elixhauser for mortality prediction. Our index was sensitive to the accumulation and severity of diseases and increased mortality and provides a measure for multimorbidity use in claims data.

B156
Health Literacy is More Important than Prior Experience for Advance Care Planning Knowledge Among Diverse Older Adults

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Background:

Advance care planning (ACP) engagement is low among diverse populations, and limited knowledge about ACP has been suggested as a possible modifiable barrier to ACP. The objective of this study is to identify factors associated with ACP knowledge, including prior ACP experience and sociodemographic characteristics.

Methods:

We used cross-sectional baseline data from two randomized controlled trials that enrolled 1411 English- and Spanish-speaking primary care patients aged ≥55 years with ≥ 2 chronic medical conditions from a Veteran's and public hospital system. ACP knowledge was assessed with multiple-choice questions on a 7-point scale. ACP experience was defined as having documented legal forms and/or goals of care discussions in the medical record. We also assessed validated sociodemographic factors, including social support (11-item scale), education (high school, ≤ vs >), and health literacy and finances (limited vs adequate). We used Kruskall-Wallis tests and linear regression analysis to examine associations between ACP knowledge, ACP experience and sociodemographic factors.

Results:

Participants were 65 (±10) years old; 48% were female, 70% were non-white, 31% were Spanish-speaking, 34% had limited health literacy, and 45% had fair-to-poor health. Mean 7-point knowledge scores were higher for those with prior ACP experience (5.1 (SD 1.8) vs no experience 4.8 (SD 2.0), p=0.02). In multivariate linear regression analysis, ACP experience was no longer associated with ACP knowledge (p=0.81). Increased social support was independently associated with a 0.13 increase in ACP knowledge points (p=0.002), whereas non-white race was associated with 0.41 lower points (p<0.001), ≤ high school education with 0.58 lower points (p<0.001), Spanish-speaking with 0.62 lower points (p<0.001) and limited health literacy with 1.01 lower points (p<0.001).

Conclusions:

Health literacy was more important than ACP experience for ACP knowledge, as were race, social support, education, and language, although to lesser extent than health literacy. This study suggests that providing easy-to-understand ACP materials is paramount for vulnerable populations and perhaps should be offered even if patients have previously engaged in ACP.

B157
Healthcare Provider Perceptions of Hospital-to-Hospice Transitions

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Background: The transition from the hospital to hospice care is a difficult time during which gaps in the transition cause poor care experiences and outcomes for patients and their families. However, little is known about the specific gaps and opportunities to improve them.

Methods: We conducted in-depth, semi-structured qualitative interviews among hospital discharge planners (n=4) and hospice admission nurses (n=11) from two health systems. All interviews were audio recorded and analyzed using qualitative descriptive methods to identify opportunities and barriers and facilitators for safe and smooth transitions.

Results: Several themes emerged: 1) provider, patient, or family caregiver (FCG) misunderstanding of hospice care, 2) discrepancies in discharge orders and admission arrangement, and 3) poor information hand-offs between providers or between providers and patients or FCGs. Specific concerns included healthcare providers giving inaccurate or misleading descriptions of hospice and patient/FCG expectations for 24-hour care in home hospice. Discharge orders often do not include comfort medications during the transition and are incorrect or insufficient to support FCGs medication management at home. Transfer documents often lacked information needed by hospice for daily care (e.g. date/time of last bowel movement or symptom management, functional status) and updated Physician Orders for Life Sustaining Treatment (POLST) forms. We also observed differences in perceived responsibilities between hospital and hospice payers and a large geographic variation in hospice involvement in the transition. For example, hospices located further away from the hospital are less likely to be involved in assisting with coordination of the transition.

Conclusions: Our findings suggest opportunities to improve hospital-to-hospice transitions and may serve as the basis for future interventions for safe and quality care transitions.

B158
Voice-controlled intelligent personal assistants to support aging-in-place for older adults

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Introduction: Many older adults wish to age-in-place, but with time it may become more difficult to do so independently. Voice-controlled intelligent personal assistants (e.g. Amazon Echo) are a technology that may be of use to older adults in the home setting. The purpose of this study was to elucidate how older adults use this technology in their homes. **Methods:** A retrospective review was conducted of verified purchase reviews of the Amazon Echo posted on the website amazon.com between January 2015 and January 2018. Five keywords related to geriatric care were used to filter reviews: health, caregiver, senior, older adult, and medical. Qualitative analysis was then completed with three investigators coding responses using constant comparative analysis to identify emerging themes, with disagreements resolved via consensus. **Results:** Over the 3-year study time period, there were 73,549 reviews of the Amazon Echo. With keyword filtering, 125 total reviews were subsequently analyzed. Qualitative analysis revealed six major themes for older adult utilization of the voice-controlled intelligent personal assistant: 1) socialization/entertainment ("The other night, I found my spouse playing his

own version of a memory game with Alexa. He was trying to come up with songs he remembered and would ask her to play them."), 2) assistance with reminders ("I needed something that would provide me with info I couldn't remember well, such as the date and day. I highly recommend for anyone with memory challenges." "Alerts me to take my medication each evening."), 3) responding to health-related questions, 4) utility for bed-bound individuals in controlling the home ("…this handy device manages my ceiling fan and lights in the house, without me having to leave my bed or chair.") and 5) emergency communication (calling pre-set contacts). Users noted some issues, including not responding to the voice, inability to produce answers to health questions, and inability to call 911. **Discussion:** Results from this study demonstrate how voice-controlled intelligent personal assistants can support aging-in-place for older adults. Responses such as "this senior will never be lonely again" and "smart technology allows me to be able to live safely on my own" underlie the potential utility to assist older adults aging-in-place.

B159 Resident Presentation, Encore Presentation
Joy Is Not The Absence of Burnout
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Background: Recently, the growing issue of professional burnout has received much attention. An understanding of the drivers of joy in medicine are only beginning to be elucidated. We aimed to understand the factors that promote joy in medicine in a group of teachers of medical students in primary care settings.

Methods: We added an optional survey to an existing faculty survey for the primary care clerkship consisting of multiple choice and free responses related to the joy of teaching in the primary care setting. Burnout was assessed using the Mini Z Burnout survey, and results were dichotomized (burned out =rating of 3 or higher on this scale). Respondents rated on a scale from 1 (Always) to 5 (Never) how often they felt joyful during teaching. This item was dichotomized as ≤ 2 (joyful when teaching medical students) vs. ≥ 3 (not joyful when teaching medical students). We further asked respondents to describe examples of when they felt joyful during teaching encounters and elucidated themes using standard qualitative analyses. Finally, correlation between joy and burnout was analyzed using a chi-squared analysis. The study was approved through the Johns Hopkins Institutional Review Board.

Results: Of the 118 faculty that were included, 43 (36%) opted to respond to our additional survey. Of these respondents, 20/43 providers experienced burnout (47%). 32/43 respondents stated they felt joyful while teaching medical students in their practice (74%). In describing a time the respondent felt joyful while teaching, 7 themes emerged: 1. Bearing witness to student growth; 2. Professional Development; 3. Student Motivation; 4. Teacher-Student Relationship; 5. Joyful for Patient's Role in teaching; 6. Sharing Love for What You Do; and 7. Using Personal Expertise. There was no correlation between joy in teaching and burn out (X2=0.0066, p=0.935).

Conclusions: Levels of burnout (47%) were consistent with other studies. The themes related to joy we identified in this study suggest that joy may stem from a fulfilling sense of purpose and identity. Relationships also appear to have a profound impact on one's perception of joy. We hope our study contributes to better well-being and ultimately can empower the medical system to make changes to promote joy in practice.

B160
Clinicians' Perspectives on Engaging Caregivers in Primary Care Visits
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Background: Family caregivers are routinely present and engaged in older adults' medical visits, but clinicians receive little guidance and training in how to incorporate caregivers meaningfully into the medical encounter. Understanding how primary care clinicians approach caregiver involvement is critical to designing practice models that can better support older patient-caregiver-clinician partnerships.

Methods: In-depth interviews were conducted with 20 clinicians (physicians, nurses, social workers) recruited from two primary care practices in New York City. Participants were asked open-ended questions about whether and how they involved caregivers in older patients' medical visits and their perspectives on identifying caregiver risks (e.g., stress, competency to provide assistance). Transcripts were analyzed using qualitative content analysis.

Results: On average, clinicians had been working in primary care for 12.9 years and spent 21.1 hours per week seeing patients. Three themes were identified: 1) Variability in approaches to involving caregivers in the medical encounter. A range of strategies were discussed, including the use of separate consultations for patients and caregivers, telephone and email correspondence, and three-way discussions during the visit. 2) Variability in identifying caregiver needs and risks. While some clinicians inquired directly about caregiver stress and competency to provide assistance, others used physical cues from the patient or caregiver. Still, others indicated that such issues were not considered. The practice of documenting caregiver risks in the medical record also varied widely. 3) Challenges to identifying and addressing caregiver risks. Clinicians advocated for a streamlined approach to risk identification, while highlighting several challenges: the need for other practice staff to assist with caregiver issues, lack of knowledge about resources for caregivers, and insufficient time and reimbursement. Across the three themes, clinicians emphasized the importance of upholding patients' autonomy while allowing caregivers to impart their concerns.

Conclusion: Primary care clinicians expressed the need for a more effective and efficient approach to involving caregivers in the medical visit and identifying risks that could impact the patients' care plan. A streamlined approach will require support from other practice staff and an altered reimbursement system.

B161 Student Presentation
Prevention of Inflammatory Bone Injury Through Adenosine Receptor Stimulation
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Background: The most common cause of total joint replacement revision procedures is loosening of the implant due to bone erosion around the prosthesis. In most patients, wear particle induced osteolysis is responsible for prosthesis failure. We have previously identified CGS21680 (CGS), an A2A receptor agonist, as a possible treatment. Thus, we generated and tested a novel alendronate-CGS conjugate (MRS7216) that localizes to bone. We hypothesized that MRS7216 administration could prevent inflammatory osteolysis and bone erosion by enhancing A2A signaling, while preventing CGS

associated side effects. **Methods:** Osteolysis was induced in 6-8 week-old C57BL/6J mice (5 mice per treatment group). Mice received a single dose or weekly 10 mg/kg intraperitoneal dose of MRS7216 conjugate, beginning at the time of surgery. Other treatment groups were given equivalent weekly doses of either alendronate-PEG6 (AlenP) or saline. After 2 weeks, mice were sacrificed. MicroCT and immunohistochemistry analyses were performed. The studies were approved by the NYU Institutional Animal Care and Use Committee. **Results:** Studies revealed that mice treated with a weekly dose of MRS7216 had significant (40%) reduction in bone damage and (81%) reduction in osteoclasts compared to saline treated mice. AlenP did not prevent bone erosion (p<0.05) and had significant (55%) decrease in osteoclasts compared to saline group. Staining in MRS7216-treated group, showed an increase in osteoblasts compared to saline and AlenP (p<0.06). **Conclusions:** MRS7216 conjugate suppresses wear particle-induced osteolysis, inhibits osteoclastogenesis and increases osteoblast number. MRS7216 could be a novel treatment in prevention of osteolysis and potentially promote bone regeneration. Supported by the Medical Student Training in Aging Research Program, National Institutes of Health, National Institute of Aging, Bethesda, Maryland to New York University School of Medicine.

B162

The Palliative Care Champions Program: A Survey Study of a Palliative Care Training Curriculum for Social Workers and Nurses.

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The importance of palliative care will continue to grow with the increasing elderly population in the U.S. Yet, there is a lack of training programs for social workers and nurses. In hopes to address this barrier, the Palliative Care Champion Program (PCCP) was developed and implemented in our hospital system to provide a foundation of palliative care knowledge and skills that can be implemented at the bedside. This year long program consists of monthly one hour didactic sessions to social workers and nurses and has been implemented since 2011. Our study aims to describe the effectiveness of the PCCP from past graduates of the program.

For this survey study, data was gathered through voluntary completion of a survey by graduates of the training program. Participants were recruited by email and provided a link to an anonymous online survey. Descriptive analysis was performed for the study.

Out of 111 graduates (n=37, 33% social workers, n=74, 67% nurses), 45 participated in the study (41% response rate). Participants' age ranged from 25 to 67 with a mean of 38. Approximately half of the respondents were social workers (n=23, 51%) while the other half were nurses (n=22, 49%). The majority of the participants were female (n= 43, 96 %) and White (n=37, 82%).

All but one of the participants reported that the PCCP enabled them to better identify those who would benefit from palliative care (Strongly agree n=34, 76%, Somewhat agree n=10, %22). Many also reported increased confidence (Strongly agree n=30, 67%, Somewhat agree n=13, 29%) and ability to integrate palliative care in their patient care (Strongly agree n=34, 76%, Somewhat agree n=8, 18%). Most of the participants agreed that they would recommend the program to others (Strongly agree n=38, 84%, Somewhat agree n=5, 11%).

This study reveals that the PCCP improved self-reported confidence and ability to use palliative care in the participants' own disciplines. It allowed them to recognize those who would benefit from palliative care. The positive feedback from the graduates reinforces that PCCP can be an effective way of integrating palliative care education into disciplines of nursing and social work. However, more rigorous studies are needed to assess how PCCP graduates are implementing the knowledge and skills learned in their practice.

B163

Finding the Sweet Spot: An Interactive Workshop on Diabetes Management in Older Adults

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Background

Intensive glucose lowering in older adults with diabetes leads to increased risks with minimal benefits. Surveys from the literature indicate clinician confidence for individualizing glycemic goals and regimens remains low. We created an interactive workshop and clinical toolkit to improve clinician knowledge on safe diabetes management in older adults.

Methods

Finding the Sweet Spot is a 1-hour workshop for medical and pharmacy trainees that introduces a 5-step framework for diabetes management in older adults. The interactive presentation included cases and a clinical toolkit based on current recommendations from the American Diabetes Association and American Geriatrics Society. Pilot workshops were held for twenty learners for six months allowing for real-time revisions based on feedback; final implementation occurred for six months thereafter. We evaluated learner self-efficacy (via a 5-point Likert scale) and knowledge (via multiple choice questions) on diabetes management in older adults before and after the workshop.

Results

Thirty trainees participated in Finding the Sweet Spot workshop (70% medicine, 30% pharmacy). The percentage of trainees indicating high self-efficacy in glycemic management for older adults increased from 55% before to 97% (p <0.05) after the workshop. All learners demonstrated improvements in knowledge, with the mean score on the knowledge assessment increasing from 61% to 80% (p <0.05). Via open-ended feedback, learners expressed high satisfaction with the workshop and found the clinical toolkit resources especially helpful.

Conclusions

Our Finding the Sweet Spot workshop demonstrated statistically significant changes in self-efficacy and knowledge amongst learners, indicating that this interactive workshop offers an efficient and effective way to improve medical and pharmacy provider confidence and skills in caring for older adults with diabetes.

B164

A sustainable competency based curriculum for medical students on taking a medication history

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Background: Taking an appropriate medication history with older adults is a core competency for graduating medical students. As part of a broader medication management curriculum, we developed a curriculum for second-year medical students targeting this competency. The curriculum consists of a study guide, a 45-minute simulated patient (SP) small group session, and an online competency assessment. We present the outcome data from 7 cohorts (N=1060 students), lessons learned, and strategies for sustainability of this curriculum.

Methods: During a geriatrics clinical skills session, students groups of 5-7 interviewed an SP (a faculty member or advanced trainee) who presented with a "brown bag" of medications. They were asked to identify medication concerns (e.g., adherence, side effects, cost) and make recommendations to improve medication safety. Students evaluated this session with a Likert-type scale (1-strongly disagree to 5-strongly agree). At the end of the year, students completed an individual online case based assessment in which they were also

asked to identify medication concerns and recommendations. We built 7 key medication concerns into the case linked to our instructional activity. Students were awarded 1 point for each problem recognized and each proper recommendation made: 14 possible points. Students were required to meet a performance standard of 8/14 and underwent remediation and reassessment if needed. With the last cohort, students increasingly mentioned medications that were unsafe for older adults (Beer's list) and we added one scoring category (1 point) but maintained the performance standard.

Results: Student evaluations of the SP session were high (N=988; Average=4.86). 970/1060 students (91.5%) met the performance standard on their first attempt. Only 2 students did not achieve competency by their second attempt; they received one-on-one remediation.

Discussion: Our medication history curriculum enables 100% of students to achieve competency, most on their first attempt. Significant faculty time is required for the SP sessions but with minimal instruction, we were able to train fourth year medical students to play the SP role and provide student groups with feedback. An expansion of our broader medication curriculum focused on the Beer's list appears to have filtered down to the second-year medical students raising their performance.

B165 Resident Presentation
A Delirium Training For The Surgery Resident

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Background: Perioperative delirium is of increasing concern to surgeons as we learn more about its direct association with healthcare costs, longer recovery times, higher rates of institutionalization and greater mortality. While delirium teaching exists in surgical residencies, there are very few standardized teaching tools specifically tailored for surgical residents. Our team developed a formalized geriatric surgical curriculum with foundations in prevention, assessment, and management of delirium.

Methods: An interactive case-based delirium workshop was delivered to surgery residents between 2015-2018 at Johns Hopkins Bayview Medical Center. Pre-and-post tests were administered. After three years a post-test was sent to assess retention and application of the knowledge gained during the training.

Results: Sixty-four surgery residents were trained, with pre-post data revealing that nearly 80% of residents either improved or maintained the same knowledge base after receiving the training. At the three-year follow-up, 63% of residents were using a standardized way to assess post-operative delirium, 96% of residents felt they had the knowledge and skill to successfully treat delirium with every resident identifying non-pharmacologic and harm-reducing techniques as first line treatment. Ninety-eight percent of residents felt this training was needed in their residency curriculum, with 23% desiring a longitudinal component to the training.

Conclusions: Delirium occurs after surgery in up to 50% of adults aged 65 and older and is one of the most common postoperative complication in this age group. Delirium is preventable in up to 40% of cases, making it a prime candidate for prevention interventions targeted to improve outcomes in older adults. Geriatricians can plan a key role in training surgery residents about delirium. Training programs that start early in surgery residency and give practical skills for assessment, management and prevention of delirium are key with an emphasis on a longitudinal component to the training to reinforce concepts and update as our understanding of delirium grows.

B166
Internal Medicine Residents' Attitudes Regarding End of Life Care for Chronically Ill Hospitalized Patients

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Background: The American Geriatrics Society minimum competencies for residents in family and internal medicine (IM) include advance care planning. The purpose of this study was to assess the attitudes and experiences of IM residents when providing EOL care to chronically ill hospitalized older adults.

Methods: An anonymous online survey contained questions pertaining to experiences with EOL care, teaching and role-modeling in EOL conversations, and perceived barriers to EOL conversations in the hospital was distributed to all active IM residents at 8 US academic medical centers from Nov 2017-June 2018.

Results: 505 of 963 residents responded for a 52.4% response rate. A majority of residents report leading EOL conversations (82.8%) sometimes or often. Almost half report never or rarely having had an attending physician either observe them lead an EOL discussion (47.2%) or provide feedback after holding an EOL discussion (49.3%). Over one quarter of residents (28.1%) identify another trainee as the most significant role model regarding EOL discussions. Although most residents (81.0%) report sometimes or often providing prognosis predictions, over half (59.9%) report never or rarely using evidence-based resources to generate predictions. Most residents (77.9%) agree or strongly agree that finding enough time to hold EOL discussions is difficult. Only a minority agreed that they dread EOL discussions (20.6%) or agree that a lack of clinical experience is a barrier (39.9%).

Conclusion: Most IM residents participate confidently in EOL discussions, yet opportunities exist for workplace based assessment. These data suggest an opportunity to reframe the educational techniques around residents' experiences and assessment of EOL discussions by incorporating direct observation and feedback, providing training regarding prognostic resources, and addressing barriers to EOL discussions.

B167 Student Presentation
Vitamin D, Cognitive Function and Gait Speed in older adults- A NHANES study

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Background: Vitamin D deficiency has been linked to poor cognition and neuromuscular impairment. We evaluated the relationships of vitamin D levels to cognitive function and gait speed in older adults.

Methods: The study sample included 1076 individuals (age => 60 years) from the 2001-2002 National Health and Examination Survey (NHANES). The relationship of vitamin D to cognition and gait speed was studied using regression analysis. Cognitive function was measured as the number of questions correct on a digit-symbol test. Gait speed was measured as the time taken to walk 20 feet. Serum 25(OH)D concentrations were measured via the DiaSorin radioimmunoassay. Statistical significance was determined at p <0.05. The regression equations controlled for season, gender, age, race/ethnicity, education level, marital status, household size, and household income.

Results: In this NHANES study, 32% were deficient in Vitamin D (<20 ng/ml), and 43% were insufficient in vitamin D (20-29 ng/ml).

versus not on methadone maintenance. Linear regression was used to test the effect of methadone dosage on QTc interval.

Results

The methadone maintenance group consisted of 45 (18 females) patients with the average age of 69.80, standard deviation: 0.72, while the control group consisted of 63 (39 Female) patients with the average age of 76.98, standard deviation: 1.09. Independent samples t-test showed methadone group to have a 12.4 milliseconds longer QTc interval vs control group (avg QTc = 459.3 mSec (methadone arm) vs. 446.9 mSec (control arm); p-value = 0.041). Within the methadone group, QTc interval increases by 2.2 mSec for each year of age (linear regression, p-value = 0.037, R^2= 0.311). Within methadone arm, for every 1 milligram(mg) increase in methadone dose, QTc interval was prolonged by 0.055 milliseconds (statistically insignificant, linear regression; p-value = 0.592). No correlation between age and QTc in entire study population (linear regression, p-value = 0.654, R^2= 0.002).

Conclusion

There is a significant increase in QTc interval with use of methadone in the geriatric population.

B171 Student Presentation
Stakeholder Feedback on Novel Behavioral Intervention Targeting Chronic Low Back Pain and Comorbid Depression in Older Adults

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Background: MOTIVATE (Moving to Improve Chronic Back Pain and Depression in Older Adults) is a novel 8-session, 10-week, telephonic behavioral intervention targeting older adults with chronic low back pain (cLBP) and comorbid depression. To ultimately improve back pain-related disability and depression, a health coach utilizes motivational interviewing and values-based goal setting to increase physical activity. We piloted MOTIVATE and conducted interviews with key stakeholders to refine its content and delivery.

Methods: The PARiHS (Promoting Action on Research Implementation in Health Services) framework was used to develop the discussion guide and facilitate individual in-depth interviews with the following stakeholders: Veterans (n=4) who received MOTIVATE, primary care providers (PCP) (n=4), clinic director (n=1), and health coach (n=1).

Results: We enrolled 8 Veterans in the pilot study who were predominately white (75%), male (87%), with a mean age of 70 years. The mean pain intensity score was 7.3/10; back pain-specific Roland Morris Disability Scale was 16.5/24; and depression (PHQ-9) score was 16.7/27. Stakeholder interviews provided valuable feedback on how to modify MOTIVATE (Table 1). Briefly, Veterans engaged well with the health coach, were motivated to walk with a pedometer and coaching, and felt that being more active reduced pain and depression. PCPs attribute success of the intervention to the personal qualities and engagement of the health coach. The health coach noted that Veterans were able to identify value concordant goals and easily link these to physical activities.

Conclusions: This pilot study showed that we were able to effectively recruit older Veterans with cLBP and depression and deliver MOTIVATE via telephone. Feedback from key stakeholders regarding the iterative refinement of recruitment, study procedures, and content will aid the future evaluation and implementation of MOTIVATE.

Table 1: Illustrative Quotes from Stakeholders Providing Feedback on MOTIVATE		
Stakeholder	**Theme**	**Illustrative Quotes**
Veteran Participants	Rapport with health coach	"Before I had thoughts that stopped me from doing things. [Health coach] helped me overcome those thoughts." "Telephone calls were good. Some of the sessions were too long. I was fatigued, and [health coach] respected that and split the sessions up." "Being able to see my coach on video might be helpful."
	Motivation to follow through with goals related to physical activity	"[Health coach] motivated me a lot, once I got the idea and process of being more active to reduce depression and pain, then I got motivated by that." "This program helped me think differently about physical activity and depression…it changed me."
	Future role of health coaching within Patient Aligned Care Team	"It would be helpful to have someone who knows my values/goals call me and check in on me. Not every week! That would be a nuisance!"
Primary Care Providers including Clinic Director	Importance of health coach and goal setting in the context of pain and depression in primary care	"Goals would be valuable to know, especially if certain activities/modalities help alleviate their pain and improve their emotions. We could reinforce them." "It is very dependent on the health coach…They need to have the right personality." "Having adjunct health coach would be helpful, since we don't have time to do these types of sessions."
Health Coach	Perception of goal setting	"Goal setting … was the component the Veterans were most excited about…many at some point in their lives were very active…[this intervention] jump-started or augmented their current physical activity."
	Patient activation to improve outcomes	"Patient activation got patients out of the vicious cycle of severe depression and back pain."
	What successful implementation requires	"…requires education of staff and clinicians about what a health coach is and does…and examples of how they might help e.g. quit smoking, losing weight, exercising more."

B172 Resident Presentation
Risk Factors for Immunotherapy Toxicity among Older Adults

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Background: Immune checkpoint inhibitor (ICI) immunotherapy is revolutionizing cancer care; however, toxicity among older adults is poorly characterized.

Methods: We performed a single institution retrospective cohort study of adults who received ICIs for advanced cancer from 2011-2017. Baseline clinical and geriatric characteristics (patients >70 years; within 30 days of ICI start) were abstracted from the electronic health record. Toxicities were graded by clinicians based on Common Terminology for Adverse Events criteria, v4.0, with ≥ grade 3 toxicity = medically severe, disabling, and limiting activities of daily living (ADL). We determined patient characteristics associated with any grade and ≥ grade 3 ICI toxicity (α≤0.05).

Results: Among 1,136 patients with advanced cancer treated with ICI, 215 (19%) were age >70 years (y) (median 77y; range: 71-92y) of which, 69 (32%) were ≥80y, 95% white race, and 41% female. Melanoma was the most common cancer (n=76, 35%) followed by lung (n=49, 23%), and renal (n=17, 8%). In total, 36% of patients experienced any grade toxicity; 11% ≥ grade 3. Depression (22% of total sample) was associated with any grade toxicity (p=0.02). Decreased mobility and instrumental activities of daily living (IADL) limitations were associated with ≥ grade 3 toxicity (p≤0.05).

Conclusion: Decreased mobility, depression, and IADL limitations are potential risk factors for ICI toxicity among older adults with advanced cancer. Further evaluation and interventions designed to address risk factors for toxicity are needed.

Patient Characteristics and Association with Toxicity

Patient Characteristic	N (%) of Total Older Adult Cohort (N=215)	Association ≥ Grade 3 Toxicity (N=24) p-value (χ^2)
Comorbidities	---	
0	10 (5%)	
1-2	81 (38%)	0.53
3-4	89 (41%)	
5+	35 (16%)	
> 10 daily medications	40 (19%)	0.18
Cognitive limitations	26 (12%)	0.19
Use of assistive device	85 (40%)	0.55
Fall history	33 (15%)	0.05
Decreased mobility	38 (18%)	0.006
ADL limitations	31 (14%)	0.16
IADL limitations	42 (20%)	0.05

B173

Outcomes Associated with Potentially Inappropriate Medications (PIMs) from the Beers List Following Total Knee Arthroplasty

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Background: The Veterans Health Care System (VA) performs over 9000 total knee arthroplasty (TKA) surgeries each year, primarily on older adults. Beers list medications are potentially harmful to older adults and are divided into 3 categories: medications that should be avoided in older adults, medications that should be avoided in the setting of certain conditions, and medications that should be used with caution. Given that little data is available regarding the potential consequences of use of Beers list drugs in a surgical population, this study attempts to quantify possible complications.

Methods: This is a retrospective cohort study. The primary outcome measure was length of stay (LOS) for inpatient postoperative care following TKA, with secondary outcome being number of emergency department (ER) visits within 1 year post discharge. Data was obtained from the VA Corporate Data Warehouse using SQL. Multivariate analysis was performed looking at the number of doses of PIMs compared to LOS and ER visits for each of the 3 categories of Beers drugs.

Results: 12,639 uncomplicated TKAs at the VA from 2010 to 2015 were analyzed. The average age was 65.06. 83.7% of patients received PIMs from the Beers list during their admission for the surgery. The average number of unique doses administered during hospitalization was 1.57, 2.77, and 8.9 for the 3 Beers list categories. There was a correlation between number of Beers doses administered from categories 2 and 3 and unique ER encounters (P 1.53E-11,0.011). There was a significant association between LOS and doses administered from all 3 categories (P <2E-16) after controlling for VA facility, gender, age, ASA class, Charlson score, case length, and BMI.

Conclusion: Beers list medications were associated with increased LOS and post-op ER visits in all veterans who underwent TKA. Further analysis is needed to look at the specific impact in patients over age 65 in addition to effect on readmission, reoperation, and mortality. The specific effect of anticholinergic burden on those outcomes will also be assessed.

B174 Resident Presentation

Effects of Ohio's Opioid Prescribing Limit for the Minimally Injured Geriatric Trauma Patient

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Background

Minimally injured trauma patients (MITP) are managed with observation or emergency room care alone, but many receive opioid prescriptions (OP). In August 2017, Ohio introduced an outpatient opioid prescribing law, limiting OP to 30 morphine equivalent doses (MEDs) per day, for up to 7 days. We hypothesized that geriatric MITP would receive fewer OP and lower MEDs after the law was enacted, and that geriatric MITP would receive fewer opioids than non-geriatric MITP.

Methods

We reviewed MITP aged ≥ 65 who were discharged within 1 day at an academic level 1 trauma center in May and June of 2015-2018, excluding patients who had surgery within 30 days. Demographics, injury characteristics, follow-up, and ancillary pain prescriptions were collected. OP and MEDs at discharge and additional prescriptions within 30-days were compared pre- and post-law. Opioids for geriatric MITP were compared to non-geriatric MITP from May 2015-2018. Chi-square, Mann Whitney U, and student's t-test were used for comparisons.

Results

222 geriatric MITP (55% female, 98% blunt mechanism, median age 76 (69-84)) were included. 58 (26%) were post-law. Demographics and injury characteristics were similar pre-and post-law.

Fewer patients had OP at discharge post-law (31% vs 16%; p=0.02), without significant change in 30-day OP (15% vs 16%; p=0.91). For patients with OP, MEDs decreased at discharge (225 (113-338) vs 90 (60-128), p=0.04 and at 30 days (398 (206-525) vs 105 (100-119), p=0.04). Ancillary prescribing and follow-up did not change post-law. Both OP and MEDs also decreased the year prior to the law's enactment.

Fewer geriatric MITP, compared to non-geriatric MITP, had discharge OP (27% vs 35%, p=0.03), but they received more MEDs when prescribed (150 (101-300) vs 113 (113-225), p=0.04). 30-day OP and MEDs were not different. Geriatric MITP had a similar reduction of OP post-law (54% vs 50%, p=0.63.), but a greater reduction in MEDs (60% vs 20%, p<0.001) compared to non-geriatric MITP.

Conclusions

For geriatric MITP, the opioid prescribing law was associated with both fewer discharge OP and lower MEDs, although this trend started prior to the law. Despite reductions, providers did not prescribe fewer MEDs to older trauma patients when compared to non-geriatric MITP, despite potential safety concerns in this population.

B175 Resident Presentation

Natural language processing identifies palliative care delivery in older trauma patients and highlights the need for quality improvement.

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Background: The American College of Surgeons endorses palliative care (PC) delivery for older patients with potentially life-threatening or disabling injuries. Measuring PC delivery is hindered by the limitations of administrative coding and abstracting data from manual chart review. We utilized novel natural language processing (NLP) to examine PC delivery for older patients at two level one trauma centers.

Methods: Patients ≥65 years with moderate to severe injuries (7/2016-6/2017) were included. NLP measured PC delivery across four domains: code status clarification, goals of care discussion, specialist PC consultation, and hospice evaluation. Logistic regression identified patient and admission factors associated with PC delivery.

Results: 1,199 admissions and >40,000 notes were included. NLP review was completed within <12 hours. Mean patient age was 81 with most were female (59%) and white (88%). NLP identified PC delivery in 38% of admissions. Code status clarification was most common (36%), while <10% had documentation of other domains. Factors associated with PC included older age, prior advanced directives, comorbidities, injury severity, ICU stay >5 days, mechanical ventilation, and in-hospital death (Table).

Conclusions: NLP is a powerful, rapid method for measuring PC delivery and identifies PC domains with more granularity than administrative data. In the older trauma patients PC is underutilized and largely limited to the very sickest patients.

Patient and Admission Factors Associated with Palliative Care Delivery in Older Trauma Patients

	Adjusted Odds Ratio for PC Delivery (95% CI)
Advance Care Directives Prior to Admission	4.59 (1.78-11.8)*
In-Hospital Death	3.91 (1.92-7.97)*
Mechanical Ventilation	2.86 (1.59-5.17)*
ICU Length of Stay ≥5 Days	1.81 (1.08-3.04)*
Charlson Comorbidity Score ≥2	1.60 (1.24-2.08)*
Non-Hispanic White	1.36 (0.90-2.06)
Admission to ICU from ED	1.06 (0.77-1.45)
Age	1.06 (1.05-1.08)*
Injury Severity Score	1.01 (0.98-1.03)
Male	0.85 (0.65-1.11)

*Designates p-value <0.05

B176 Student Presentation
Frailty Index based on Comprehensive Geriatric Assessment helps identify high risk geriatric patients with hip fracture
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Background: The frailty index (FI), defined by an accumulation of deficits, is a validated tool that can be used in older patients to predict pre-operative risk. We investigated the relationship between pre-fracture frailty status and mortality and readmission in geriatric patients undergoing surgery for hip fracture.

Methods: This retrospective study included patients who were ≥ 70 years of age, admitted for a hip fracture and co-managed by orthopedic trauma and geriatrics services at a Level-1 trauma center between 2014 and 2016. Patients were excluded if they had an injury other than a hip fracture, did not undergo surgery, or had unknown vital status. Using the comprehensive geriatric assessment performed as part of the patient's routine admission examination, we calculated the frailty index ($0 \leq FI \leq 1$) by abstracting up to 60 health deficits across 11 domains. We documented perioperative blood transfusions, 30-day readmission and all-cause mortality. All patients in the study were followed for at least one year.

Results: A total of 172 patients were enrolled with a mean age of 84 years and 72% were female. Out of 172 patients, 5.2% were robust (FI ≤ 0.10), 20.9% were pre-frail (0.10<FI ≤0.21), 51.8% were frail (0.21< FI ≤0.45) and 22.1% were severely frail (FI > 0.45). There was no significant difference in mean age between pre-frail, frail and severely frail groups (p<0.05). However, there was a significant difference in one-year mortality for each group (8%, 15%, and 53% in pre-frail, frail, and severely frail groups respectively, p<0.0001), and two-year mortality for each group (15%, 30%, and 76% in pre-frail, frail, and severely frail groups respectively, p<0.0001). After adjustment for age, gender, and fracture type, each 0.1 increase in frailty index score was associated with 2.3 times the odds of 1-year mortality (OR: 2.3; 95% CI: 1.7, 3.3) and 1.6 times the odds of 30-day readmission (OR: 1.6; 95% CI: 1.1, 2.2).

Conclusions: In this retrospective study, we found that a higher frailty index was associated with greater odds of 30-day readmission and one and two-year mortality in geriatric hip fracture patients. A frailty index based on a comprehensive geriatric assessment may identify high-risk geriatric hip fracture patients and guide clinical care.

B177
A feasibility study aimed at aligning sleep apnea treatment decisions with older patients' health priorities
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Background: Aligning treatment decisions with older patients' health priorities may be challenging, particularly in busy subspecialty clinics. We developed the Decide2Rest (D2R) program for older adults with newly-diagnosed obstructive sleep apnea (OSA) to promote collaborative treatment decisions that reflect what matters most to patients. We explore here what older patients with newly-diagnosed OSA rated as their health priorities and assess program feasibility.

Methods: Patients aged ≥ 60 years with newly-diagnosed OSA were recruited from one VA medical center and randomized to D2R versus a control condition. The D2R is a web-based program that describes the pros and cons of positive airway pressure, oral appliances, surgery, and "no treatment." It includes self-guided, paper-based exercises, including one that asks how important each health domain is to the participant (8 domains/8 items; 1=Not at all important, 4=Extremely important). Control participants received general sleep information. The D2R program and control condition were single sessions prior to a sleep clinic visit. We summarized responses to each health priority item and length of time for completing the D2R program (mean, SD). The usability and acceptability of the D2R program versus control were compared with t-tests.

Results: All participants (N=18 D2R, N=19 control; mean age 67 [SD 6]; Comorbidity Index 6.4 [range 2-14]) competed the assigned condition. In the D2R group, health priorities with the highest ratings of importance included driving more safely/responsibility (3.3 [0.9]), engaging in more physical activity (3.0 [0.8]), and taking care of financial affairs (3.1 [0.9]), whereas participating in more social activities (2.4 [0.7]) was rated least important. The length of time for completing D2R was 10.3 minutes (SD 3.5, range 5-20). No significant differences were observed in usability and acceptability for all items (likeability, ease of use, navigation, length; p values > .052) except learnability of the program (t(35)=-2.03, p=.04).

Discussion: The D2R program is a promising strategy for eliciting health priorities. This program may support efforts to align treatment decisions with patient priorities in the context of subspecialty care and to promote person-centered care.

B178
An Implementation Assessment of the Virtual Acute Care for Elders Program
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Background

The Virtual Acute Care for Elders (ACE) program was developed to address the critical shortage of geriatric specialists by facilitating the delivery of evidence-based geriatric care to surgical patients, while reducing formal geriatric consultations. The program components are (1) training bedside nurses in geriatric care, (2) building assessments of physical and cognitive function into the electronic medical record, (3) applying evidence-based protocols for mobility, delirium prevention, and pain control, (4) implementing an electronic dashboard that tracks patient progress, (5) standardizing postoperative order sets, and (6) providing units with equipment to assist with mobility and delirium prevention. The objective of this study was to conduct a formal evaluation of Virtual ACE using feedback from key stakeholders and end users.

Methods

We conducted semi-structured interviews with 30 key stakeholders (physicians, nurses, hospital leadership, nurse managers, information technology staff, and physical/occupational therapists) involved in the implementation and use of the program on a surgical ward at a tertiary care hospital.

Results

Our stakeholders indicated that Virtual ACE was extremely empowering for bedside nurses and other staff. The program helped frontline staff better identify older patients who were at risk for a difficult postoperative recovery and gave them the skills and decision support tools to manage complex older patients and to more effectively communicate their needs to physicians. Nurse managers also felt that Virtual ACE helped them plan their unit staffing assignments to better manage the needs of older patients. The main criticism of the program by end users was that the electronic dashboard was difficult to interpret and could be improved by a design interface that better customized to the needs of end-users. Stakeholders also felt that the training program needed to be frequently repeated to accommodate ongoing staff turnover.

Conclusions

Virtual ACE is a promising program to improve outcomes for older surgical patients. The next iteration of our program will incorporate stakeholder feedback to improve design and execution.

B179 Student Presentation

Is Greater Rehabilitation Intensity Associated with Older Adults Being Discharged Home after a Prolonged Hospitalization?

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2. UTMB, Galveston, TX; 3. UCSF, SF, CA.

Background

While rehabilitation is critical for preserving functioning, it is unknown whether greater rehabilitation intensity (RI) helps older adults with prolonged hospitalization make it back home.

Methods

We conducted a retrospective cohort study of consecutive community-dwelling adults ≥65 years old hospitalized at a safety-net hospital in north Texas for ≥14 days between 2016-17. Using logistic regression, we modeled RI (defined as total minutes of physical and occupational therapy per week) as a restricted cubic spline to assess if it was associated with being discharged home (vs. transfer to a post-acute care facility), adjusting for sociodemographic and clinical characteristics (see Figure footnote). Patients that received no PT/OT or only an initial assessment were excluded.

Results

Among 457 older adults (median age 72; 46% female; 70% non-White; median length of stay 20 days), the median RI was 100 min/week (IQR 59-158). RI was associated with home discharge in a non-linear 'J'-shaped fashion (p<0.01, Fig 1). Greater RI up until ~190 min/week was associated with decreased probability of home discharge. The association reversed once RI was >190 min/week; however, the adjusted probability of home discharge was still lower compared to minimal RI until patients received ultra-high RI (>800 min/week).

Conclusion

While rehabilitation is known to improve mobility and functioning, greater RI may not help community-dwelling older adults make it back home after a prolonged hospitalization unless they receive ultra-high RI (>800 min/week). Further research should examine whether quality and type of rehabilitation influence discharge outcomes.

Figure 1. Adjusted Probability of Being Discharged Home[a]
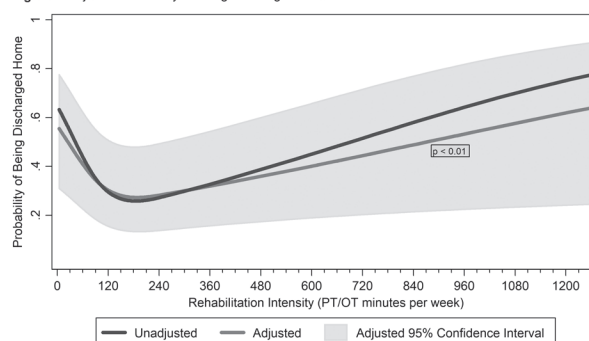
[a]Point estimates and corresponding 95% CIs shown are predicted probabilities computed from a multivariable logistic regression using a restricted cubic spline transformation of RI as the primary predictor, adjusting for age, sex, race/ethnicity, language, primary payer, living arrangement (alone vs. not alone), prior ADL status (impaired vs. independent), home medical equipment use (none, cane/walker, wheelchair/hospital bed), hospital length of stay, ICU length of stay, mechanical ventilation status (0 h, ≤96 h, >96 h), cognitive status during hospitalization (impaired vs. intact), code status (full code vs. DNR), diagnosis type (medical vs. surgical), Major Diagnostic Category (neurologic, musculoskeletal, infectious, circulatory, respiratory, other), diagnosis resource intensity (DRG weight), and procedure type (none, minor, major non-elective, major elective).

B180

Potentially Inappropriate Medications Prescribed in the Emergency Department: EQUIPPED Project Baseline Data

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Background

Potentially inappropriate medications (PIMs) are associated with harms in older adults including increased confusion and falls. To inform an ongoing quality improvement project (EQUiPPED: Enhancing Quality of Prescribing Practices in the ED) we examined the frequency and types of PIMs prescribed in the ED, explored indications, and compared characteristics of prescribers at the Duke University Hospital ED.

Methods

To analyze baseline prescribing, discharge medications from ED encounters for adults aged 65+ at the Duke ED were collected. PIMs were defined by the Beers Criteria. Descriptive analyses included: 1.) characterizing the frequency of PIMs prescribed, 2.) examining the most frequent diagnoses associated with PIM prescribing, 3.) characterizing provider background associated with PIM prescribing.

Results

Between January 1st, 2016, and June 5th, 2018, there were 7459 ED encounters in which adults aged 65+ were discharged with at least one medication prescribed. PIMs were prescribed in 847 (11.3%) of these encounters. The most commonly prescribed PIMs were cyclobenzaprine (n = 158), meclizine (n = 150), and diazepam (n = 109). The most common diagnoses associated with visits at which either cyclobenzaprine or diazepam were prescribed were back pain, motor vehicle accident/collision, or other falls/trauma. Meclizine was most frequently associated with an encounter diagnosis of dizziness. A total of 205 ED providers prescribed medications during the observation period (52 attending physicians, 17 physician assistants/APPs, 135 resident physicians). Among the 847 encounters in which PIMs were prescribed, 327 (38.6%) were prescribed by physician assistants, 318 (37.5%) were prescribed by resident physicians, and 209 (24.7%) were prescribed by attending physicians.

Conclusions

Based on this baseline data, some of the highest yield reductions in PIM prescribing may come from targeting frequently prescribed PIMS (cyclobenzaprine, meclizine, and diazepam); detailing physician assistants/APPs and resident physicians; and advising on appropriate medications to treat back pain, trauma-related pain, and dizziness.

B181 Resident Presentation
Older patients with rectal cancer tend to undergo curative resections at low-volume hospitals, and tend to travel shorter distances for care

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Background:

The association between surgical volume and outcomes has led to recommendations that patients undergo surgery at high-volume centers. However, centralizing operations at fewer hospitals may limit patients' access to care, particularly older patients who may be unable to travel long distances. This study aims to determine (1) if volume is associated with outcomes in older patients with rectal cancer, (2) if older patients are being treated at high-volume centers, and (3) how far older patients travel for curative oncologic care.

Methods:

We identified patients ≥65 years old who underwent non-palliative resection for stage II/III rectal adenocarcinoma from the National Cancer Database (2004-2015). Tertiles were used to categorize facility volume (<4.1, 4.1-8.4, >8.4 rectal resections/year) and distance traveled (<5.4, 5.4-16.8, >16.8 miles between patient home zipcode and treating facility address). Distances to other facilities were not recorded. Differences in outcomes and survival were assessed using logistic and Cox regressions.

Results:

Of the overall cohort (n=12,050), patients ≥80 years old were less likely than patients 65-70 years old to be treated at high-volume (17.4% vs 37.9%, p<0.001) or academic centers (16.5% vs 39.8%, p<0.001). After adjusting for multiple factors, age ≥80 continued to be associated with decreased likelihood of care at a high-volume facility (OR 0.83, 95% CI 0.74-0.94). Higher facility volume was associated with improved outcomes, including receipt of neoadjuvant therapy, decreased 30- and 90-day mortality, and improved survival. Patients who traveled >16.8 miles were more likely to be treated at high-volume facilities (OR 4.19, 95% CI 3.68-4.77). However, patients ≥80 years old were less likely to travel >16.8 miles to their treating facility (14.8% vs 41.1%, p<0.001; OR 0.56, 95% CI 0.49-0.65).

Conclusions:

Higher facility volume is associated with improved outcomes after rectal cancer resection. However, older patients who receive curative therapy are less likely to be treated at high-volume facilities. Older patients also tend to travel shorter distances for care, suggesting that resources are needed to facilitate travel to high-volume centers and better methods of care integration across networks must be developed.

B182 Student Presentation, Encore Presentation
Prospective Evaluation of Urine pH Variations in Older Women with Recurrent Urinary Tract Infections

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Background: Recurrent urinary tract infections (RUTIs) are a common problem among older women. Antibiotics such as nitrofurantoin and sulfamethoxazole have been shown to be effective in a urine pH 5-6 range, whereas fluoroquinolones are more effective at an alkaline pH. Little is known about patterns of daily changes in urine pH which could influence antibiotic response.

Methods: After IRB approval, women >63 yrs with documented history of RUTIs were enrolled. Participants were given urinalysis reagent strips (Medimpex) and pre-formatted charts to measure and record urine pH at home 4x/day before each meal and at bedtime. A 7-consecutive day collection period was recorded, yielding 28 measurements/patient. Urine cultures were obtained at baseline to ensure no active infection during urine pH measurements. For those able to provide a second week of measurements, a urine culture was repeated before starting the second week.

Results: Over 2 months, 12 women with mean age 71.8 ± 4.7 (64-82) years participated. Mean interval time between two, 7-day measurement periods was 8 (0-17) days. Urine pH variation was observed in every individual, and urine pH measurement range ≤ 1 unit was observed in 58% of participants. Median pH across all data points was 6 (5-9). Drops in pH were observed between all measurement times: pre-breakfast to pre-lunch (11), pre-lunch to pre-dinner (13), pre-dinner to bedtime (13), and bedtime to pre-breakfast (10). Magnitude of pH drops varied, including pH 6 to 5 (75%), pH 6.5 to 5 (13%), pH 7 to 5 (10%), and pH 7.5 to 5 (2%).

Conclusion: We observed important daily fluctuations in urine pH in women with RUTIs. This novel finding may provide guidance when selecting and timing antimicrobial therapy and guide new research in ways to modulate urine pH that could reduce RUTIs and/or improve antibiotic delivery.
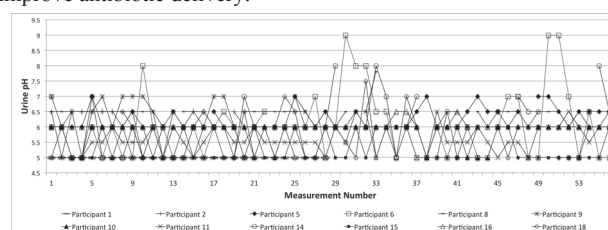
Urine pH Fluctuations

B183
Dementia as a risk factor for return to the Emergency Department

J. A. Stanich,[1] M. M. Jeffery,[1,2] S. M. Bower,[1] L. E. Walker,[1] N. Espinoza,[1] R. L. Campbell,[1] P. Takahashi,[3] M. Bellolio.[1,2] *1. Emergency Medicine, Mayo Clinic, Rochester, MN; 2. Health Sciences Research, Mayo Clinic, Rochester, MN; 3. Medicine, Mayo Clinic, Rochester, MN.*

Objectives: Older adults with dementia present frequently to the Emergency Department (ED). We evaluated factors associated with 30-day return ED visits among patients aged 65 years and older, and compared among those with and without dementia.

Methods: This was an observational cohort study of consecutive patients age 65 years and older who presented to the ED in 2017. We adhered to the STrengthening the Reporting of OBservational studies in Epidemiology guidelines. Odds ratios (OR) with 95% confidence intervals (CI) were calculated. Chi-square, Wilcoxon and logistic regression were used for statistical analysis.

Results: A total of 22,497 total ED visits by 15,120 patients age 65 and older were included. The median age was 77 (IQR 70-83), 51% were male. Overall, 55.7% visits resulted in an admission to the hospital (observation and inpatient). A total of 15.4% (n=3,465 visits) returned and 7.0% (n=1,057 patients) died within 30 days of the first ED visit. There were 4,513 visits by patients with dementia (20.1%).

All comorbidities were associated with 30-day return in univariate analysis: CAD (OR 1.50, CI 1.40-1.62), CHF (1.63, 1.51-1.76), COPD (1.37, 1.26-1.49), diabetes (1.38, 1.28-1.49), dementia (1.52, 1.40-1.65), and cancer (1.32, 1.22- 1.42). A previous hospital admission within 1-year was associated with return ED visits (OR 1.93, CI 1.80-2.08).

The use of the elderly risk assessment score (age, gender, hospital days in the prior 2 years, marital status, and comorbidities) was associated with 30-day return with a higher median score for those who returned (11 [5-18] vs. 7 [3-14], p<0.0001).

In the logistic regression model, after adjustment by age and comorbidities, all comorbidities had significant odds of return.

Dementia and CHF had the highest odds to return (OR 1.41 [1.29-1.54] for dementia and OR 1.37 [1.26-1.49] for CHF). Age was not a predictor of 30-day return (OR 0.87, 0.73-1.05).

Conclusion: Older adults are a high-risk population with a return rate of 15%. Patients with dementia had the highest odds of return, this could represent lack of self efficacy, caregiver burden, functional decline, among others. Given the rise in the number of adults with dementia, understanding more about why patients with dementia return can help us enhance our care plans to better serve these patients.

B184 Resident Presentation
Older Veterans Undergoing Inpatient Surgery: What is the Compliance with Best Practice Guidelines?
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Background: The American College of Surgeons (ACS) teamed with AGS to define Best Practice Guidelines for the Optimal Preoperative Assessment (2012) and Perioperative Management (2016) of the Geriatric Surgical Patient. Given the lack of geriatric-specific training provided to surgeons, these guidelines may improve the quality of care delivered to older adults undergoing surgery. This study measured compliance with ACS NSQIP/AGS Best Practice Guidelines.

Methods: Retrospective chart review was conducted of Veterans ≥65 years undergoing consecutive inpatient coronary artery bypass graft (CABG), prostatectomy, or colectomy at a high-complexity VA hospital from 2016-2017. Overall compliance and compliance for each phase of care was measured. One-way ANOVA was used to determine differences in compliance between phases of care. Primary outcome was guideline compliance; secondary outcomes were length of stay (LOS), postoperative complications (major: Clavien-Dindo ≥3; minor: <3), geriatric-specific complications (e.g., postoperative delirium) and 30-day readmissions.

Results: Eighty-six older adults underwent inpatient surgery (CABG 65.1%; prostatectomy 25.6%; colectomy 9.3%). Mean age was 70 years; all were male. ASA score was ≥3 in 95.3%. Overall rate of compliance was 41.4%, with variation by phase of care: 41.2% preoperative, 55.8% immediate preoperative, 34.5% intraoperative, and 37.4% postoperative (p<0.001). Measures with 0% compliance included implementation of strategies for delirium prevention and daily evaluation of oral intake ability. Conversely, measures with 100% compliance included intraoperative core temperature monitoring and assessment of pressure ulcer risk. Median LOS was 7 days (range 1-55). Complications occurred in 10.5% (4.7% major; 5.8% minor), geriatric-specific complications in 14%, and readmissions in 6%.

Conclusions: Compliance with ACS NSQIP/AGS Best Practice Guidelines in this Veteran population was low, ranging from 34.5-55.8% depending on the phase of care. Further work is needed to determine barriers to guideline-compliant care. Given the high rate of overall and geriatric-specific complications, next steps will be to evaluate whether increasing guideline adherence improves postoperative clinical outcomes.

B185
Patterns of error in the Clock Drawing Test (CDT) in older patients with cancer
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While we typically think of cancer-related cognitive impairment as being associated with chemotherapy, research suggests that cancer alone may impact cognitive function. The CDT is a time-efficient cognitive screening instrument validated in older patients with cancer. It requires a wide range of cognitive skills, thus a detailed qualitative analysis could reveal disturbances of those skills. Describing a cognitive profile in cancer patients may help identifying those with higher risk of problems with treatment planning and acceptance, risk for adverse treatment-related outcomes, and to compare cognition before and after treatment. Our aim was to describe CDT patterns for older patients with cancer.

As part of usual care in the Senior Adult Oncology Program a CDT is performed in the first visit. We retrospectively analyzed those tests. Patients over 70 years were eligible. Patients with brain metastasis, dementia or cognitive impairment were excluded. The analyses of the CDT was done as described by Parsey (doi:10.1177/0891988711402349). Chi square tests were used to assess correlations.

274 subjects were analyzed, 56.6% were female; 119 had breast cancer, 56 gastrointestinal, 56 genitourinary, 20 head and neck and 23 others. The H&N patients had the lowest mean quantitative score (11.35, SD 1.75). In the whole population the most common type of error was in the conceptual deficits category, followed by spatial/planning deficits, graphic difficulties, perseveration, and stimulus bound response. Among all groups, errors in conceptual deficit were the most common, being errors in misinterpretation of time (hands absent or inadequately represented, incorrect length of hands) the most common subtype. The H&N group was the exception, with numbers out of order or missing as the most common subtype of error. 150 subjects had systemic cancer treatment in the previous 3 years before CDT. Their most common type of error was also the conceptual deficits category. The most common subtype was misinterpretation of time. In patients with previous treatment, the chemotherapy group had the lowest mean quantitative score (12.48, SD 1.69) compared to hormonal and targeted therapy.

We concluded that the most common errors in the CDT were in the conceptual deficit category, with misinterpretation of time being the most common, independent of comorbidities, metastasis and previous systemic therapy.

B186
Prognostic estimates of older adults with advanced cancer and their caregivers
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Introduction: Disagreement in patient-caregiver prognostic estimates may create challenges when planning treatment for older patients with incurable cancer. Identifying factors associated with older patient-caregiver prognostic estimates may inform interventions to improve patient care.

Methods: This secondary analysis utilized baseline data from a geriatric assessment (GA) trial that recruited patients age ≥70 with incurable cancer from community oncology practices (URCC 13070; PI: Mohile). Patients (and caregivers) were asked: "Considering your (the patient's) health, and your (the patient's) underlying medical conditions, what would you estimate your (the patient's) overall life expectancy to be?" Response options were 0-6 months, 7-12 months, 1-2 years, 2-5 years, and >5 years. The dependent variable was categorized into: Agreement (reference), patient optimism, and caregiver optimism. We used generalized estimating equations with multinomial distribution to examine demographic, clinical/GA, and communication factors associated with patient-caregiver prognostic estimates. We selected variables using backward elimination and the final model included those with a P<0.05.

Results 354 patient-caregiver dyads were included; mean age of the patients and caregivers was 77 (SD 5.4) and 67 (SD 12.3)

years, respectively. Patients were more optimistic in 26% and care-givers were more optimistic in 22% of dyads. Compared to dyads in agreement, patient optimism was more common in dyads where patients screened positive for polypharmacy (β=0.65, p=0.01) and caregivers reported greater distress (β=0.14, p<0.01). Compared to dyads in agreement, caregiver optimism was more common in dyads where patients screened positive for polypharmacy (β=0.72, p<0.01) and had lower perceived self-efficacy in patient-physician interactions (β=-0.10, p<0.01).

Conclusion: Caregiver distress, patient communication self-efficacy, and polypharmacy may influence patient-caregiver agreement. The high rate of prognostic disagreement warrants interventions to improve patient-caregiver communication.

B187 Resident Presentation
A national study of one-year outcomes of frail older emergency general surgery patients

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Background. Frailty among older patients is associated with high risk of post-operative morbidity and mortality after emergency general surgery (EGS). Few studies have examined long-term outcomes among these patients. We aimed to quantify the prevalence of frailty and pre-frailty in a national cohort of older adults undergoing EGS and examine the impact of frailty on outcomes in the year after EGS.

Methods. We identified Medicare beneficiaries $\geq$65 years who received an EGS procedure (partial colectomy, small-bowel resection, peptic ulcer disease surgery, adhesiolysis, laparotomy) between 2008-2014. Hospital characteristics and hospital referral region care intensity were identified from 2014 American Hospital Association data and the Dartmouth Atlas. Frailty status was defined using a validated claims-based frailty index (CFI) as frail (CFI$\geq$0.25) or non-frail (CFI<0.25). Logistic and Poisson regression were performed to compare length of stay (>14 days), discharge disposition, mortality, post-discharge hospital use (rehospitalization, emergency department [ED] visit, intensive care unit [ICU] stay), and days spent at home by frailty status over one year.

Results. Frail patients comprised 15.9% of 471,610 older adults undergoing EGS. The proportion of frail older EGS patients increased over time from 14% to 17%. Most frail patients were female (65%), White (85%), with Charlson score $\geq$2 (81%), at non-teaching hospitals (83%), and treated in average to high care intensity regions (87%). Frailty was associated with prolonged length of stay (Adjusted Odds Ratio [95%CI]: 1.27[1.24-1.29]), lower odds of home discharge (0.40[0.39-0.41]), and higher risk of 30 day (1.51[1.47-1.54]) and 1 year (1.59[1.56-1.62]) mortality. Frail patients experienced higher incidence of ED visits (Adjusted Incidence Rate Ratio [95%CI]: 1.68(1.66-1.71)), rehospitalizations (1.57[1.55-1.59]), and ICU stays (1.68[1.64-1.72]) in the year after discharge and had fewer days at home (225 v. 292 days, p<0.001).

Conclusion. In the national Medicare population, frail older adults fare poorly after EGS compared to non-frail patients. Policies and processes of care that target pre-operative and in-hospital care for this vulnerable population are urgently needed to improve discharge planning and reduce post-discharge healthcare utilization.

B188 Resident Presentation, Encore Presentation
In pursuit of person-centered care: Do older adults value compassion over competence?

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Background: Patients rank intrinsic physician characteristics higher than technical skills in cancer and end-of-life care. Yet patient preferences in other clinical scenarios such as surgery and chronic disease management are not well studied. We sought to identify the factors underlying patient preferences for a compassionate or a competent clinician.

Methods: We sent 800 surveys to patients identified through the Univ. of MI volunteer registries in July 2017. Surveys comprised 7 clinical vignettes followed by a 5-point Likert scale assessing the relative importance of clinician compassion or competence, and an open-ended question to elaborate on their choice. Multivariable logistic regression was performed on quantitative data and thematic analysis on qualitative responses.

Results: Of the 800 surveys, 36 were returned and 651 were completed (85% RR). Older age (p<0.001), male sex (p=0.016) and higher income (p=0.039) were associated with a preference of competence over compassion in surgical and pediatric vignettes. Competence was more often preferred in surgical cases, and less often in chronic care and end-of-life scenarios whereas female sex (p=0.008) and increasing number of physician visits per year (p=0.01) were associated with a preference for compassion. Thematic analysis demonstrated that preferences were influenced by: 1) explicit beliefs regarding the value of competence vs. compassion; 2) perceived role of the clinician; 3) impact of mental health on medical experiences; and 4) type and frequency of healthcare exposure. Further, a complex interplay of preferences exists suggesting that compassion is a priority once competence is established.

Conclusions: Overall, patients ranked competency higher than compassion particularly in surgical scenarios where technical skill was perceived to be critical. Older age, male sex and higher income were predictive of a preference of competency. However, qualitative analyses suggest that compassion is a priority only when competence had been established. Such findings may inform clinicians on how best to elicit, navigate and prioritize patient communication and informational needs in diverse settings.

B189
Diagnostic cutpoints for myopenia and myosteatosis on computed tomography (CT) using consensus definitions of gait speed and grip strength as reference standard

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BACKGROUND: Consensus definitions of sarcopenia[1,2] emphasize the importance of gait speed and grip strength. Although CT is increasingly used for myopenia and myosteatosis evaluation in older adults, there is no consensus on the diagnostic thresholds. The purpose of this study is to determine optimal CT thresholds for diagnosis of myopenia and myosteatosis using gait speed and grip strength as the reference standard.

METHODS: 200 consecutive older adults (86 M, 114 F; age mean 74.5 yrs, range 62-93 yrs; BMI mean 26.3) undergoing outpatient CT for routine clinical indications were assessed for myopenia and myosteatosis by measuring a skeletal muscle index (SMI) and skeletal muscle density (SMD) on CT images (T12 level) as well as for gait speed

(6m course; cutpoint for slowness, 1m/s) and hand grip strength index (grip/BMI; cutpoint for weakness, M<1.05; F<0.79). SMI and SMD were compared to sarcopenia as defined by diminished gait speed and grip strength using ROC analysis to determine optimal CT cutpoints.

RESULTS: Slow gait speed was present in 73/166 subjects (44%; 30 M; 43 F). Reduced grip strength index was observed in 91/186 (49%; 34 M; 57 F). Both slow gait and weak grip were present in 45/161 (28.0%). Some subjects were unable to perform the gait or grip tests (17% and 7%, respectively). For the CT diagnosis of myopenia, ROC analysis indicates an optimal SMI threshold of 9.3 cm^2/m^2 (AUC = 0.577). For the CT diagnosis of myosteatosis, ROC analysis indicates an optimal SMD threshold of 25.8 HU (AUC = 0.696).

CONCLUSIONS: Recent definitions of sarcopenia using gait speed and grip strength may guide in optimizing the corresponding CT thresholds for diagnosis of myopenia and myosteatosis in older adults. Validated thresholds will help standardize research in older adults that employ CT scans. Secondary analysis of clinically acquired CT scans may help identify patients at risk for sarcopenia and ultimately optimize patient care.

REFERENCES: 1) Cruz-Jentoft AJ, et al. Age Ageing. 2018 Oct 12. PMID:30312372; 2) Bhasin S, et al. Sarcopenia Definitions and Outcomes Consortium. 2018 Nov 13.

B190
Patients' Priorities for Post-ICU Care

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Background: While intensive care unit (ICU) survival among older adults is improving, poor post-ICU care quality persists. This study aimed to describe patients' priorities, barriers, and facilitators for recovery across the spectrum of post-ICU care as a first step to improving care quality.

Methods: We performed a secondary analysis of 40 semi-structured interviews with a maximum diversity sample of ICU survivors conducted at Oxford University from 2006-2008. We used the method of qualitative description to characterize patients' priorities, barriers, and facilitators for recovery in three post-ICU periods: transition to wards, early period (≤2 months) after discharge home, and late period (>2 months) after discharge home.

Results: During the transition to the wards, patients' priorities included feeling safe, engaging in basic mobility and self-care, asserting personhood, reconnecting with people, and going home. Early after discharge home, they emphasized enhancing mobility and self-care, reconnecting with people, beginning psychological healing, and resuming prior roles and routines. Priorities in the late period reflected extended time at home: engaging in advanced self-care, achieving psychological health, resuming prior roles and routines, and seeking new life experiences. Barriers included ongoing medical issues (e.g., mood disorders, pain, weakness, poor concentration), poor social support (e.g., inadequate communication, incompatible family coping), and health system issues (e.g., lack of support/equipment, problematic staff attitudes, unsupportive policies). Facilitators were often positive analogs of barriers (e.g. staying motivated, seeing progress, receiving timely communication, accessing needed equipment, receiving support from family, friends and healthcare providers). Which barriers and facilitators were most prominent varied across the care continuum.

Conclusions: Patients' priorities for post-ICU care should inform stakeholder-driven clinical guidelines. Next steps are to extend these findings among family members, healthcare providers, and institutionalized and frail older adults, and determine how to assess patient and family needs across the care continuum.

B191 Student Presentation
Frailty, Pain, and Post-Operative Opioid Use in Older Adults

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Background:

Frailty is a syndrome of decreased reserve and resistance to stressors, which reflects declines across multiple physiologic systems. Increased use of opioids after surgery has been linked to adverse events and is a factor of the opioid epidemic. The objective of this study is to elucidate if frailty predicts opioid use after surgery.

Methods:

Patients age 65 or older scheduled to be admitted after elective surgery were recruited at Harborview Medical Center. The Edmonton Frail Scale (EFS), Clinical Frailty Scale-9 (CFS-9), Visual Analog Scale (VAS), and Pain Catastrophizing Scale (PCS) were collected before surgery. After surgery, average VAS and the amount of opioid prescribed at discharge were extracted from the electronic medical record. 7 days after discharge, patients were called to evaluate for the amount of opioid actually used.

Pairwise linear regression analysis and t-test were used to evaluate the correlation of frailty and opioid use both as continuous variables (correlation defined as $R^2>0.5$) and difference in means (significance defined as $p<0.05$). We evaluated frailty (EFS and CFS) and measures of pain before and after surgery (VAS and PCS), postoperative opioid use, and opioid use 7 days after surgery.

Results:

57 patients were recruited. 43 patients provided follow-up 7 days after discharge. Linear regression showed no correlation between frailty and opioid use or pain before or after surgery (all comparisons $R^2<0.5$). T-test for PCS between frail and non-frail patients had a p-value of 0.07. 7 days after discharge, almost half of our patients used less than 30% of opioids prescribed.

Conclusions:

Preoperative frailty is not associated with pain or increased opioid use after surgery. Many older patients are discharged after surgery with prescribed opioids that are not used, which may contribute to the opioid epidemic.

References:

Maiti S, Sinvani L et al. "Opiate Prescribing in Hospitalized Older Adults: Patterns and Outcomes." *J Am Geriatr Soc*. 2018 Jan;66(1):70-75.

Han B et al. "Prescription Opioid Use, Misuse, and Use Disorders in U.S. Adults: 2015 National Survey on Drug Use and Health." *Ann Intern Med.* 2017;167(5):293-301.

B192 Encore Presentation
Functional status predicts post-allogeneic stem cell transplant outcomes for older adults

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Background:

Allogeneic stem cell transplant (alloSCT) was historically reserved for young, fit patients but is increasingly offered to older adults who may have functional impairments not captured in traditional transplant evaluations. Little is known about how these factors affect outcomes.

Methods:

This is a prospective cohort study of 148 adults aged ≥50 who underwent alloSCT for hematologic malignancies. Functional status was evaluated pre-alloSCT using Instrumental Activities of Daily Living (IADL) and Medical Outcomes Study (MOS) Physical Health Scales. Outcomes included progression-free survival (PFS), overall survival (OS), non-relapse mortality (NRM), and length of stay (LOS). Analyses were performed using Cox proportional hazards models.

Results:

The median age at transplant was 62 (range 50-76). In univariate analysis, subjects with any IADL deficit had worse PFS (HR 1.78, p=0.01) and OS (HR 1.68, p=0.04). Worse MOS Physical Health score was associated with worse OS (HR 1.05/1-point in 20-point scale, p=0.04), worse NRM (HR 1.06, p=0.04), and longer LOS (difference 0.6 days, p=0.007). In contrast, traditional prognostication tools such as age, comorbidities, disease risk, and performance status were not significantly associated with PFS, OS, or NRM in univariate analysis.

Conclusions:

IADL impairment and worse MOS Physical Health scores were associated with multiple poor outcomes and were stronger predictors of outcomes than traditional prognostication tools in univariate analysis.
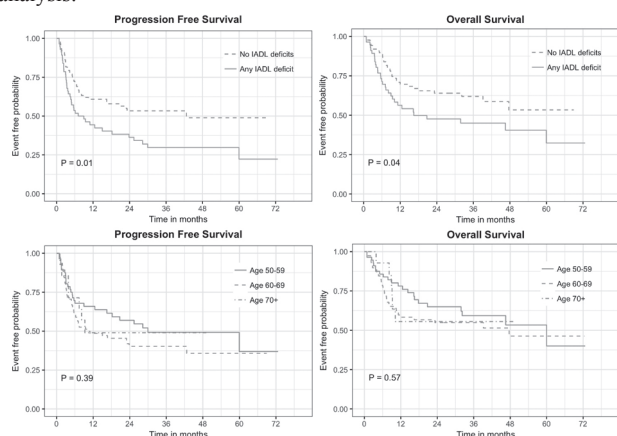
B193 Student Presentation
Is droperidol safe and effective in older adults?

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OBJECTIVE

Studies have found that age-related decline in hepatic and renal function leads to greater susceptibility of older adults to adverse consequences associated with analgesics and opioids, including falls, fractures, and delirium. Finding medications that can provide analgesia with low rate of side effects is important for symptoms management in the acute setting. We conducted and observational cohort study to evaluate the safety and efficacy of the antidopaminergic droperidol, in a large cohort of adult patients 65 and older presenting to an Emergency Department (ED) in the United States.

METHODS

Consecutive patients 65 and older that received droperidol from 1/1/2012 through 4/19/2018 at an academic ED were included. Categories for reasons of droperidol administration were: analgesic, sedative and anti-emetic based on ED visit diagnosis. We evaluated its analgesic effectiveness looking at how many patients needed another analgesic within 1 hour of the first dose of droperidol administration. For the safety outcome, we evaluated the number of deaths within

24 hours of administration. We follow the STrengthening the Reporting of OBservational studies in Epidemiology (STROBE) guidelines.

RESULTS

There were 565 droperidol administrations among patients age >=65. Indications were: pain (N=115, 20%), headache (N=271, 48%), sedative (N=62, 11%), and anti-emetic (N=117, 21%). Among patients with headache or pain (N=386), the need for a rescue medication after droperidol was administered was very infrequent, with n=21, 5% receiving one or more rescue medications 30 to 60 minutes after droperidol. Overall, opioids were used in 29% (N=112) of the patients receiving droperidol for pain or headache, of which 46% (N=52) received opioids before the first droperidol administration. There were no deaths within 24 hours among the patients that received droperidol.

CONCLUSION

Droperidol is a safe and effective medication that can be used for the management of pain, nausea and agitation in an elderly population. There were no cases of fatal arrhythmias within 24 hours of use. Having opioid-sparing pain management strategies is a national priority.

B194
BIOPSYCHOSOCIAL FACTORS THAT IMPACT SUCCESSFUL AGING IN OLDER ADULTS LIVING WITH HIV

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Older adults living with HIV (OALWH) experience medical and geriatric conditions at an earlier age than HIV seronegatives. HIV associated immune dysregulation and psychosocial factors that cluster in OALWH are theorized to contribute.

To describe the contribution of psychosocial factors on aging, we evaluated OALWH (≥50 years) entering care in the Centers for AIDS Research Network of Integrated Clinical Systems (CNICS) from 1995-2015. Successful aging was evaluated using the primary outcome of healthcare utilization (clinic visits and hospitalizations over four years), and secondary outcomes of quality of life (EuroQol) and HIV symptoms. Descriptive analysis was performed for outcomes. Multivariable linear regression models were fit to evaluate independent associations between predictors and outcomes.

In CNICS 597 met inclusion criteria. The mean age was 55.8 years, 79.6% were male, 51.5% White, 42.1% Black and 9.4% Hispanic. The mean baseline CD4 was 381 cells/uL and 67.2% had a HIV viral load > 400 copies/mL Factors associated with increased healthcare utilization included non-Black, Hispanic, HIV risk factor men who have sex with men (MSM)+intravenous drug use (IVDU), multi-morbidity, and polypharmacy. Female sex, current drug use, anxiety, depression and polypharmacy associated with poor quality of life. Younger age, non-Black, HIV risk factor IVDU, panic disorder, depression, moderate or severe lipoatrophy or lipohypertrophy associated with more HIV symptoms.

The study of successful aging is limited by varying definitions. However, use of both objective and patient reported outcomes may begin to reveal common factors that impact aging with HIV. In the CNICS cohort, we identified historical and current drug use, mental health (anxiety and depression) and polypharmacy as possible factors that impair aging with HIV in the U.S. Future work focused on improving the care of OALWH should consider these factors as intervention targets and potential mediators and moderators of intervention effects.

B195 Student Presentation
What Matters? The Valued Activities of Older Adults Undergoing Elective Surgery

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Background: Research has shown that the ability to perform a specific activity after surgery is a key treatment goal identified by older adults. However, what these activities are is unclear. Our objective was to characterize patient-defined activity goals using a qualitative approach and determine if these goals were met after surgery.

Methods: Participants ≥ 60 years old, undergoing geriatric evaluation for elective surgery at a surgical optimization clinic from 2/2015 to 2/2018, were asked via questionnaire: "What are the activities that are most important to you to be able to do when you return home from surgery?" Up to three different activities could be listed. Two reviewers used qualitative content analysis to develop domains of activity goals, then independently categorized each response. Postoperative questionnaires and medical records were used to determine if activity goals were met within 6 months of surgery.

Results: Mean age of 194 participants was 75 years (± 9), 58% were female, 65% were white, and 61% had an oncologic surgical indication, most commonly (38%) colorectal cancer. We obtained 510 activity goals. Content analysis revealed five domains of activity goals: 1) activities of daily living (ADLs); 2) instrumental activities of daily living (IADLs); 3) mobility (including walking and driving); 4) recreation; 5) social activities (Table 1). While many of the activities dealt with independence and function (ADLs, IADLs, and mobility), 29% were recreational and 12% were social. Ultimately, 154 participants had surgery, of which 28% were unable to meet one of their activity goals at 6 months.

Conclusions: Older adults considering elective surgery expressed a wide range of activity goals, with recreational and social activities together comprising a substantial subset. Given over a quarter of participants were unable to meet one of their goals, these should be elicited preoperatively to guide treatment discussions and patient expectations.

Table 1. Characterization of Activity Goals

Domains	Frequency N=510	Illustrative Responses
Activities of Daily Living	17%	"personal hygiene", "use shower and dress myself", "nobody has to feed me"
Instrumental Activities of Daily Living	17%	"household chores", "grocery shopping", "prepare light meals", "clean my house"
Mobility	25%	"up and walking", "walk the stairs", "driving the car"
Recreation	29%	"reading", "golf", "knitting", "garage sales"
Social	12%	"enjoying time with friends and family", "go to church"

B196 Student Presentation
Effectiveness of a Geriatric CO-mAnagement program for Cardiology patients in the Hospital (G-COACH): a quasi-experimental before-after study

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Background: The majority of older patients admitted to a cardiac care unit suffer at least one geriatric syndrome leading to functional decline, complications and prolonged length of stay. Because geriatric co-management has shown promising effects - albeit mainly in orthopaedic populations - we evaluated the impact of cardio-geriatric co-management on functional decline, delirium, infections, mortality, readmissions and length of stay.

Methods: A prospective quasi-experimental before-after study was performed on two cardiac care units of the University Hospitals Leuven (Sept 2016 – Nov 2018). Patients aged ≥75 years admitted for acute cardiovascular disease were included in the co-management group if they were at risk for functional decline or had an acute geriatric complication. Co-management included daily follow-up by a geriatric nurse expert who coordinated early rehabilitation, discharge planning and implementation of evidence-based protocols with the cardiac care team based on a comprehensive geriatric assessment at admission. A geriatrician managed patients with complications. The primary outcome functional decline was measured as the mean difference on the 6-item Katz Index (score 6–18) at discharge. Secondary outcomes were the incidence of delirium and nosocomial infections, 30-day mortality and unplanned 30-day readmission and length of stay on the cardiac care unit.

Results: We included 189 and 188 patients in the control and intervention group respectively. The mean age was 83 years. Geriatric co-management reduced in-hospital functional decline (-0.5 points, 95% CI (-1.10 to 0.08) and length of stay (-0.73 days, 95% CI (-1.88 to 0.43), but the differences were not statistically significant. A 10% decrease in incidence of delirium (95% CI (-0.15 to -0.06)) and nosocomial infections (95% CI (-0.15 to -0.04)) in the intervention group was observed. There was no effect on mortality (-0.01%, 95% CI (-0.07 to 0.04)) and readmission rates (-0.01%, 95% CI (-0.08 to 0.07)) 30-day post-discharge.

Conclusions: Cardio-geriatric co-management did not improve the functional status, but a statistically and clinically significant difference was found for incidence of delirium as well as nosocomial infections, and should therefore be recommended as standard practice.

B197
Characteristics and Outcomes of Patients with Dementia who receive Inpatient Palliative Care Consultation

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Background: Patients with advanced dementia commonly experience distressing symptoms and high healthcare costs related to burdensome transitions, including frequent hospitalizations at the end of life (EOL). Inpatient palliative care consultation (IPCC) may improve EOL care for hospitalized patients with advanced dementia. However, little is known about the characteristics of patients who would be appropriate for IPCC.

Methods: This was a retrospective analysis of patients ≥65yo with dementia admitted to a major academic institution from July 1-December 30, 2015. Data were extracted from the administrative data portal and EHR. We identified patients with a dementia diagnosis who received an IPCC during the study period and matched them based on age, race and gender to a random sample of patients with dementia who did not receive IPCC. To compare the two groups, we used chi square for categorical variables and Wilcoxon tests for continuous variables.

Results: During the study period 161 of 931 (17%) patients admitted with dementia received an IPCC. The mean age of the analytic sample (161 who received IPCC matched with 161 who did not) was 83 yo; 62% were female; 67% were white. The most common reason for admission was altered mental status (30%). The most common reasons for IPCC were goals of care (GOC) discussion (79%) and symptom management (32%). Patients who received IPCC were more likely to have been admitted from the nursing home (35% vs. 14%, p 0.0001) and to have evidence of advanced disease, such as a pressure ulcer (26% vs. 11%, p 0.0003), elevated sodium (13% vs 3%, p 0.0004), and significant weight loss (22% vs 14%, p 0.06). Patients who received IPCC had a longer median LOS (6.1 vs 4.3 days, p 0.003). Patients who received IPCC were significantly (p<0.000) more likely to die in the hospital (14% vs 4%) or be discharged to hospice (50% vs 4%), and less likely to be discharged to home (9% vs 35%), or facility (27% vs 57%).

Conclusions: In this study, dementia patients who received IPCC were sicker and more likely to die in the hospital or be discharged to hospice. However, a number of those without IPCC had evidence of advanced disease. Hospitalization is an opportunity to address GOC for these complex patients. A mechanism to identify appropriate candidates for IPCC would enable these patients to clarify GOC and manage distressing symptoms, which may improve quality and reduce healthcare costs.

B198
Are Older Patients with Non-Operative Treatment of Hip Fractures being Empirically Anticoagulated in the Home Care Setting?

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Background
The number of elderly individuals is increasing worldwide, and the incidence of hip fracture is expected to rise to 6.26 million by 2050. While surgical standards of care are well-defined, there are no guidelines regarding venous thromboembolism (VTE) prophylaxis in non-operatively managed hip fracture patients. The objective of this study was to determine whether patients being managed non-operatively are receiving empiric anticoagulation.

Methods
Data were collected electronically over 5 years (2013-2018) from the home-based primary care program of a large health system using ICD-10 and ICD-9 codes for hip fracture. Data were analyzed using two-sample t-tests and Chi-Square, as deemed appropriate.

Results
Of the 91 patients in the program with documented hip fractures, 29 (30%) were managed conservatively. Overall, average age was 87.0 (SD: 8.1, range: 60-103); 59.3% had dementia and 15% received hospice care. When comparing non-operative patients to surgical patients, no differences were found for age (88.2 vs. 86.7, p=.43), gender (31% male vs 69% male; 35% female vs. 65% female, p=.87) or dementia (63% vs. 58%, p=.88). Of note, 37% of non-operative patients vs. 5% of surgery patients (p<0.001) were hospice patients. Of the 18 patients who expired within one year of hip fracture, 63% were non-operative.

The majority (68%) was on anticoagulation regimen including: enoxaparin (23%), aspirin (18%), rivaroxaban (4%), Coumadin (4%), warfarin (3%) and heparin (2%).

Anticoagulation was prescribed for 92% of surgical patients versus 30% of non-operative patients (p<0.001). When comparing non-hospice surgical with non-hospice non-operative patients, 95% were anticoagulated versus 31% respectively (p<0.001).

Conclusion
This study confirms that patients who have undergone surgical hip repair are overwhelmingly anticoagulated for VTE prevention. Yet, the majority of those treated conservatively, thus most likely to remain bedbound for several weeks, do not receive anticoagulation treatment. Furthermore, factors determining physicians, patients and family decision choices to pursue conservative palliative management, even for patients who are not on hospice care, remain unclear. These findings highlight the need for specific guidelines in the anticoagulation management of frail and vulnerable older adults who do not undergo surgical repair after hip fracture.

B199 Encore Presentation
Functional and Cognitive Decline Among Older Adults Undergoing High-Risk Surgery

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Introduction: Adults older than 65 years account for 60% of postoperative complications and are at highest risk of prolonged recovery following surgery. However, the extent to which surgery and postoperative complications impact long-term disability is largely unknown. We sought to evaluate the effects of high-risk surgery and complications on function and cognition among older adults.

Methods: Using the 1992-2012 Health and Retirement (HRS) Survey linked with Medicare claims, we identified patients ≥ 65 years who underwent high-risk elective surgery (i.e., inpatient mortality of at least 1%). We then performed 3:1 propensity matching using predictors of functional and cognitive decline to select controls among those who did not undergo surgery for those who did. Logistic regression was then used to examine the association of surgery and complications with functional and cognitive decline. Survival analysis was conducted using a Cox model.

Results: We identified 1,589 patients who underwent surgery; of which, 46.8% (n = 744) experienced a complication. Unadjusted rates of functional decline in the surgery group were 26.3% compared to 18.8% in the control group (p < 0.001). Of those in the surgery group, 22.0% experienced cognitive decline compared to 19.4% in the control group (p = 0.04). Predictors of functional decline included receipt of surgery with and without complications, increasing age, Black race, unmarried status, increasing number of comorbidities, and poorer baseline cognitive status. Predictors of cognitive decline included surgery with and without complications, increasing age, female sex, non-white race, and poorer baseline functional status. Education beyond some high school was associated with maintenance of function and cognition. More severe functional and cognitive declines were associated with poorer overall survival.

Conclusions: Older adults demonstrate significant reductions in both functional and cognitive ability following surgery and complications. Further, worsening declines were associated with poorer overall survival. Knowledge of such trajectories may better inform preoperative discussions and long-term prognosis following surgery.

B200 Encore Presentation
Dysphagia in Older Adults: A Risk Factor for Increased Caregiver Burden

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Background: The healthcare system relies heavily on informal caregivers, such as spouses and children, to assist older adults to age in place. Yet, these caregivers can experience high levels of emotional, financial and physical burden, negatively impacting caregiver and care recipient health and well-being. The presence of dysphagia (swallowing difficulties) in care recipients is one factor suggested to contribute to increased burden. The purpose of this study was to determine the type and extent of caregiver burden uniquely experienced by adult children caring for aging parents with dysphagia.

Methods: Using the Round 1 surveys from the National Health and Aging Trends Study and the National Study of Caregiving, we performed a cross-sectional analysis of data from 895 children providing care for an aging parent. Care recipients (719 female) were community-dwelling adults aged 65-103 (mean 82.8±7.8) receiving care from an adult child (630 female) aged 19-77 (mean 54.1±9.1). Care recipients were asked if they had any difficulties chewing or swallowing. Caregivers were asked about emotional, physical and

financial burden associated with caregiving. Additional variables extracted included care recipient and caregiver health status, caregiver education and workload, care recipient medical diagnoses, memory status, fall status and degree of disability, and family conflict.

Results: Approximately 20% of caregivers were caring for a parent with reported swallowing difficulties. Logistic regression analyses revealed that caregivers of parents with dysphagia were significantly more likely to experience emotional ($p = 0.032$; OR = 1.61; 95% CI: 1.04-2.48) and physical burden ($p = 0.035$; OR = 1.71; 95% CI: 1.03-2.81) when controlling for other factors known to influence burden. For caregivers of care recipients with dysphagia experiencing emotional burden, 15% rated the difficulty as 1 (a little difficult), 20% as 2, 25% as 3, 21% as 4 and 19% as 5 (very difficult). For caregivers of care recipients with dysphagia experiencing physical burden, 7% rated the difficulty as 1, 18% as 2, 23% as 3, 34% as 4 and 18% as 5.

Conclusions: Emotional and physical burden are increased in children caregivers of community-dwelling older adults with dysphagia. In order to maximize intervention outcomes for both caregivers and care recipients, dysphagia status should be incorporated into our current comprehensive, multidisciplinary assessments.

B201
Physician Perspective and Practices across Different Specialties on the use of Oral Anticoagulants in Older Adults with Non-Valvular Atrial Fibrillation: A Multicenter Survey Study

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Background: Oral anticoagulation (OAC) for atrial fibrillation (AF) in older adults remains a challenge for clinicians. The goal of this study is to explore the perspectives and practices of physicians across different specialties in prescribing OAC for AF patients in a geriatric population.

Methods: We surveyed health care professionals prescribing OAC in patients over 75 years with non-valvular AF in 11 states, using an anonymous mixed mode survey. Descriptive statistics were computed to establish frequencies, chi square test examined the association between the dichotomous and categorical variables.

Results: Of 150 surveys completed, 55% were from internal medicine, 17% cardiology, 9% family medicine, 7% neurology, 7% geriatrics and 5% other. The majority (51%) were attending physicians, 40% residents, NP and PAs, and 9% fellows, with a median age of 34, and 6 years post-training. A third (30%) reported that the majority (60%-79%) of their patients were over 75, and 26% of these physicians had at least 80% of their AF older patients on OAC. Experienced physicians had a higher comfort level starting OAC, with a significant correlation between years in practice and OAC initiation ($r = -0.26$, p<0.01).

With regard to practice differences in initiating OAC (p<0.01), cardiologists were more comfortable than other specialties. Internal medicine/family medicine physicians, preferred DOACs (80.7%) over warfarin (17.2%); cardiologists preferred DOACs (84%) over Warfarin (12%); neurologists 70% vs 30%; It was an even split among geriatricians (50% preferred DOACs and 50% preferred Warfarin). Cardiologists were most likely to initiate OAC by prescribing apixaban (64.7%), rather than rivaroxaban (17.7%) or warfarin (17.7%). Most common scores used for OAC decisions were CHA_2DS_2VASc (92.7%), HAS-BLED (60.7%) and $CHADS_2$ (54%).

Conclusions: Despite well established guidelines, there is a lack of standardization for OAC in older adults with AF. This study highlights the discrepancies in clinical practices of physicians across different specialties in prescribing OAC for AF patients in a geriatric population, and the need for increased awareness and education programs.

B202 Resident Presentation
Association between markers of inflammation and frailty in survivors of hospitalization for critical illness

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BACKGROUND

Hospitalization, particularly that for critical illness, is associated with the development of frailty, but underlying mechanisms are unclear. Hospitalizations for critical illness are the most severe type and characterized by high levels of inflammation. We hypothesized that higher levels of pro-inflammatory markers during critical illness would be associated with more severe frailty in survivors of critical illness.

METHODS

We enrolled adults with respiratory failure and/or shock from medical or surgical intensive care units (ICU) in 5 US centers. We obtained plasma samples on study days 1, 3, and 5. We selected markers *a priori* based on literature review and used validated laboratory protocols to measure, in duplicate, levels of CRP, IL-6, IL-8, IL-10, TNF-a, sTNFR1 using commercially available immunoassays. In survivors, we assessed frailty using the Clinical Frailty Scale (CFS) score (range 1 [very fit] to 7 [severely frail], scores >5 represent clinical frailty). We used linear regression with inverse probability weighting to determine the independent association between log-10-transformed mean biomarker levels and CFS scores at follow-up, adjusting for pre-illness CFS scores, age, education, sex, and coexisting illnesses.

RESULTS

We enrolled 1,040 patients, 978 of whom had ≥1 blood sample. Participants were a median [IQR] of 62 [53-72] years old with an APACHE II score of 24 [18-30], and an enrollment CFS score of 3 [3 to 5]. We assessed frailty in 585 out of 670 (77%) survivors at 3 months and 439 out of 595 (74%) at 12 months. After adjusting for covariates, no plasma markers were associated with CFS scores at 3 months. At 12 months, higher levels of IL-10 and TNF-a were associated with lower CFS scores (-0.1 [95% CI -0.3 to 0.1], p=0.02; -0.2 [95% CI -0.3 to 0.0], p=0.04, respectively). No other markers were associated with frailty at 12 months.

CONCLUSIONS

These data do not support the hypothesis that higher levels of inflammatory markers during critical illness are associated with more severe frailty in survivors. Future longitudinal studies exploring associations between markers of inflammation in survivors of critical illness are needed to understand better the pathogenesis of frailty in this population.

B203 Student Presentation
Apixaban concentrations in elderly NVAF patients: is less enough?

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Background: Patients with nonvalvular atrial fibrillation (NVAF) often receive doses of direct-acting oral anticoagulants that differ from recommendations. The clinical impact is unknown. Our goal was to determine plasma apixaban concentrations in relation to dosing during routine clinical care of older patients with NVAF.

Methods: Plasma apixaban concentrations were determined by tandem mass spectrometry in older (65+y) outpatients with NVAF from an anticoagulation clinic. Concentrations were compared to 5-95% peak and trough ranges seen in clinical trials and categorized

as BELOW, WITHIN, or ABOVE range. Patient age, sex, weight, height, apixaban dose, strong P-gp/CYP3A4 inhibitor use, serum creatinine, and date/time of last apixaban dose were collected. Dosing was categorized as the same (CORRECT), higher-than (HIGH), or lower-than (LOW) recommended (recommended dosing is 5mg twice daily, reduced to 2.5mg twice daily with 2 of the following 3 criteria: age≥80y, weight≤60kg, serum creatinine≥1.5 mg/dL, or strong P-gp/CYP3A4 inhibitor use).

Results: 110 patients with NVAF were studied (mean±SD: age 80.4±7.8y). None received HIGH dosing. Of 42 patients dosed LOW, 1 was BELOW and 41 were WITHIN range. Of 68 dosed CORRECT, 1 was BELOW, 62 were WITHIN and 5 ABOVE range. Dosing regimen did not affect proportion of concentrations within range (Chi square, p=0.19).

Conclusions: Apixaban concentrations in older patients with NVAF receiving lower-than-recommended doses of apixaban were within 5-95% range of correctly dosed patients in clinical trials. Concentrations higher than those in clinical trials were seen with recommended dosing. Lower-than-recommended doses of apixaban may not be inappropriate in selected older patients with NVAF. The data suggest a clinical role for measuring apixaban concentrations or factor Xa inhibition.
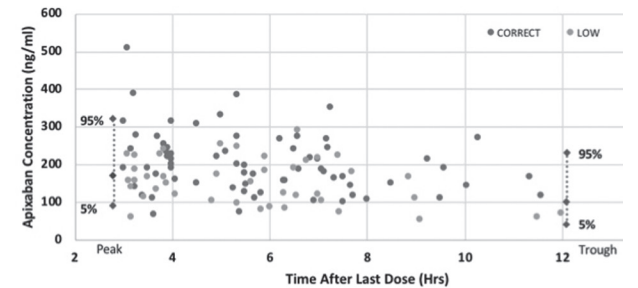
B204
Low HDL-C is an Age Dependent Predictors of Ischemic Heart Disease and Cerebrovascular Attack as well as Advanced Triopathy in Diabetic Individuals: Lessons from 9.2 years Study of 4014 Diabetic Patients including 1016 Late Elderly older than 75 y.o.

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Background: High serum LDL-cholesterol (LDL-C) and glucose are risk for ischemic heart disease (IHD) in middle-aged diabetic individuals; however, elderly's risk is not well-known, although the frequency of elderly become major. We aimed to identify factors predicting IHD, cerebrovascular attack(CVA) and classical complications like nephropathy in elderly and to investigate their differences by age.

Methods: We have performed a prospective cohort study (Japan Cholesterol and Diabetes Mellitus Study)for 9.2 years. A total of 4,014 type2 diabetics without previous IHD or CVA(1,936 women;67.4±9.5years, ≥75years old, n=1,016) were recruited from 40 Japanese hospitals in 2004. Lipids, glucose and other risk factors related to IHD etc. were investigated annually.

Results: Two hundred eighteen IHD cases and 138 CVAs(7.8 and 5.7/1,000people/year) occurred over 9.2years. LDL-C levels on registration were correlated with IHD in patients<65 and>75years (HR:1.028,1.014,P<0.01) and hemoglobin A1C (HbA1C) in patients between 65 and 75years. Contrastly, HDL-C were correlated with CVA in all subjects and generations(<65, 65-74 and >75years). Further, HDL-C was a risk for patients>75years of IHD, severe nephropathy like hemodialysis and proliferative retinopathy. Fasting plasma glucose(FPG) and HbA1C were correlated with CVA in patients between 65 and 75years and FPG was correlated with severe nephropathy and proliferative retinopathy in patients>75years.

Conclusion: HDL-C was a risk for IHD, CVA and microangiopathy in late elderly diabetics, and LDL-C and HbA1C was a risk for IHD in specific generations for 9.2 years. Further HDL-C also affects microangiopathies in elderly. These age-dependent differences in risk, especially HDL-C in elderly, are important for developing individualized strategies to prevent diabetic complications.

Trial Registration:UMIN-CTR:UMIN00000516

B205 Encore Presentation
Patient Reported Outcomes Pre and Post Intervention in Older Veterans with Chronic Back Pain

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Background: The NIH's Patient Reported Outcomes Measurement Information System (PROMIS) instruments provide robust PRO measures; however, these have not been evaluated alongside "legacy" instruments in older adults with chronic back pain to expand our understanding of treatment response. In this pilot, we used epidural steroid injections (ESI) as a vehicle intervention to better understand PRO. This study evaluated whether legacy and/or PROMIS biopsychosocial measures change according to those who responded or were non-responders to ESI.

Methods: We enrolled older Veterans (age 60+) with chronic back pain +/- leg pain scheduled for lumbar ESI. Subjects completed "legacy" instruments and corresponding PROMIS computer adaptive test item banks pre- and post-ESI in multiple domains (Table 1). The effects of ESI on biopsychosocial measures using legacy and PROMIS were assessed using a two-way analysis of variance (ANOVA).

Results: Participants included 71 Veterans who were on average 67 years old, 94% men, 73% non-Hispanic white. The majority (69%) reported pain duration ≥5 years. Two-way ANOVA results are included in Table 1.

Conclusion: These results suggest that responders to ESI showed improvement in several domains, more commonly among legacy than PROMIS measures. Further research in a larger and gender diverse sample is warranted to gain a better understanding of PRO that may improve in older adults with chronic back pain receiving ESI.

Table 1: Analysis of Variance (ANOVA) for PROMIS and Legacy Measures

Corresponding Measures	Descriptive Statistics Mean (SD)						ANOVA p-value for factor *indicates those with significant values		
	Responder (R)			Non Responder (NR)					
L: Legacy P: PROMIS	N	Pre-ESI	Post-ESI	N	Pre-ESI	Post-ESI	Interaction	R vs NR	Pre-ESI vs Post-ESI
Pain Interference									
L: Brief Pain Inventory	14	5.98 (2.81)	4.39 (3.05)	28	5.50 (2.62)	5.77 (2.18)	0.0321*	0.5435	0.1230
P: Pain Interference	14	65.77 (6.30)	60.53 (7.67)	26	67.27 (6.14)	65.0 (5.42)	0.2572	0.0726	0.0061*
Pain Behavior									
L: SF-36 Bodily Pain	14	23.5 (12.59)	38.4 (15.77)	29	28.93 (17.24)	31.31 (11.88)	0.0350*	0.8253	0.0045*
L: Pain Catastrophizing	14	1.72 (1.18)	1.68 (1.39)	29	1.48 (1.14)	1.74 (1.15)	0.3494	0.8021	0.5034
L: Fear Avoidance Belief Questionnaire	14	67.14 (14.12)	55.14 (22.91)	29	67.27 (18.83)	70.48 (16.67)	0.0095*	0.1458	0.1233
P: Pain Behavior	14	59.89 (3.39)	57.36 (7.62)	26	60.30 (5.00)	60.47 (3.81)	0.1857	0.1880	0.2487
Depression/ Anxiety									
L: PHQ-Depression subscale	14	2.07 (2.13)	1.5 (1.83)	29	1.52 (1.99)	2.24 (2.15)	0.0143*	0.8799	0.7645
L: PHQ- Anxiety subscale	14	1.5 (2.1)	1.28 (1.81)	29	1.48 (2.11)	1.69 (2.14)	0.3570	0.7631	0.9870
P: Emotional distress: depression	14	52.22 (11.95)	50.29 (10.84)	26	51.08 (9.84)	52.15 (10.25)	0.3226	0.9112	0.7754
P: Emotional distress: anxiety	14	58.24 (9.79)	51.58 (12.89)	26	58.25 (11.03)	56.58 (11.41)	0.1516	0.4571	0.0197*
Fatigue									
L: FACIT- fatigue	14	26.86 (8.85)	19.36 (8.43)	29	23.55 (11.50)	25.55 (9.25)	<0.0001*	0.6390	0.0098*
P: Fatigue	14	61.27 (10.51)	55.48 (8.69)	24	60.22 (9.44)	60.82 (10.35)	0.0179*	0.4845	0.0521
Sleep									
L: MOS Sleep	14	36.36 (21.32)	37.79 (22.79)	29	43.01 (20.28)	40.63 (22.84)	0.2726	0.9684	0.0558
P: Sleep disturbance	13	56.45 (14.52)	51.31 (14.81)	22	57.30 (15.19)	55.25 (15.19)	0.4476	0.6050	0.0824
Social									
L: MOS Social Support	14	4.51 (0.76)	4.91 (0.32)	29	4.14 (0.90)	4.20 (0.91)	0.1848	0.0252*	0.0762
P: Satisfaction with social roles	14	39.13 (9.05)	48.45 (11.13)	23	40.15 (8.02)	39.96 (8.76)	0.0036*	0.1711	0.0051*
P: Social isolation	14	43.41 (8.28)	42.51 (12.21)	23	47.67 (11.81)	45.93 (12.20)	0.8046	0.2775	0.4464

B206

A Multidisciplinary Team-Based Approach to Mitigate the Impact of Androgen Deprivation Therapy in Prostate Cancer: a Randomized Phase 2 Study

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Background: Prostate cancer is a disease of the elderly, and androgen deprivation therapy (ADT) is the most common systemic therapy applied in prostate cancer. However, ADT is also associated with numerous metabolic toxicities that are potentially modifiable. We sought to evaluate the impact of participation in a multidisciplinary clinic (MDC) designed to provide individualized lifestyle modification and management of ADT-related side effects.

Methods: This phase II study recruited men with prostate cancer who had started ADT < 6 months prior to enrollment, and in whom ADT was planned for at least 12 months following enrollment. Men of all ages were eligible for the study, and there was no upper age limit. Patients were randomized in a 1:1 ratio to either the MDC or standard of care (SOC). Patients randomized to the MDC were provided monthly multidisciplinary assessment and counseling on exercise, nutrition, and symptom management for 12 months on a rotating schedule. Endpoints included feasibility endpoints (proportion of visits completed), and efficacy endpoints, including mean change from baseline to 12 months in blood pressure (BP), weight, waist circumference, percent body fat, hemoglobin A1C (HbgA1C), insulin resistance, and fasting lipids.

Results: 25 men were randomized to MDC, and 23 were randomized to SOC. The age for the entire study cohort ranged from 53 to 89 with median age of 66. Overall 91% (295/325) of MDC visits were completed. 72% (18/25) of patients completed all 12 months of MDC, and 80% (20/25) completed the first 6 months. Compared to SOC, patients in the MDC arm had a trend towards more favorable mean percent change from baseline to 12-month follow up in systolic BP (6.5% vs. 10.3%), diastolic BP (-3.9% vs.10.0%), waist circumference (2.5% vs. 4.0%), HbA1C (-2.4% vs. -1.7%), insulin resistance (0.5% vs. 1.9%), and fasting lipids (total cholesterol: 7.0% vs. 21.8%; LDL: -2.9% vs. 7.6%; triglyceride: 15.5% vs. 37.2%).

Conclusions: Individualized and comprehensive management of toxicities of ADT in a multidisciplinary clinic is feasible, and appears to provide some benefit over SOC. Larger randomized studies are warranted to investigate whether this intervention will provide lasting benefit.

B207

Phenotyping Functional Impairment in Older Women with Urinary Incontinence

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Background: Urinary incontinence (UI), functional impairment, and sarcopenia are inter-related geriatric syndromes in older women that may interact to impact on UI severity and treatment. We examined physical performance and sarcopenia measures in incontinent older women to explore implications on UI treatment efficacy.

Methods: We enrolled a cohort of women ≥70 years with at least moderate UI. UI severity was assessed with a 3-day bladder diary. Physical performance was determined using the Short Physical Performance Battery (SPPB). Isokinetic lower extremity strength was measured using Biodex. Poor physical performance was defined as SPPB total score of ≤9. Sarcopenia diagnosis was determined using SARC-F questionnaire scores of ≥4 and gait speed <0.8 m/s was a marker of sarcopenia. We compared demographic,

UI episodes, and sarcopenia-related measures between better and worse functioning groups using student t- or Chi-square test depending on the variables.

Results: 238 women were telephone screened, 181 screened ineligible. 57 women completed in-person screening, 5 dropped out, leaving 52 enrolled. Of those, 17 had poor physical performance with SPPB≤9 and 35 were normally functioning. There were no significant differences in mean age or ethnicity between groups. Women with SPPB≤9 had higher BMI, 33±8.4 kg/m^2 vs 28±5.6 kg/m^2 in women with SPPB>9, p=0.009. UI severity was greater among women with poor physical performance with 6.2±3 episodes/day compared to 2.7±2 episodes/day in women with SPPB>9, p<0.001. Incontinent women with SBBP≤9 had significantly lower gait speed (p<0.001) and chair stand pace (p<0.001), and worse balance (p=0.0005). Lower extremity strength was also weaker among incontinent women with SPPB≤9, 63±25 nm vs 78±16 nm, p=0.019. When considering markers of sarcopenia, a greater proportion of incontinent women with SPPB≤9 had SARC-F scores ≥4 (41% vs 3%, p=0.0009) and gait speed <0.8 m/s (47% vs 9%, respectively), p=0.003.

Conclusions: 30% of older incontinent women have poor physical performance. Phenotypically they have slower gait speed, weaker lower extremity strength, worse balance, and are at higher risk for sarcopenia. These findings may impact UI treatment efficacy in older women and warrant further investigation.

B208

Clinical Information Most Important to a Nursing Home Clinician's Decision to Prescribe Antibiotics for a Suspected Urinary Tract Infection

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Background: Antibiotic overuse in nursing homes (NH) causes patient harm and antibiotic resistance. We examined patient characteristics and related information most important to clinician (physician, nurse practitioner, and physician assistant) prescribing for NH residents with suspected urinary tract infections (UTI).

Methods: We conducted a web-based discrete choice survey including 19 brief clinical scenarios. Each scenario varied information about 10 patient characteristics regarding *urinalysis results*, *body temperature, lower urinary tract symptoms, physical examination, antibiotic request (by patient or nursing), mental status, UTI risk, functional status, goals of care,* and *patient type (dementia status and gender)*. For each scenario, clinicians were asked whether they would prescribe an antibiotic for suspected UTI. We derived importance scores for the characteristics and odds ratios for information within each characteristic.

Results: The majority of 876 NH were male (56%) and physicians (59%) with a mean age of 49.0 years (SD ± 11.0). The characteristics had the following importance in relation to the decision to prescribe for a suspected UTI: *urinalysis results* (32%), *body temperature* (17%), *lower urinary tract symptoms* (17%), *physical examination* (15%), *antibiotic request* (7%), *mental status* (4%), *UTI risk* (4%), *functional status* (3%), *goals of care* (2%), and *patient type* (1%). Information about "positive leukocyte esterase, positive nitrates" was associated with highest odds of prescribing (OR 19.6, 95% CI 16.9, 22.7), followed by "positive leukocyte esterase, negative nitrates" (OR 6.7, 95% CI 5.8, 7.6), and "painful or difficult urination" (OR 4.8, 95% CI 4.2, 5.5).

Conclusions: Of the information clinicians weighed when prescribing antibiotics for suspected UTI, *urinalysis results* are the

most important. Given the high false positive rate of urinalysis in NH residents, other characteristics should be more important. Resources are needed to facilitate evidence-based prescribing in NHs.

B209 Student Presentation, Encore Presentation
Caloric Restriction and Later Incidence of Frailty

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Background: Obesity is a risk factor for several adverse health outcomes, including the onset of frailty. However, health care providers are reluctant to recommend weight loss in older adults with obesity because the overall safety and long-term benefits of intentional weight loss in this population remain controversial. Clinical trials show that diet-induced weight loss interventions in older adults, particularly when combined with exercise, improve body composition and physical and metabolic function in the short-term. However, these benefits may not persist over time, especially since most individuals are not successful at long-term maintenance of weight loss, and, if regained, weight is disproportionately fat mass. This study determined whether weight loss from a caloric restriction (CR) intervention earlier in life is advantageous or deleterious to the risk of developing frailty (using a calculated EMR-Based Frailty Index, eFI) 8.00 ± 2.28 years in the future.

Methods: 968 older adults (mean age of 68.9 ± 4.92 years at baseline) were identified who participated in one of five NIH-supported randomized, controlled weight loss trials (RCTs) from 2005 to 2014. These studies utilized common measures and methods to compare the effects of randomization to CR plus exercise vs. exercise without CR on physical and metabolic function in overweight or obese older adults. Of the 968, n=351 had sufficient data to calculate an EMR-Based Frailty Index for statistical analysis. Notably, this cohort of 351 was 7.95% deceased and 27.0% male, as compared to the total sample which was 11.8% deceased and 31.3% male. A logistic regression model was constructed to estimate the effect of CR on later incidence of frailty.

Results: Mean weight loss was 7.83 ± 6.70 percent for the CR group and 1.43 ± 4.41 percent for the control group. Mean eFI score was $.184\pm.0814$ for the CR group and $.168\pm.0741$ for the control group. After adjustment for age at baseline, time since last RCT, baseline BMI, race, and sex, individuals who underwent CR were 8.89% more likely to be frail, as compared to individuals who did not undergo CR (p=0.07). The logit model correctly predicts 70.4% of the values, and the rest are misclassified.

Conclusions: Caloric Restriction in older adults may lead to a higher incidence of frailty later in life. Whether this is the result of a disproportionate weight regain (or rebound) of adipose tissue that predisposes to frailty remains to be studied.

B210 Student Presentation, Encore Presentation
Linking Age-Associated Changes with Urinary Function in a Urodynamic Mouse Model

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Background: The prevalence and burden of urinary dysfunction increases with age. Current therapies, based on a linkage of bladder function and perceptions, offer limited effectiveness with major side effects. We postulate that the incompletely understood relationships of system, organ, and tissue domains across lifespan is a knowledge gap contributing to therapeutic inadequacies. If tissue-level changes drive aging bladder phenotype, parallel changes should be observed across these domains. Conversely, a lack of correlation across domains

would support our hypothesis that urinary performance is predominantly dependent on centrally-mediated adaptivity to systemic aging.

Methods: In four age groups, male and female WT mice longitudinally underwent voiding spot assays, pressure/flow cystometry, bladder strip myography, histology, and PCR studies to assess cortical input, autonomic reflexic response to bladder filling, tissue responsiveness and structure, and molecular changes, respectively. Correlations r>0.5 were sought between domain variables.

Results: Behavior revealed diminished peripheral voiding and spot size in aged females. Cystometry demonstrated age-dependent increases in micturition interval (p<0.0001) and age- and sex-dependent increases post-void residual (p < 0.005), along with loss of volume sensitivity yet preserved contractile strength. Strip studies showed no significant differences in adrenergic, cholinergic, or EFS response. Detrusor thickened and lamina propria thinned with maturation. No significant histologic changes could be ascribed to aging, and collagen/muscle did not vary across age groups. Post-Young mouse bladders had diminished Adrb2 mRNA (β2 adrenoceptor) expression. No consistent significant correlations were found across domains.

Conclusion: The aging bladder is not defined by isolated domain changes. Rather, successful urinary control should be viewed as a measure of resilience in response to bladder filling, with symptoms indicating a failure of adaptive system control.

B211
Change in Prognostic Performance of a Deficit-Accumulation Frailty Index with Availability of Clinical Domains

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Background: The frailty index (FI) is comprised of health deficits in multiple domains. However in clinical practice many of these domains may not be practically feasible to ascertain. The effect of removing specific elements from the FI on predictive performance is unclear.

Methods: We used the 2011 cohort assessment from the National Health in Aging Trends Study to construct a 41-item full FI based on a comprehensive geriatric assessment. Deficits were categorized into the following domains: co-morbidities, activities of daily living (ADL), instrumental activities of daily living (IADL), self-reported physical limitations, physical performance, and cognition. We assessed predictive performance of mortality for the full FI by c-statistic and 5-year restricted mean survival time (RMST). We then assessed change in c-statistic after removal of items in each domain individually and sequentially based on likelihood of their availability in clinical practice.

Results: Among 6071 subjects, median FI was 0.160 [interquartile range 0.099-0.244]. Prediction of 5 year mortality with a full FI model had a c-statistic of 0.702. When removing each domains in isolation, the greatest change in c-statistic occurred with removal of performance measures with reduction of c-statistic to 0.694. Removal of individual domains otherwise did not decrease c-statistics or change 60 month RMST by greater than 6 months in any group (Table). When removing domains of measures sequentially, removal of performance, cognitive, and physical tasks decreased c-statistic to 0.676.

Conclusion: Deficit accumulation FI is robust to the omission of items in a single clinical domain. However removal of multiple domains decreases predictive performance of the full FI.

Variations of FI	No of Deficits	C-statistic	60-month Restricted Mean Survival Time					
			FI <0.15	FI 0.15-0.24	FI 0.25-0.34	FI 0.35-0.44	FI 0.45-0.54	FI>0.55
Full FI	40-41	0.711	57.1	55.3	52.6	49.7	43.9	39.0
Domain removed								
Performance	37-38	0.694	56.0	54.2	51.5	48.1	43.1	37.4
Cognition	39-40	0.708	57.1	55.4	52.8	49.9	44.8	38.2
Physical tasks	33-34	0.708	58.1	56.3	52.6	49.0	41.9	39.1
IADLs	33-34	0.707	58.3	56.6	54.5	50.2	47.3	39.6
ADLs	34-35	0.710	58.3	56.7	54.4	51.9	48.5	39.9

Abbreviations: ADL, Activity of Daily Living; FI, Frailty Index; IADL, Instrumental Activity of Daily Living.

Table: Predictive performance of frailty index (FI) after removal of domains

B212 Student Presentation
Geriatric Conditions and Health Care Utilization Among Older Adults Living in Subsidized Housing

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Background: In the US, 1.7 million older adults with low incomes live in subsidized housing. While previous research suggests that subsidized housing residents have poorer health status than older adults in the general community, little is known about their prevalence of functional impairment and other geriatric conditions. Understanding these factors is necessary to develop interventions to improve health outcomes for this vulnerable population.

Methods: We conducted a retrospective cohort analysis of 11,558 Medicare enrollees ages 65+ who were enrolled in the National Health and Aging Trends Study in 2011 or 2015, including 507 living in subsidized housing and 11,051 in the general community. We compared subsidized housing residents to general community residents across measures of sociodemographics, functional limitations, and geriatric syndromes. We also compared the prevalence of hospitalization, move to a higher level of care, and death within five years. Analyses were adjusted for the complex survey design.

Results: Compared to general community residents, subsidized housing residents were more likely to be women (66% vs. 55%, p<0.01), racial/ethnic minorities (50% vs. 18%, p<0.01), and to lack a high school diploma (50% vs. 20%, p<0.01). They also had poorer health status, including higher rates of self-reported functional impairment (difficulty with 2 or more ADLs; 16% vs. 10%, p<0.01), reduced physical performance measured by the Short Physical Performance Battery (81% vs. 59%, p<0.01), probable dementia (15% vs. 8%, p<0.01), and frailty using the three-level Fried frailty index (55% vs 26%, p<0.01). Subsidized housing residents also had higher rates of hospitalization (29% vs. 22%, p<0.01) move to a higher level of care (4% vs. 3%, p<0.01), and death (10% vs. 7%, p<0.01) compared to community-residing peers.

Conclusions: Older adults residing in subsidized housing have higher rates of functional impairment, geriatric syndromes, hospitalization, move to a higher level of care, and death than their community-residing peers. These findings will help inform targeted interventions to address functional impairment and improve aging in place for this vulnerable population.

B213
Association of Physical Activity and Energy Intake with Incident Urinary Incontinence: Women's Health Initiative Observational Study

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Background
Normal body mass index (BMI) is associated with a lower risk of urinary incontinence (UI) in women. BMI is primarily determined by the balance of energy intake and expenditure, however it remains unknown if these factors are associated with UI through pathways independent of BMI, such as pelvic floor strength or bladder inflammation.

Methods
Our study sample included 16,777 post-menopausal women enrolled in the Women's Health Initiative (WHI) Observational Study with complete covariate data and without UI at baseline. BMI was measured and physical activity and dietary intake were assessed using standardized activity and food frequency questionnaires. Women reported their UI symptoms at baseline and after 3 years of follow-up. Multivariable logistic regression and bootstrapping calculated odds of urge and stress UI and calibrated confidence intervals.

Results
Cumulative incidence of urge and stress UI after 3 years was 13% and 11%, respectively. After adjusting for confounders, higher physical activity at baseline was associated with lower risk of incident urge and stress UI (Table 1). There was a borderline significant association between higher energy intake and increased risk of urge, but not stress, UI. When BMI, physical activity, and energy intake were included in a single model, associations were attenuated although higher physical activity remained somewhat protective against incident urge UI.

Conclusions
Post-menopausal women with greater physical activity are less likely to develop new urge or stress UI. Although energy intake is not independently associated with UI, BMI and energy intake partially explain the association between physical activity and UI. Future studies of weight and UI should include objective assessment of energy intake and expenditure.

Association of Physical Activity and Energy Intake with Incident Urinary Incontinence

	Physical Activity, METs/week							Calibrated Energy Intake, kcal/week					
	<0.1	0.1-4.9	5-9.9	10-19.9	20-29.9	≥30	P-trend	<1870	1870-1995	1995-2107	2107-2250	≥2250	P-trend
Urge Urinary Incontinence													
Model 1 OR (95% CI)	Ref.	0.96 (0.82, 1.14)	0.86 (0.73, 1.02)	0.87 (0.75, 1.03)	0.95 (0.79, 1.13)	0.78 (0.64, 0.94)	0.02	Ref.	1.08 (0.85,1.36)	1.24 (0.97,1.59)	1.21 (0.92,1.60)	1.39 (0.99,1.96)	0.05
Model 2 OR (95% CI)	Ref.	0.97 (0.83,1.15)	0.88 (0.74,1.05)	0.91 (0.77,1.07)	1.00 (0.81,1.22)	0.82 (0.64,1.05)	0.39	Ref.	0.99 (0.77,1.26)	1.08 (0.81,1.45)	1.01 (0.72,1.42)	1.02 (0.66,1.60)	0.87
Stress Urinary Incontinence													
Model 1 OR (95% CI)	Ref.	0.84 (0.70, 1.02)	0.97 (0.81, 1.17)	0.87 (0.74, 1.04)	0.84 (0.69, 1.02)	0.79 (0.65, 0.97)	0.04	Ref.	1.09 (0.86,1.37)	1.05 (0.82,1.33)	1.13 (0.85,1.50)	1.04 (0.73,1.47)	0.80
Model 2 OR (95% CI)	Ref.	0.85 (0.71,1.03)	0.99 (0.82,1.20)	0.91 (0.76,1.10)	0.89 (0.71,1.12)	0.88 (0.67,1.16)	0.55	Ref.	1.04 (0.81,1.34)	0.98 (0.74,1.30)	1.03 (0.73,1.45)	0.89 (0.56,1.42)	0.81

Model 1 adjusted for race, income, diabetes, heart failure, self-reported health status, years since menopause, HRT, and water intake. Model 2 adjusted for Model 1 + BMI, physical activity, and energy intake.

B214
Does Age Independently Predict Risk of Polypharmacy in COPD?

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Background: Chronic obstructive pulmonary disease (COPD) guidelines recommend treatment escalation by level of dyspnea, which is often multifactorial in older adults.[1] As a result older adults with COPD could be at risk for overprescribing. Our objective was to determine the relationship between age and the number of COPD medications.

Methods: We performed secondary analysis on cross-sectional data from The COPD Outcomes-based Network for Clinical Effectiveness & Research Translation (CONCERT) that enrolled participants with a diagnosis of COPD for detailed interview, spirometry and exam. Participants with asthma or without spirometry evidence of obstruction were excluded. We used a multivariate logistical regression to study the relationship between age and number of COPD medications on the 412 remaining participants. To isolate the impact of age

rather than disease severity, we adjusted the models for exacerbations, dyspnea, and level of obstruction in addition to sociodemographics.

Results: Compared to 40-60 year old participants, those aged 60-80 (OR 1.71, CI 0.93-3.04) and 80 or older (OR: 2.58, CI 1.31-5.11) were more likely to be on more COPD medications despite controlling for disease severity. This observation was statistically significant for those 80 years and older. For a post hoc sensitivity analysis, we broadened our inclusion criteria to include the 315 patients with a COPD diagnosis but without obstruction. This further supported our findings for both 60-80 years (OR 1.99, CI 1.08-3.65) and 80 years or older (OR 3.14, CI 1.62-6.1) groups.

Conclusion: Our study indicates that age is an independent risk factor in prescribing more COPD medications. This could lead to polypharmacy and associated risks in older adults most vulnerable to adverse drug events.

References

1. Vetrano DL, Bianchini E, Onder G, et al. Poor adherence to chronic obstructive pulmonary disease medications in primary care: Role of age, disease burden and polypharmacy: Treatment adherence in COPD. *Geriatr Gerontol Int*. 2017;17(12):2500-2506.

B215 Student Presentation

Association between body composition and risk of vertebral fracture in long-term care community residents

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Introduction

Vertebral fractures (VF), the most common osteoporotic fracture, are associated with frailty and death in older adults. Body mass index (BMI) has been associated with increased VF risk in women, although the findings are mixed. Few studies have examined the relationship between visceral adipose tissue (VAT) and VFs, especially among older adults. We sought to address the gap by examining the associations between body composition measures and VF risk in older women living in long-term care communities.

Materials and Methods

We conducted a cross-sectional, secondary analysis of 362 women from two osteoporosis clinical trials. Subjects underwent dual-energy X-ray absorptiometry (DXA) (Hologic Discovery QDR) whole body scans. Body composition measures were calculated using the APEX software. Fractures of T6-L4 vertebrae were detected using DXA vertebral fracture assessment and classified as mild, moderate, or severe by Genant criteria. Logistic regression models for VFs were used with linear, quadratic and categorical operationalizations of body composition measures.

Results

A U-shape association with VF risk was seen with weight (p=0.011), BMI (p=0.019), total body mass (p=0.019), fat mass (p=0.013), lean mass (p=0.013), and appendicular lean mass (p=0.02). Findings for thoracic VFs were similar. Risk of lumbar VFs showed a U-shaped association with weight (p=0.022), total mass (p=0.008), percent body fat (p=0.006), lean mass (p=0.012), and appendicular lean mass (p=0.007), but not BMI (p=0.082) or fat mass (p=0.93). The associations persisted after controlling for lateral spine BMD. VAT mass, area, and volume were not associated with risk of VF.

Conclusion

Our finding suggest a U-shaped VF risk-body composition association independent of lateral spine BMD among older women in long-term care and emphasize the importance of maintaining a healthy body composition. Weight and lean mass may have stronger associations with lumbar VF risk than BMI. Further study is needed to establish a prospective longitudinal association with body composition and incident VF risk.

Patient Demographics

Age, mean ± SD	81.4 ± 7.6
BMI, kg/m^2, mean ± SD	28.5 ± 6.4
VF incidence, n(%)	311 (88.9)
T6-T12 VF, n(%)	300 (85.7)
L1-L4 VF, n(%)	182 (51.8)

B216

A Review of Intra-Hospital Transition Outcomes

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Background: Previous transitional care research has focused on transitions occurring between the community and hospital settings. Little is known regarding intra-hospital transitions. Intra-hospital transitions include transitions occurring within the hospital system, including transfer from the emergency department (ED) to a hospital unit or between hospital units. Moreover, the impact of intra-hospital transitions on older adults, family caregivers (FCs), and healthcare professionals (HCPs) remains unclear. The purpose of this systematic review was to examine intra-hospital transition outcomes for older adults, FCs, and HCPs.

Methods: A systematic review was conducted using PubMed, CINAHL, and PsycINFO following PRISMA guidelines. The search was performed on literature from January 2003 through November 2018 and limited to English language, peer-reviewed, and age of 65 years and older. Articles were excluded if they focused on transitions occurring from or to the hospital, discharge planning, or post-discharge follow up. Search terms included transitional care subject headings and hospital settings. Other terms included caregivers, older adults, HCPs, delirium and dementia, and experiences.

Results: The systematic review identified 341 articles, of which 30 met inclusion and exclusion criteria. The majority of articles focused on emotional or experiential outcomes. Nine articles addressed specific clinical outcomes. Longer wait times in the ED before a transfer occurred were associated with worsening of dementia symptoms and increased occurrence of delirium. Higher incidences of transfers increased potential for nosocomial infections, medication errors, and falls. Transitions to inappropriate units due to bed availability also increased length of stay and mortality rates. Seven articles focused on relationships between organizational factors and intra-hospital transitions. Nonetheless, most articles highlighted the potential impact of organizational issues, such as conflicting care priorities, on intra-hospital transitions.

Conclusions: Intra-hospital transitions research has focused on experiential outcomes. Limited knowledge exists regarding the clinical impact of intra-hospital transitions. Further research is needed to explore older adults' clinical outcomes relating to intra-hospital transitions.

B217

Focusing Independence at Home Qualifying Criteria (IAH-Q) to Identify High Need High Risk (HNHR) Veterans who benefit from Home Based Primary Care (HBPC)

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BACKGROUND Efficiency of complex care interventions depends on targeting programs to those at greatest risk. IAH-Q criteria identify 6% of the Medicare population who account for 29% of spending, 38% of new long term institutionalization (LTI), 23% of deaths, and 24% of hospitalizations. We applied IAH-Q criteria to VA data, and developed a HNHR Selection Score (SS) to further improve the positive predictive value (PPV) of 2-year risk of LTI or death among HNHR veterans.

METHODS We applied IAH-Q criteria (prior 12 month hospitalization and post acute care, 2+ chronic conditions, 2+ ADL

dependencies) to 6.2 M veterans using VHA in 2015. We used the JEN Frailty Index (JFI) score of 6+ as the ADL criterion. We developed the HNHR list by applying IAH-Q criteria to VA data without linked Medicare data. We developed a HNHR SS to better identify individuals from the original HNHR lists who HBPC program directors identified as likely candidates for admission. We applied both IAH-Q and HNHR criteria to the 2015 population, and calculated 1 and 2 year PPVs and risk ratios.

RESULTS In 2015, 47,210 (73%) of HNHR 2+ Veterans were IAH-Q (13% of IAH-Q total). The IAH-Q represented 6% of Veteran users, accounting for 32% of hospitalizations, 44% of deaths, 58% of new LTI, and 28% of cost ($17B/$61B). SS produced an older, frailer population with less substance use and severe mental illness. LTI or death in 2 years occurred in 39% of HNHR 2+ veterans, and 42% of IAH-Q/HNHR 2+ veterans (representing 28,000 and 23,000 modifiable trajectories). HNHR 2+ veterans more closely resembled IAH-Q veterans referred to HBPC. (Table)

CONCLUSION IAH-Q criteria identify a high risk group of Veterans; HNHR 2+ identifies the 30% of HNHR Veterans with risks similar to HBPC IAH-Q veterans. Over 40% of these Veterans will have an event in the next 2 years signaling a potentially modifiable high-cost trajectory. Reaching 47,000 HNHR 2+/IAHQ Veterans would double the current VA HBPC program.

1-Year Risks for IAH-Q and HNHR Veterans

	IAH-Q Veterans (N=370,802)	HNHR Veterans (N=216,661)	HNHR 2+ (N=64,099)	IAH-Q HBPC (N=23,352)
JFI score (frailty)	6.6	7.0	7.6	7.0
Hospitalization	25%	37%	42%	39%
Mortality	23%	12%	22%	25%
LTI	4%	2%	5%	5%

B218

How well can we prospectively identify older adults with serious illness and high healthcare expenditures?

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Background: There is a growing number of older Americans with serious illness. Predicting those with highest healthcare use is critical to target geriatric and palliative supports to avoid non-preference driven care. We apply a novel finite mixture model (FMM) approach to see if we can better predict and characterize older adults with serious illness and highest healthcare use.

Methods: We use the Medicare claims-linked Health and Retirement Study (HRS) from 2000-2012 to fit a FMM on total Medicare expenditures one year after incident serious illness. We first determined underlying subgroups (classes) and compared the FMM to generalized linear and ordinal least squares models in predicting year two Medicare expenditures. We then evaluated the characteristics, mortality, and utilization of individuals most likely to belong to each latent class based on their posterior probabilities of class membership.

Results: FMM revealed five latent classes. Individuals assigned to each class by posterior-weighted predictions had average 12-month expenditures of $872, $4,021, $13,313, $41,000 and $110,000. FMM was superior to GLM and OLS in fitting year one expenditures and predicting year two expenditures. While rates of most comorbidities and utilization outcomes were higher in higher-utilization classes, caregiving and functional disability demonstrated a U-shaped distribution along expenditure classes.

Conclusions: Health care use after the onset of serious illness is heterogeneous. Health systems can use FMM with clinical and utilization data to better predict and characterize highest-cost individuals. Older adults with functional disability represent both the highest and lowest utilizers of healthcare among those with serious illness, raising concerns for underuse.

B219

"Affecting Change Upstream": Medicare Advantage Plan Perspectives on the Alignment of Physician and Plan Goals to Address Social Determinants of Health

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Background: The passage of the Creating High-Quality Results and Outcomes Necessary to Improve Chronic (CHRONIC) Care Act allows Medicare Advantage (MA) plans greater ability to address non-medical needs including social determinants of health (SDOH) starting in 2020. How MA plans will respond to these legislative and policy changes is not yet known.

Methods: Semi-structured qualitative interviews were conducted with 38 participants from 17 MA plans across the country. Plans varied significantly in their geographic coverage, star ratings, and enrollment. Interviews were designed to understand MA plans' priorities regarding addressing the SDOH of their members, how they interact with provider networks, and how these priorities and interactions may be impacted by health care policies. Interviews were qualitatively analyzed to understand overarching themes and patterns of responses.

Results: MA plans are increasingly focused on addressing the non-medical needs of their members, in part due to recent changes in CMS guidelines and passage of the CHRONIC Care Act. Participants reported on their efforts to pilot new initiatives, seek alternative financing methods for pilots, and incorporate coverage of successful SDOH-related services into their benefits packages. Participants discussed their interactions with their provider networks, and reported taking provider opinions into consideration when making benefit decisions. Overall, MA plans anticipate their provider networks would be receptive to initiatives that address SDOH, although they highlighted possible challenges including incorporating benefits outside providers' standard scope of practice and ensuring that providers are aware of and able to connect patients to newly-covered services.

Conclusions: MA plan participants report that their interests in addressing non-medical needs of their members are aligned with providers' goals of providing high quality care to their patients. Physicians may provide a key role in connecting patients to new benefits, but it will require efforts by both plans and providers to ensure that new benefits are appropriately designed and disseminated.

B220

Feasibility of Shared Savings Models for Small Home-based Primary Care Practices

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Background: The Independence at Home (IAH) demonstration is a shared savings program where practices receive a share of the difference between actual spending on patients relative to a spending target. Most IAH home-based primary care practices have between 200-500 eligible patients. When there are relatively few patients in a practice, spending in a given year may depart from the target due to random variation. As a result, practices that saved money may not look like they did and vice-versa. CMS uses minimum savings rates (MSRs) to address this problem, where savings must exceed the target beyond chance for a practice to receive shared savings. However, little is known about how small is too small for practices to realistically participate in shared savings models.

Methods: We used 100% Medicare claims for 2011-2012 to identify all beneficiaries who met IAH qualifying criteria (hospitalization in the prior 12 months, post-acute care in the prior 12 months, 2 or more chronic conditions, and 2 or more ADLs) and received 2 or more house calls (N = 221,570). We sampled with replacement to create randomly grouped beneficiaries into practice size groups (100, 200, 300, 500, 750, 1000, 2500) with 2,500 samples per size group. We considered 3 levels of outlier trimming (99th, 95th, & 90th percentiles).

Results: Average spending on IAH patients was $3,348 (SD = $4,654). Average residual spending (i.e., difference between actual and predicted spending) was 0, by construction (SD = $4,554). Using a one-tailed test, the 95% confidence interval on residual spending was 15.6% for practice size=200; 10.3% for N=500; and 7.0% for N=1000. When spending is truncated at the 90th percentile ($7,284), the 95% CI for those practice sizes decreases to 9.4%, 6.0%, and 4.2%, respectively.

Conclusions: It is challenging to make the shared savings approach work for small IAH practices, because even if a practice produces substantial savings (e.g. 10%) random variation in spending may make it appear the practice did not actually produce savings. For example, the one-tailed 95% CI for a practice with 300 patients is 12.3%. The CIs can be reduced substantially by truncating outliers. The downside of this approach is if a practice reduces spending on patients whose spending is above the threshold, the practice does not get credit for those savings.

B221
Construct Validity and Internal Consistency of the MDS 3.0 Aggressive Behavior Scale
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Background:

Interventions aimed at managing agitated and aggressive behaviors in dementia without the use of antipsychotics are currently being tested in nursing homes (NHs). Researchers and clinicians require a measure that can capture the effects of these interventions on residents' behaviors. We test the internal consistency, construct validity, and stability over time of the Aggressive Behavior Scale (ABS), a composite measure created using mandatory NH assessments.

Methods:

We used the Minimum Data Set, version 3.0 to build a sample of newly admitted NH residents in 2015. The new residents had no NH stay in the prior 6-months, and remained in the NH for at least 7 days. The ABS score was constructed at multiple time points over the NH stay. The ABS is a composite measure of four types of agitated and/or aggressive behaviors: 1) physical behavioral symptoms directed at other people; 2) verbal behavioral symptoms directed at other people; 3) other behavioral symptoms not directed at other people; and 4) rejection of care. Variables used to establish construct validity included: degree of cognitive impairment, use of medications for managing agitation and aggression, and co-occurring conditions associated with agitated and aggressive behaviors (e.g., schizophrenia, or delirium).

Results:

We identified 141,861 NH admissions meeting the inclusion criteria, 19.6% of which were admitted with dementia. The median length of stay was 22 days, and 13.5% remained in the NH for at least 90 days. The ABS score has adequate internal consistency (α=0.65) for all admissions and admissions with dementia (α=0.70). The ABS demonstrates good construct validity; it increases with cognitive impairment, treatment with relevant medications, and co-occurring psychiatric conditions and symptoms.

Conclusion:

The ABS may be a useful measure for researchers testing non-pharmaceutical interventions to reduce agitated and aggressive behaviors in NHs, despite likely underestimation of the prevalence of these behaviors.

B222 Student Presentation
Optimizing Quality of Life with Cognitive Impairment: A Study of End-of-Life Care in Assisted Living
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Background: Assisted living (AL) is an expanding site of end-of-life (EOL) care in the US. Understanding determinants of quality of life (QOL) for AL residents near EOL is vital to providing care for this growing population, a majority of whom have some level of cognitive impairment (CI). Previous studies suggest the self-reported QOL of people with CI is not determined by their degree of CI, and is underestimated by their caregivers. This analysis aimed to identify factors that shape QOL in a diverse sample of AL residents with CI approaching EOL.

Methods: Data in this analysis are from a 5-year NIA-funded prospective, mixed-methods study (R01AG047048) examining EOL care in 7 diverse AL communities in the Atlanta area. Residents were enrolled if they were: at least 85 years old, diagnosed with multiple chronic conditions or a life-limiting illness, and/or enrolled in hospice. QOL was assessed with the self-reported QOL-AD survey, modified for AL. Cognition was assessed with the Montreal Cognitive Assessment (MoCA), with CI defined as MoCA score ≤ 26 out of 30. Functional limitation was determined using 13 items from the Older Americans Resources and Services (OARS) Multidimensional Assessment Questionnaire. Psychological distress was assessed with the PHQ-4, and pain with the Iowa Pain Thermometer. We calculated Pearson's r correlation coefficients for bivariate analysis of factors related to QOL. We hypothesized that QOL would not be correlated with MoCA score; but among residents with CI, QOL would be negatively correlated with psychological distress, functional limitation, and pain.

Results: The sample (n=69) was 64% female, 57% white, 41% black, and age ranged from 58 to 103 (median 86). The mean MoCA score was 16 (SD=6.7) and 66 residents scored ≤ 26, indicating CI. There was no significant correlation between MoCA score and QOL (r=.024, p=.8). Among residents with CI, QOL was negatively correlated with psychological distress (r= -.43, p<.001) and functional limitation (r= -.24, p=.048) at significant levels, and with pain at a non-significant level (r= -.21, p=.09).

Conclusions: The lack of correlation between MoCA score and self-reported QOL suggests that AL residents have potential to experience high QOL despite CI. Psychological distress and functional limitation are modifiable factors correlated with QOL in AL residents with CI, which could be targeted to improve EOL care.

B223 Encore Presentation
Reduced Hospital-based Utilization Among Seniors with Heart Failure
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Background: Seniors with heart failure (SwHF) are often high utilizers of hospital-based services. New models delivering cost effective, high quality acute care are needed to meet the demands of this medically complex and growing senior population. An integrated health system implemented a mobile integrated health paramedic program (MIHPP): paramedics provided home-based clinical care of seniors enrolled in their Heart Failure Clinic (HFC). This study examined the association between the MIHPP intervention and hospital-based utilization.

Methods: This is a retrospective analysis of EHR data. Outcome variables were all ED visits (ED discharges and ED-to-hospital), hospitalizations (inpatient, observations and surgical overnight visits), 30-day ED revisits, 30-day all-cause readmissions and outpatient visits. Analyses assessed differences in visits 6 months prior and 6 months post intervention. Wilcoxon Rank Sum tests determined

statistical significance. Also, comparison data were obtained from a national standard random sample of beneficiary claims from 2012[1] and showed typical utilization trends over 12 months for SwHF. Changes in utilization in a 6-mo pre/post period were calculated for this group and compared to the 6-mo pre/post changes in the MIHPP group to test for regression to the mean.

Results: 514 seniors had 1,112 pre-MIHPP visits (M = 2. 2 visits per senior, SD = 1. 6) and 603 post-MIHPP visits (M = 2. 2, SD = 1. 8). Visit-level analyses revealed significantly lower utilization post-MIHPP: All ED visits decreased 50% (754 vs 374, p<.001), hospitalizations decreased 57% (782 vs 336, p<.001), 30-day ED revisits decreased 54% (367 vs 170, p<.05), 30-day all-cause readmissions decreased 65% (289 vs 102, p<.001), and outpatient visits decreased 16% (133 vs 112, p<.001). The MIHPP group's decline was greater than the comparison group's 6-month decline in utilization for all ED visits (50% vs 15%) and hospitalizations (57% vs 14%).

Conclusion:

The MIHPP group showed greater declines than typical utilization patterns for a similar, national, sample in the 6 months following the intervention. Thus, MIHPPs appear to effectively provide SwHF with the clinical services they need at home while decreasing the need for expensive hospital-based services during and after the care episode.

[1]Research Data Assistance Center (RESDAC) https://www.resdac.org/cms-data/request/limited-data-sets

B224

Hospital at Home Services: An Inventory to Inform Medicare Payment

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Background

Hospital at Home (HaH) provides hospital-level care in the home and has demonstrated better outcomes and per-episode savings of ≥10% compared to equivalent inpatient care[1]. We inventoried services from a HaH Center for Medicare and Medicaid Innovation demonstration to identify the percentage of these services currently not reimbursable under Medicare fee-for-service (FFS) and assess the potential for savings with payment reform to inform episodic care within value-based models such as Accountable Care Organizations (ACOs).

Methods

We conducted a retrospective study surveying services provided during 297 HaH episodes in five Medicare claims types: Outpatient facility, Carrier Claims, Home Health, Durable Medical Equipment and Pharmacy. Programmatic services that did not generate a claim (e.g. eligibility assessments and 24/7 staff availability) were excluded. We then calculated the counterfactual DRG payments using publicly-available 2015-2016 Medicare data. A previously reported analysis of HaH program[1] costs was compared to usual inpatient care costs.

Results

We categorized 6942 distinct services, of which 42.4% (2944) were reimbursable, within current Medicare claims categories. Among the remaining 3998 (57.6%) non-reimbursable services, 1261 (18.2%) could be reimbursed within some (e.g. Next Generation) ACO models via benefit enhancements such as home nursing visits not carried out within a home health episode. The cost to deliver HaH services was estimated at $7585[1] per episode while comparison hospitalizations averaged $10,027: a difference of $2442 per episode.

Conclusion

Most HaH services cannot currently be reimbursed via traditional FFS Medicare. Although more services could be covered in a value-based model (e.g., ACO), a substantial number remain uncovered. Some services may be indirectly covered via shared savings within an ACO, but future work is needed to assess the true financial viability and generalizability of this approach. In sum, HaH has may provide

seniors with care in place that is safe, effective and cost-reducing, yet current Medicare payment mechanisms will need to be revised to make the model broadly scalable and sustainable.

[1]https://aspe.hhs.gov/system/files/pdf/255906/HaHPlusProviderFocusedPaymentModel.pdf

B225 Student Presentation

Defining quality of life measures in elderly populations with dementia: A Systematic Review.

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Introduction: Quality of life (QOL) is an ambiguous term, which becomes significantly more difficult to define when assessed in people with dementia (PWD). The objective of this study was to perform a systematic review of the literature to evaluate the current scientific knowledge regarding QOL in elderly PWD. It also sought to determine what defines QOL for elderly PWD and to evaluate the different ways QOL is measured.

Methods: A systematic review of the literature was performed using a PubMed database search that included the terms "quality of life" and "dementia." The search was limited to English articles published between January 1995 and September 2018. We only included studies that addressed the research question — what defines QOL in elderly PWD over the age of 65 and how was it measured? The articles were then additionally screened for quality using the Critical Appraisal Skills Programme (CASP).

Results: Of the 620 articles found, 19 met the criteria for inclusion. Of the studies, 7 compared QOL by proxy (PRQOL) with self-rated QOL (SRQOL), while the rest reported only PRQOL. It was shown that SRQOL can be obtained in PWD who have a MMSE as low as 6, however many studies do not attempt SRQOL in PWD. Across the comparative studies, the PRQOL was rated significantly lower than SRQOL and was affected by factors such as proxy mood and the relationship with the PWD (p <0.05). The components that proxy responders considered to be the most important to QOL were neuropsychiatric symptoms (NPS) and worse cognitive function; however, NPS were not consistently a major determining factor for SRQOL, and cognitive function was not correlated with decreased SRQOL. Pain and comorbid conditions were the most relevant factors that affected SRQOL.

Conclusion: While many studies rely on proxies as the sole reporter of QOL for PWD, this review indicated that using only PRQOL may not provide the complete picture. When determining treatments to improve QOL outcomes for PWD, both self and proxy reports should be utilized to ensure that all needs are addressed to facilitate the largest increase in QOL. Research should be done that permits PWD to self-report QOL in addition to proxy-reports, which could lead to a more complete understanding of QOL in PWD and allow for more impactful interventions.

B226

High Frailty Identified in The House Call Patient Population

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Background

House call programs caring for complex, vulnerable patients have recently grown, spurred by demonstration of their efficacy, such as Independence at Home. Frailty is a measure of vulnerability due to decline in function in multiple physiologic systems resulting in decreased ability to cope with both acute and everyday stressors. The JEN frailty index (JFI) is a validated measure of frailty which has been shown to predict older persons at high risk of future long-term institutionalization (LTI). A JFI score of six or greater suggests a high level of frailty, with scores above eight suggesting a very high level of

frailty. The share of house call patients who are highly frail, and their associated risks of death and LTI, are unknown.

Methods

We obtained 100% Medicare Part A & B claims from 2013-2014 for all beneficiaries receiving one or more house calls in 2014 from a primary care provider and enrolled in fee-for-service Medicare in January 2014 through their initial house call month (n=707,245). JFI scores were computed based on twelve months of diagnoses prior to January 2014, using the JFI algorithm, which organizes diagnoses into thirteen diagnostic domains pertaining to geriatric syndromes, functional deficits, and multi-morbidity clusters.

Results

Of 2014 house call patients, 218,737 patients had a JFI score of 6-7, with an additional 197,190 patients having a JFI score 8 and above. In total, 58.8% (n=415,927) had a JFI score greater than six. 60.6% (n=428,367) of those receiving house calls had post-acute care assessments which identified activities of daily living (ADL) dependencies (mean 5.11 ADLs). Almost half of the house call population (n=347,368; 49%) carried a diagnosis of dementia. Further, this highly frail population experienced high rates of LTI (n= 51,215; 7.2%) and death (n=110,564; 15.6%).

Conclusion

Greater than half of Medicare beneficiaries who received house calls in 2014 met criteria for 'high frailty' or 'very high frailty' according to the validated JFI tool. In addition, significant ADL impairments along with high rates of LTI and death, further highlight the vulnerability of patients cared for by house call programs in the United States. In identifying this vulnerable population of older persons there may be opportunity to intervene to alter costly health trajectories including LTI.

B227 Resident Presentation
Healthcare use in elderly adults with recent criminal justice system involvement

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Background: A significant number of adults age 65 and older are involved with the criminal justice system, comprising 10% of the US prison population and accounting for over 100,000 arrests per year. Elderly parolees have a high burden of physical and mental health conditions, necessitating regular medical care. Unfortunately many parolees use the emergency department as their primary source of healthcare. Using data from a large population study, we characterized emergency department (ED) use and hospitalization in elderly persons with recent justice involvement.

Methods: Data were from the National Survey of Drug Use and Health, an annual cross-sectional survey of substance abuse and health behaviors of non-institutionalized individuals. Regression analyses were used to compare emergency department use and hospitalizations in justice involved (i.e. on probation or parole or with arrest and booking within the last year; N=151) versus non-involved adults (N=22,872), controlling for possible confounding patient factors, including gender, race, employment status, marital status, income, health insurance, education level, self-rated health, and health conditions (medical diagnoses, depression, anxiety, and substance use disorders.)

Results: Elderly persons with justice involvement reported a total of 243 ED visits and 43 hospitalizations. They had 1.95 times as many ED visits (95% CI: 1.46 - 2.61) and 47% higher odds of hospitalization (OR=1.47; 95% CI=1.02 - 2.13) than their non-involved counterparts. The association of criminal legal involvement with increased acute care remained significant after controlling for patient factors (ED, p<0.001; hospitalization, p=0.039). Notably there was a substantially increased prevalence of substance use disorders in justice involved versus non-involved persons (17.1% vs 1.7%, p<0.001.)

Conclusions: As expected, elderly justice involved adults have greater acute care needs than other adults, reflected by increased inpatient stays. Nonetheless, that at most 18% of emergent visits could have led to hospitalization suggests some inappropriate ED use. While there is growing recognition that prison reentry planning should include healthcare enrollment, our data suggest that this also should be addressed and reinforced in jails and probation/parole offices with an emphasis on access to substance abuse treatment and Primary Care.

B228
Evaluating the Impact of Volunteer Engagement in Supporting the Care of Older Adults on Staff and Volunteer Experiences in Inpatient and Emergency Department Settings

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Background: Hospitalized older adults are at high risk of functional and/or cognitive decline. The Maximizing Ageing Using Volunteer Engagement (MAUVE) program was implemented in 2017 to improve the experiences of older patients and their care providers in the inpatient and emergency department (ED) settings at Mount Sinai Hospital, Toronto. MAUVE provides training to hospital volunteers to appropriately engage with frail and at-risk older patients to minimize negative outcomes and enhance their experience. **Methods:** A retrospective data analysis was conducted to describe: (1) the demographic and clinical characteristics of enrolled patients; (2) the types of interventions carried out by volunteers; and (3) staff and volunteer experience with the program. A database was developed to track patients enrolled and volunteer activities. Experience surveys were distributed one month before implementation and 12-months after in the inpatient setting. **Results:** Over the first year of implementation 1,452 patients were enrolled in the program (inpatient=734; ED=718). Volunteers oriented patients by telling them the date and time and keeping them abreast of current events (n=4483 occurrences) and organized cognitively stimulating games (n=3,770 occurrences). Volunteers assisted with feeding (n=1815 occurrences) and hydration (n=2238 occurrences) and mobilized patients (n=797). Satisfaction rates with the program amongst healthcare personnel and volunteers in the inpatient setting were consistently high. Among volunteer respondents (n=30 pre vs n=16 post), 100% indicated they enjoyed being a MAUVE volunteer (increase from 97%), and 81% felt their work as a volunteer was valued by staff (increase from 71%). Among healthcare personnel respondents (n=26 pre vs n=15 post), 87% agreed (decrease from 92%) and 0% disagreed (decrease from 8%) that the volunteers released time for them to provide care. **Conclusion:** By training volunteers to engage with frail older patients to stimulate their minds, bodies, and spirits we can improve the experiences of staff and volunteers who are caring for them in hospital.

B229
Strategies Used by Home-Based Primary Care Teams to Support Veterans at Home

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Background U.S. Department of Veterans Affairs (VA) Home-Based Primary Care (HBPC) Program provides interdisciplinary, long-term primary care for frail, disabled, or chronically ill Veterans. This research describes strategies used by HBPC teams to support Veterans in their homes, rather than in institutionalized care.

Methods In-person site visits were conducted at 8 HBPC programs from Sept 2017-March 2018. Site selection criteria included

low hospitalization rates and completion of initial surveys. Sites varied in location, setting, and primary care model. Focus groups and semi-structured interviews were conducted with HBPC program directors, medical directors, team members, and key staff (N=105). Field observations included HBPC visits to Veterans' homes and team meetings.

Results Qualitative thematic content analysis revealed four main strategies drive and support the shared mission of HBPC teams to support Veterans at home: open communication, developing relationships, education, and collaboration. Effective and open team communication was non-hierarchical, formal and informal. Communication between team members and Veterans/caregivers was frequent and clear, both during home visits and by phone. Team relationships were strengthened by shared commitment to Veterans and a dedication to team cohesiveness. In turn, relationships with Veterans/caregivers were built on continuity of care, reliability, and trust. Team education and education for Veterans/Caregivers was ongoing and person-centered. Educational efforts related to goals of care, advanced care planning, and strategies for acute illness management. Across professions collaboration was highly valued and centered on respect, trust, dedication to Veterans' care, and proved essential to providing Veterans' quality care.

Conclusion Four primary strategies were used by HBPC teams to keep Veterans at home: open communication, fostering strong relationships, targeted education, and team collaboration. These strategies comprised the core values for HBPC teams, who displayed pride and dedication to their mission of caring for medically complex HBPC Veterans. Focusing on these strategies may be useful to achieve similar outcomes both within and outside VA.

B230 Student Presentation
Understanding Adult Protective Services' Use of the Emergency Response System: An Important Way that Elder Abuse Victims Enter the Medical System
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Background: Elder abuse is common and has serious health consequences. Allegations of abuse in the community are investigated by Adult Protective Services (APS). APS workers visiting clients in their homes may identify acute health issues or immediate safety concerns necessitating activation of the 911 emergency response system. Through this action, victims present to the medical system for assessment and care. APS lacks protocols about when to call 911, and little is known about how APS workers make these decisions. Our goal was to improve understanding of APS activation of the 911 system as a first step in development of best practices.

Methods: We conducted 3 focus groups (n=60 total) to explore current practices and experiences around APS activation of the 911 system for elder abuse victims. A semi-structured topic guide was developed through discussion with key stakeholders. Two focus groups were conducted with members of community-based elder abuse multidisciplinary teams and one with emergency medical services (EMS) leadership to capture different perspectives. Focus group transcripts were analyzed iteratively to identify key themes.

Results: Several themes emerged from the focus groups. APS workers and other elder abuse professionals activate the emergency response system often. Despite this, professionals find making decisions about when to call 911 difficult, and they believe different workers make different decisions in the same circumstances. They would like formal guidance to assist this decision-making. Concerns and frustration were expressed by both APS and EMS about their varying frameworks for decisional capacity when working with vulnerable older adults. APS and EMS each felt it would be beneficial to better understand one another's systems and the constraints under which they operate.

Conclusions: For elder abuse victims, activation of the emergency response system by APS is a common point of entry into the medical system. Decisions by these professionals to call 911 are difficult and inconsistently made. There is interest in developing best practices to assist this decision-making and improve coordination between health care and social service systems.

B231
"Bumping into each other" Perspectives of Care Managers on Co-Occurring Care Management for High Need, High Cost Older Adults
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Background: Care management programs are an increasingly common population health initiative aimed at a subset of the population with high utilization and care needs- high need, high cost older adults. With separate programs targeting a portion of the population, it is not clear if programs co-occur in the care of individual patients. We aim to describe this issue from the perspectives of care managers (CMs) who work with high need, high cost older adults.

Methods: We held semi-structured interviews with 13 CMs who worked for various entities (e.g. insurance, primary care clinic, acute care hospital) within and around an urban academic medical center. Interviews were audio-recorded and transcribed verbatim. Transcripts were analyzed using a constant comparative approach to identify themes and subthemes.

Results: Respondents were all female, mostly nurses (n=10, 77%), and predominantly white (n=6, 47%) or African American (n=5, 38%). On average, they had been working as a CM for 8 years and carried a case load of 50 patients. All but one estimated that the majority of her patients were >65 years. Three worked in a specialty disease clinic, 3 for an acute care hospital, 2 for an insurance product, 2 in a primary care clinic, 2 for a collaborative of hospitals, 1 for a private care management company. All but one had experience with CMs from separate, co-occurring programs working with an individual patient at the same time. They described identifying other involved CMs as requiring "detective work" and that patients were not able to reliably report if they had another CM. They also described difficulty addressing the issue and frustration in trying to negotiate accountability for tasks. They accounted that though a patient may have many more needs than one CM could provide, they witnessed having multiple CM contributing to the patient feeling overwhelmed and confused about team member roles.

Conclusions: CMs describe that they experience multiple care management programs working with one individual. While they describe that patients have substantial needs that may require the assistance of more than one CM, the process of identifying who is involved with a patient and who is accountable for specific tasks leads to frustration on the part of CMs and potentially patients.

B232
SNF VBP rewards overall quality not just Medicare Rehospitalizations and varies by facility characteristics and region.
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Background:
Center for Medicare and Medicaid Services' (CMS) Skilled Nursing Facility (SNF) Value Based Purchasing (VBP) uses a single quality measure, a SNF's 30-day rehospitalizations of FFS beneficiaries, to adjust a SNF's Medicare Part A FFS payment ranging from a cut of 2% to an increase of 1.65%. CMS' Incentive Payment Multiplier (IPM) is based on a facility's performance on the SNF Readmission Measure (SNFRM), ranging from 0.980246 to 1.01647. We examined the relationship facility characteristics (FC) and other quality metrics, including all payor hospitalization rates, had with the size of payment adjustment.

Methods:

We grouped facilities into four IPM categories by the magnitude of adjustment: large cut (>1%), small cut (0% – 1%), small increase (0% – 1%), large increase (>1%): LC, SC, SI, LI, respectively. We then calculated differences by FC and quality metrics including Five Star ratings from CMS' Nursing Home Compare data from May 2017 and two NQF endorsed all payor 30-day readmission and all payor long stay hospitalizations obtained from their 2017Q2 release. We evaluated differences in the nine 2010 Census regions, and excluded facilities assigned an IPM of 1.00000 (N=300) and those in US territories (N=6), leaving us with a sample of 14,640 SNFs.

Results:

Three-quarters of facilities received a cut in reimbursements, 73.2% nationally (60.1% LC, 13.0% SC, 12.2% SI, and 14.7% LI).

Five-Star Overall and each component's ratings all trend similarly, with one-star Overall facilities more likely to receive a LC, 64.9%, and the fewest LIs, 9.7%, while those rated five-star were least likely to receive a LC, 55.0%, and most likely to have a LI, 20.0%.

The Average SNFRM rate in each IPM category strongly correlated with the two all payor measures.

Larger, not-for-profit, hospital based, and continuing care retirement communities were more likely to receive a LI compared to smaller, for-profit and independent facilities. The West South-Central region fared worst with 69.7% receiving a LC and only 7.7% receiving a LI. The Pacific and Mountain regions fared best with 22.6% and 22.7% receiving LIs, respectively, and only 46.0% of Mountain region facilities receiving a LC.

Conclusion:

The SNF VBP program, designed to reward quality based on one measure – Medicare FFS 30-day rehospitalization – correlates strongly with Five-Star, other all payor hospitalization measures, and FCs known to correlate with quality.

B233
VA Home Based Primary Care (HBPC) Operating as Independence at Home (IAH) Consortia: Consistent Performance in a Mature Program

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BACKGROUND IAH has been a successful Medicare demonstration of home based primary care, a model using mobile interdisciplinary teams caring for high risk elders under aligned payment incentives. Despite IAH's success, with over half the programs achieving >5% savings, questions remain about the generalizability of savings from a demonstration involving 15 hbpc practices enrolling 11,000 patients. We applied the IAH savings methodology to all VA HBPC programs, thus avoiding program self-selection, to determine generalizability of hbpc savings.

METHODS *Populations* All Veterans useing VA in 2015 (calibration population) and veterans enrolled in HBPC in 2016 (treatment population), divided into Prevalent HBPC (enrolled at the start of 2016) and Incident HBPC (enrolled during 2016), Both HBPC veterans and all 2015 Veterans were sub-divided into IAH-qualified (hospitalization and post acute care in prior 12 months, 2+ chronic conditions, and 2+ ADL dependencies proxied by a JEN frailty index score of 6+) and non-IAH-Q. *Cost Benchmark* We calibrated the VA cost projection model (Nosos, a modified HCC model) on the 2015 IAH-Q and non-IAH-Q populations, using a multi-part model (MPM), on VA and Medicare+VA costs. We applied the calibrated models to HBPC sub-populations, summing differences in predicted and observed costs adjusted for survival. We aggregated pateints into Veteran Integrated Service Networks (VISNs)(mean 2607 HBPC Veterans, range 1479-6953). We accounted for regional variation in health care utilization (reflected in VISN-level model error) at the VISN level.

Under the demonstration rules, an IAH program would need to achieve 5% savings in order to share in any further Medicare savings.

RESULTS The concurrent MPM had superior performance (r^2 of .74 in calibration year), with VISN level error ranging from -11 to 8%, mean -1.2%). Among the 18 VISNs, 14 had 5% or greater VA savings (mean 9%, IQR 6-12%), and 18 exceeded 5% combined VA/Medicare savings (mean 13%, IQR 9-16%). For the 46,930 HBPC veterans, total VA savings of $250M represented $464 per veteran per month, with combined savings of $738 pvpm.

CONCLUSION Savings from IAH appear to be scalable and generalizable, based on the experience of all VA HBPC programs, and reliably achievable.

B234 Encore Presentation
Opioid-prescribing outcomes in older adults receiving care from nurse practitioners and primary care physicians

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Background:

Opioid prescription drug abuse is no longer considered a crisis affecting young and middle-aged adults, the Center for Medicare and Medicaid Services and the Special Committee on Aging have recognized opioid misuse in older adults as a serious problem. This study compared opioid prescribing outcomes in Medicare beneficiaries who received care from nurse practitioners (NP) and physicians (MD) in primary care.

Methods: The sample included 16,694 beneficiaries with a Part D opioid claim between 2009 –2013 who resided in one of 15 states allowing NPs to prescribe controlled substances without physician oversight. We excluded patients with a diagnosis of cancer, end-stage renal disease, and hospice care. Using a propensity score weighted regression analysis to account for selection bias in type of provider and a validated attribution method to assign beneficiaries to a primary care provider type (NP or MD), we first measured whether beneficiaries received any opioid prescription.

For beneficiaries who did receive opioids, we then measured acute (<90 days supply) and chronic (>=90 days supply) use at baseline (2009-2010) and follow-up (2012-2013). Finally, we measured potential misuse of opioids using a daily morphine milligram equivalent (MME) dose of >100mg, overlapping prescriptions of opioids >7 days, and overlapping prescriptions of opioids with benzodiazepines >7 days. After propensity score weighting, logistic regressions adjusted for demographic characteristics, dual eligibility, plan characteristics, Elixhauser comorbidities, and state.

Results: Beneficiaries managed by NPs were less likely to receive an opioid (OR 0.88; *P*<0.001), were less likely to be acute users at baseline (OR 0.83; *P*<0.001) and were more likely to receive a high daily opioid dose of MME >100mg compared to physician-managed beneficiaries (OR 1.13; *P*=0.01).

Conclusions: NPs are integral to the delivery of primary care for older adults and their roles will continue to expand. The prescribing of high daily doses of opioids above recommended levels for NP-managed older adults needs additional research to understand the factors contributing to these patterns. Such studies will help ensure high-quality pain management in older adults, provide insights for how best to design provider-specific training modules, and guide policy makers on scope-of-practice for NP controlled substance prescribing.

B235 Student Presentation
Comparative Effectiveness and Efficiency of 4 Delirium Screening Protocols

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Background:

Despite its potentially devastating consequences, less than half of all delirium cases are identified in routine clinical care. Systematic screening can improve detection, but lack of time is often cited as why such screening is not performed. We investigated the time required to implement 4 screening protocols that use the Ultra-Brief 2-item screener for delirium (UB-2), in which an incorrect answer to one or both items is a "positive" screen, and the 3D-CAM, a 3-minute diagnostic assessment that operationalizes the CAM algorithm. A 3D-CAM skip pattern that ends assessment of each CAM feature if a single item is incorrect (triggers feature presence) can further shorten the assessment. Our Specific Aim is to compare the sensitivity, specificity, and time required to complete the: 1) full 3D-CAM on all patients, 2) 3D-CAM with skip on all patients, 3) UB-2, followed by the full 3D-CAM in 'positives,' and 4) UB-2, followed by the 3D-CAM with skip in 'positives.'

Methods:

We combined data from the previously completed 3D-CAM validation study and the currently enrolling READI: Researching Efficient Approaches to Delirium Identification study. Both enrolled older general medicine inpatients. We simulated the number of items administered under each protocol from 3D-CAM, and calculated median administration time per item from READI. We combined these data to calculate sensitivity and specificity relative to a clinical reference standard, and total administration time for each of the 4 protocols.

Results:

The 3D-CAM and READI studies were comparable on mean age (84 years and 81 years, respectively), and proportion of patients with dementia (28% and 34%). Table 1 below lists the sensitivity, specificity, and median administration time for the 4 protocols (last 3 shorter than full 3D-CAM, p<.001).

Conclusion:

The UB-2, followed in positives by the 3D-CAM with skip pattern, results in a high performing delirium screening protocol that can be completed in slightly over 1 minute. If prospectively validated, this approach holds promise for increasing implementation of systematic screening and improving detection of delirium in hospitalized older adults.

Table 1

Screening Protocol	Full 3D-CAM	3D-CAM-Skip	UB-2 + Full 3D-CAM	UB-2 + 3D-CAM-Skip
Sensitivity, Specificity	95%, 94%	95%, 94%	93%, 95%	93%, 95%
Admin time (mean)	3 min 24 sec	2 min 29 sec	1 min 55 sec	1 min 17 sec

B236 Student Presentation
Cerebral Aging-Related TDP-43 with Sclerosis (CARTS)– Diagnostic or Random?

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Background: TAR DNA binding protein-43 (TDP-43) is normally restricted to the nucleus, but can be transported into the cytoplasm via granules due to certain stimuli. A cytoplasmic TDP-43 accumulation from a dysregulation of this process has been linked to various diseases. Hippocampal Sclerosis (HS) and the recently described Limbic Associated TDP-43 Disease (LATE) are examples of such diseases resulting in an Alzheimer's disease (AD) presentation. To date, HS or LATE are diagnoses of exclusion where demented patients do not have AD-like cerebral spinal fluid or neuroimaging changes in abeta or tau. Cykowski et al. (2017) suggested expanding TDP-43 disease into the Cerebral Aging-Related TDP-43 with Sclerosis (CARTS) diagnostic criteria: >85 years, Braak neurofibrillary tangle stage <IV, pathological TDP-43 in the hippocampus or related regions, and exclusion of frontotemporal dementia. This project studied the prevalence of CARTS among a brain bank sample to evaluate the new criteria.

Methods: 149 brain donation samples (ages 42 - 104 years) from the Alzheimer's Disease Research Center at UCSD were selected based on the above criteria. The hippocampal samples were sliced, prepared on slides from stored paraffin-fixed tissue, and TDP-43 stained. A slide was TDP-43 positive if 1 stained inclusion was found. TDP-43 positive demographics were analyzed.

Results: Of the 149, 14 were TDP-43 and therefore CARTS positive. The average age was 90 years. The average brain weight was 1,099 grams compared to an estimated normal brain weight at 90 years of 1,495 grams and 9 had dementia. Only 8 (58.7%) had TDP-43 disease and all Braak stages were represented.

Conclusion: CARTS did not expand TDP-43 disease as intended since all Braak stages were represented. In addition, CARTS is not specific for TDP-43 disease due to the low number of diagnosed HS within the positive group. Although CARTS is unreliable, a diagnosis for demented patients not explained by AD would have research and treatment impacts. Limitations include the subjectivity of TDP-43 grading, the small unilateral section of brain sampled, patients having overlapping pathologies, and volunteer bias. Future studies include the standardization of TDP-43 reading, phospho- versus regular TDP-43 antibodies, and staining of other brain sections.

B237 Student Presentation
Delirium keyword association with delirium status in older emergency department patients as measured by the Confusion Assessment Method

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Background/Objectives: Delirium is a common condition that is under recognized and often goes undiagnosed in the Emergency Department (ED). The purpose of this study was to determine if ED medical record documentation of specific keywords as indicators of delirium by ED physicians was associated with delirium as measured by a gold standard in a sample of older adults in the emergency department.

Methods: After providing written informed consent, English-speaking patients over 65 admitted to the emergency department were enrolled. Patients were excluded if they were in the Clinical Decision Unit of the ED, were severely hearing impaired, had a current stroke, TIA, delirium tremens, or head trauma diagnosis. Uncommunicative patients were also excluded. Delirium keywords (e.g., altered/changed mental status, confusion, delusions) were abstracted from the ED medical record. Delirium was assessed and severity graded using the Confusion Assessment Method (CAM) administered in the ED by trained study staff. Medical record data was collected to characterize medical history, clinical characteristics, and severity of illness, Informant Questionnaire on Cognitive Decline in the Elderly or documented dementia diagnosis were used to assess dementia.

Results: 126 ED patients were enrolled with a mean age of 80 (SD±7) and 49% were female. Twenty-eight percent of patients were delirious based on the CAM and 28% of all patients had a delirium keyword present in their chart. In patients with CAM positive delirium, delirium was documented in the medical record only 26% of the time. In 43% of CAM positive cases, there were no delirium keywords in the ED chart. In CAM negative cases, only 40% of charts contained a delirium keyword. In patients with dementia, 42% with a delirium keyword were CAM negative, compared to 36% in patients without dementia. In patients with dementia 36% of CAM positive cases had no keyword, compared with 46% in patients without dementia.

Conclusion: We found that use of delirium keywords in medical records did not accurately reflect delirium status as measured by a gold standard in older adults in the emergency department. While additional study is needed, this study highlights the need for use of a standardized screening and documentation of delirium in older patients admitted seen in the ED.

B238 Resident Presentation
The Association of Obstructive Sleep Apnea Risk with Postoperative Cognitive Decline

M. J. Devinney,[1] P. J. Smith,[3] A. R. Spector,[2] Y. Cheong,[1] V. A. Wickenheisser,[1] J. N. Browndyke,[3] M. Cooter,[1] J. P. Mathew,[1] M. Berger.[1] *1. Anesthesiology, Duke University Hospital, Durham, NC; 2. Neurology, Duke University Hospital, Durham, NC; 3. Psychiatry & Behavioral Sciences, Duke University Hospital, Durham, NC.*

Background: Up to 40% of older patients will develop postoperative cognitive dysfunction (POCD), a syndrome of thinking and memory deficits that occurs 1-12 months after surgery, and is associated with decreased quality of life, increased mortality, and further long-term cognitive decline. One possible risk factor for POCD is obstructive sleep apnea (OSA), which is associated with long-term cognitive decline and postoperative delirium. In this preliminary study, we determined the extent to which higher scores on the STOPBANG (SB) OSA risk questionnaire are associated with POCD severity.

Methods: In an observational cohort study, 66 patients underwent preoperative SB and cognitive testing before and 6 weeks after non-cardiac, non-neurologic surgery. Multivariate analysis was used to examine the association between SB and postoperative cognitive change adjusting for age and preoperative cognition.

Results: High OSA risk patients (SB >4) had increased POCD severity compared to low risk OSA patients (SB<3) at 6 weeks after surgery (Figure 1, p=0.019).

Conclusion: Higher OSA risk is associated with increased POCD severity at 6 weeks after surgery. Future studies should use polysomnography or home sleep apnea testing to assess the relatioship between OSA and POCD, as we are currently doing in our recently-funded observational cohort study: SANDMan.
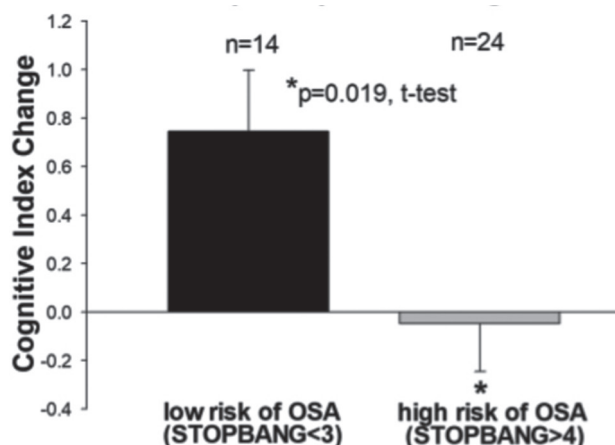
Figure 1: High risk OSA patients have worse postoperative cognition compared to low risk OSA patients

POSTER SESSION C

Friday, May 3
12:30 pm – 1:30 pm

C1
Putting the Puzzle Together: Dyspnea, Dysphagia, & Weakness in an Older Adult

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Amyotrophic Lateral Sclerosis is a progressive neurodegenerative disorder of the upper and motor neurons of the brain and spinal cord. The highest prevalence is among older adults age 70-79. Variability in presentation and providers' lack of familiarity with presenting symptoms make diagnosis challenging. Patients frequently see multiple providers and receive alternate diagnoses before a diagnosis of ALS is made.

Ms. R is an 82 year old woman who presented to the ED with insomnia. She had mild dysarthria and left lower extremity weakness, which family reported were due to a prior stroke. Over the next few months she presented to the clinic multiple times with worsening left sided weakness, falls, trouble swallowing, coughing after eating, and dyspnea. Oxygen saturations varied 87-95% on room air. Pulmonology attributed her hypoxia to obesity hypoventilation and recommended supplemental oxygen. Seven months later she presented to the ED with dyspnea due to hypercarbic respiratory failure, requiring intubation. She was treated empirically for community acquired pneumonia and easily extubated, only to be reintubated due to lethargy and recurrent hypercarbia.

The Geriatrics team suspected a neuromuscular etiology of her respiratory failure. Neurology evaluation indicated upper and lower motor neuron disease without evidence of sensory deficits, concerning for ALS. Subsequent workup ruled out other causes and increased confidence in the ALS diagnosis. After discussion with Ms R's family, she was transferred to the Palliative Care Unit and palliatively extubated. She survived extubation and was discharged with home hospice.

Ms. R. displayed classic ALS symptoms for 7 months prior to diagnosis, including classic bulbar symptoms of dysarthria and dysphagia. Her dyspnea and eventual respiratory failure finally led to the diagnosis of ALS. Providers who care for older adults should consider ALS when patients present with bulbar symptoms such as dysarthria and dysphagia, and associated dyspnea. Timely diagnosis is important to allow patients to make informed advanced care planning decisions for patients with ALS, such as feeding tube placement and mechanical ventilation.

C2
A simple intervention as Deprescribing, sometimes makes the difference Concomitant use of ChIs and bladder anticholinergics may result in greater rates of functional decline

K. Moshiri, K. Kejriwal. *Geriatrics and LTC, Kaiser Permanente, Fontana, CA.*

Background:
Functional decline which can increase health care use, deteriorate quality of life, threaten independence, and increase mortality, is common in the old. One of the risk factors for decline in functional status is medication, with polypharmacy increasing the likelihood in the elderly. We present a case of dual use of cholinesterase inhibitor (ChI) and the bladder anticholinergic trospium causing functional decline in an elderly patient.

Case: 80 year old male at baseline BADL/IADL independent, with history of MCI, AFib, CAD, asthma, GERD, urinary incontinence (UI), insomnia, was admitted to the hospital with sepsis due to

UTI, and inability to ambulate. Patient was transferred to Rehab for Physical Therapy/Occupational therapy (PT/OT).

Medications: MACROBID, Terazosin, Lisinopril, hydralazine, Trospium, Cholecalciferol, Metoprolol, Melatonin, Pantoprazole, Warfarin, Montelukast, Simvastatin, Donepezil, Albuterol, Beclomethasone.

Labs, vitals and physical exam all WNL; **MoCA SCORE:** 28/30.

Patient without improvement in his functional status despite PT/OT on his first few days in the rehab. After deprescibing his ChI and trospium, patient showed dramatic improvement in his functional status, UI symptoms, and regained his previous baseline functional level.

Discussion:

Geriatric syndromes such as Dementia, falls, and UI follow a common pathway, eventually leading to functional status decline, with medication and polypharmacy being a culprit to all. Concomitant use of anticholinergics and ChIs is common, with a few studies, recognizing the long-term negative effects of dual therapy on functional status, with up to 50% functional decline in one study. It is likely that the negating pharmacological effects of anticholinergics and ChI contribute to the enhanced rates of decline in ADL function seen for subjects on concomitant therapy. Physicians should prioritize nonpharmacological approaches for UI such as life style changes and behavioral therapy before starting drug therapy.

Learning Points:

Functional decline is of multifactorial etiology, but medications must be excluded as a culprit first.

In higher-functioning older adults, dual use of ChIs and bladder anticholinergics may result in greater rates of functional decline, suggesting deprescribing bladder anticholinergics if possible and implementing nonpharmacological management strategies for incontinence.

C3

Diclofenac-Induced Delirium in a Non-Demented Elderly Woman.

L. C. Andrade, A. M. Francisco, D. Smith. *Family Medicine/ Geriatrics, TTUHSC, Odessa, TX.*

Background: Drug induced delirium is commonly seen in medical practice, especially in elderly individuals who are frail or have dementia.

Non-steroidal anti-inflammatory drugs (NSAIDs) are commonly prescribed and are a diverse group of medications which most prevalent adverse reactions include gastrointestinal, hepatic and renal side-effects, however there are a few, important central nervous system (CNS) and psychiatric adverse reactions, including drug induced changes of mentation and mood state and even precipitating or exacerbating existing psychiatric symptoms.

This report describes a case of a non-demented 74-year old Hispanic female who developed delirium described as incoherent speech, visual hallucinations, disorientation and restlessness with no other neurologic deficit that started 30 minutes after taking a diclofenac tablet from her husband for severe lower back pain. She was seen in the emergency Department where delirium was diagnosed, metabolic and organic causes were ruled out, and she was given Haldol for agitation and IV Fluids. After 12 hours in Emergency Department symptoms resolved and she was discharged home.

Methods: Case Report.

Discussion: For this patient, the intake of Diclofenac led to the development of confusion, agitation, incoherent speech, and visual hallucinations, which resolved after several hours once other potential causes of delirium, were ruled out.

While delirium is a multifactorial process, it is estimated that medications alone may account for 12%–39% of all cases of delirium

and Non-steroidal anti-inflammatory drugs (NSAIDs) have been reported in the literature to induce delirium specially the ones that can cross the blood-brain barrier like the case of the Diclofenac.

Conclusion: This case illustrates the importance of several prescribing principles in geriatrics, including "Any drug can cause any side effect" and "Any new symptom should be considered to be due to a drug until proven otherwise."

Clinical activities aimed at improved recognition and management of drug-induced delirium is important. All clinicians should be aware of the signs and symptoms of delirium, in order to rapidly detect any cases.

C4

Psychotic Depression after Abrupt Discontinuation of Long-Term use of Benzodiazepines

L. C. Andrade,[1] M. Bosques,[4] J. Alamo,[3] J. Yepez-Kuri.[2] *1. Family Medicine/ Geriatrics, TTUHSC, Odessa, TX; 2. Internal Medicine Department, Lourdes Health Network, Pasco, WA; 3. Family Medicine, Procare, Odessa, TX; 4. Family Medicine, Sarasota Memorial Hospital, Sarasota, FL.*

Background: Benzodiazepines are widely used for a variety of conditions, such as insomnia, anxiety, seizures, alcohol withdrawal, etc. The discontinuation of this medications are associated with acute and well recognized withdrawal syndromes including anxiety, agitation, rebound insomnia and confusion, reason why it is important to have an adequate tapering to avoid withdrawal symptoms.

This report describes a case of a 77 year-old Hispanic female with history of hypertension, postpartum depression 39 years prior, chronic insomnia on long -term use of Lorazepam 1 mg at nighttime for more than 40 years, who developed psychotic depression with delusions followed by a short term of catatonic symptoms after abrupt discontinuation of the Lorazepam following a medication shortage on her country of origin. Patient required psychiatric hospitalization where she was started on an atypical antipsychotics with minimal improvement, then she was started on Citalopram with no significant change, until patient was restarted on Lorazepam with total resolution of the symptoms within a week of initiation.

Methods: Case Report

Discussion: Depression following withdrawal from long- or short-term use of benzodiazepines is not uncommon. For this reason is advised to limit benzodiazepine use, as rebound withdrawal symptoms are more severe particularly in the elderly. Discontinuation of long-term treatment can cause physical withdrawal syndrome characterized by general malaise as well as marked increases in anxiety and insomnia. In some patients, however, depressive symptoms predominate. These could be related to on-going depressive disorder. It is always useful to enquire about hypnotic/anxiolytic withdrawal in patients presenting with a depressive symptoms.

Conclusion: The capacity of the benzodiazepine drugs to produce dependence and addiction has been associated to benzodiazepine withdrawal syndrome. Abrupt discontinuation of benzodiazepine treatment may show a spectrum of symptoms. Generally, the higher the dose and the longer the benzodiazepine is taken, the greater the risk of developing withdrawal symptoms. It is important to recognize that acute depressive symptoms can follow benzodiazepine withdrawal and it should be incorporated under the withdrawal Syndromes.

C5

Diagnostic Complexity of a Traveling Man with Eosinophilia: a case report

L. Schindler, E. Burns. *Geriatrics, Medical College of Wisconsin, Milwaukee, WI.*

BACKGROUND: Eosinophilic granulomatosis with polyangiitis (EGPA), formerly known as Churg-Strauss syndrome, is a rare multisystem vasculitis of small-sized vessels, most commonly diagnosed in the 5th decade of life. This case highlights the diagnostic challenge of EGPA in a complex geriatric patient presenting with progressive weakness and predominant eosinophilia.

CASE DESCRIPTION: An 88-year-old male with an overseas traveling history and past medical history of adult-onset asthma, allergic rhinitis, and spinal stenosis was seen for admission to a subacute rehabilitation facility following a prolonged hospitalization. Patient was hospitalized for a diagnosis of lower extremity cellulitis, presenting with lower extremity edema, erythematous rash, and leukocytosis. Following treatment with broad spectrum antibiotics, leukocytosis persisted, with a white blood cell count > 20,000/μL and an elevated eosinophil count > 50% (64% at peak). Evaluation for infectious etiology, including parasites, was unremarkable. Hematologic evaluation including peripheral blood smear and bone marrow biopsy confirmed eosinophilia, but no evidence of other morphologic abnormalities or myeloid neoplasia. ESR, C-ANCA, and P-ANCA were unremarkable. Patient developed intermittent fevers, weight loss, and progressive weakness of his upper and lower extremities. Progressive weakness was initially thought to be secondary to known cervical stenosis and myelopathy. However, extensive neurologic evaluation (electromyography, nerve conduction study) was significant for acute on chronic, severe sensory motor axonal neuropathy. Further evaluation revealed an elevated rheumatoid factor. Nerve biopsies were suspicious for vasculitis. Overall, patient's symptom constellation, laboratory findings, electrodiagnostic study results, and preliminary biopsy report are highly suspicious for EGPA. Diagnostic assessments were completed in multiple settings (subacute rehabilitation, outpatient specialty visits, two hospitalizations), spanning a course greater than six weeks.

CONCLUSION: Eosinophilia has a broad differential diagnosis, presenting a diagnostic challenge to clinicians to determine its underlying etiology. While EGPA is a rare disease, it should remain on the differential diagnosis for eosinophilia in which a clear etiology has not been established, even in the geriatric population.

C6

Management of diabetes in a patient with mild cognitive impairment

L. Nidadavolu. *Johns Hopkins University, Baltimore, MD.*

Introduction: Treating diabetes in patients with mild cognitive impairment (MCI) and poor glycemic control is challenging. Complex medication regimens and initiating insulin can put the patient at risk of hypoglycemia.

Case summary: A 70-year-old man presented to an outpatient geriatrics clinic to establish care. He developed type 2 diabetes 10 years ago and his hemoglobin A1C (HbA1C) ranged from 6.3% to 9%. Medications were metformin, glimepiride and liraglutide and his most recent HbA1C was 7.8%. His home fasting glucose levels were over 200 mg/dl and he mainly ate carbohydrate-rich meals with frequent nighttime snacks. The patient also had concerns about worsening memory over the past two years, forgetting events and conversations from several days prior and word finding difficulties. He worked in sales and retired 6 years ago, lived with his wife and was not physically active. He was independent in all activities of daily living. Physical examination was unremarkable. Montreal Cognitive Assessment (MoCA) score was 24/30, indicating MCI, with deficits in executive function, abstraction and delayed recall. Labs showed HbA1C was now 9%. After discussions with the patient, the plan was to first focus on dietary interventions, having the patient and his wife work with a nutritionist, instead of changing his medication regimen or initiating insulin at this time.

Discussion: Increased rates of geriatric syndromes such as cognitive impairment and falls in patients with diabetes requires a nuanced approach to management. MCI can cause difficulties for patients in self-management of chronic illnesses. Studies of patients with diabetes focusing on cognitive impairment also show increased rates of hypoglycemia when aiming for tighter glycemic control (HbA1c 6 – 7%), without improvement in cognitive function. The American Diabetes Association 2018 guidelines focus on individualizing recommendations and tailoring HbA1C goals based on patient characteristics, which was the strategy we employed with this patient. We focused on lifestyle interventions such as involving the patient's spouse in dietary changes and referral to a nutritionist to see if we can achieve improved glycemic control before making medication changes. This case highlights the importance of a multidisciplinary approach and inclusion of caregivers of patients with MCI to improve glycemic control safely.

C7

Atypical Presentation of Legionella Pneumonia

M. Kohli, M. Sanon. *Geriatrics and Palliative Medicine, Icahn School Of Medicine at Mount Sinai, New York, NY.*

Introduction

Legionella is an underdiagnosed cause of community-acquired pneumonia (CAP), & its severity of illness is dependent on multiple factors[1]. Legionella Pneumonia (LP) may present without pulmonary symptoms, & a high degree of suspicion is needed to identify its extra-pulmonary manifestations[2].

Case Description

87 year-old-female with a history of structural lung disease from actinomyces (>5 years ago) presented with complaints of weakness & a fall from her bed upon awakening. Weakness described as a sensation of feeling her muscles had turned to "mush" which had progressively worsened over two days, while also complaining of chills, pain over her elbows & severe fatigue. Examination findings; BP 113/56mmHg, Pulse 98bpm, Temp of 104F. She had an aortic stenosis murmur, rales over bilateral lung bases, bruising of her left scapula & left knee & a normal motor and sensory examination. Admission labs showed elevated WBC 24400/mm3, Hgb 11.6g/dl, Plt count 258/mm3 and elevated Creatinine Kinase 299. CT Chest revealed a new right lower lobe consolidation.

The patient was admitted for sepsis from CAP. Later on the day of admission, testing for legionella urine antigen returned positive. She had a prolonged course of hospitalization with complications of hypoxic respiratory failure. On clinical improvement, she was discharged to Subacute Rehab and required an extended 21-day course of antibiotics.

Discussion:

LP may present with pulmonary or extra-pulmonary clinical findings. Clinical suspicion & laboratory testing including legionella urine antigen test allow for earlier diagnosis[3]. Presently further studies are required on identifying indications [4] for appropriate testing which will hopefully be addressed in future CAP management guidelines.

1. Yu, V.L., M.L. Pedro-Botet, and Y.E. Lin, Legionella Infections, in Harrison's Principles of Internal Medicine, 20e, J.L. Jameson, et al., Editors. 2018, McGraw-Hill Education: New York, NY.

2. Ueda, A., et al., Clinical Characteristics of Legionella Pneumonia Diagnosed with Legionella Urinary Antigen Test. Tokai J Exp Clin Med, 2016. 41(1): p. 8-13.

3. Cunha, C.B., and B.A. Cunha, Legionnaire's Disease Since Philadelphia: Lessons Learned and Continued Progress. Infect Dis Clin North Am, 2017. 31(1): p. 1-5.

4. Bellew, S., et al., Pneumococcal and Legionella Urinary Antigen Tests in Community-acquired Pneumonia: Prospective Evaluation of Indications for Testing. Clin Infect Dis, 2018.

C8
Severe Anemia from Colonic Lymphangioma

M. A. Mufti,[1] V. M. Gogineni,[2] B. Sandesara,[1] L. M. Solberg.[3]
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2. Geriatrics, University of Florida, Gainesville, FL; 3. Aging and
Geriatric Research, University of Florida College of Medicine,
Gainesville, FL.

Introduction: Colonic Lymphangiomas are rare benign malformations of the lymphatic system originating from the submucosa. Colonic findings are rare as they generally involve the head, neck and axilla and are typically found incidentally on routine colonoscopy. Given their benign nature treatment is indicated only in symptomatic patients. We present a case of a symptomatic elderly female evaluated for severe anemia found to have a colonic lymphangioma.

Case: 75 yo female with history of Rheumatoid arthritis and hypertension who presented with weeks of fatigue and dark stools. She noted intermittent dizziness and dyspnea on exertion. She denied use of NSAIDS, abdominal pain, BRBPR, or weight loss. She is on a daily aspirin but no other anticoagulation. Outpatient labs revealed severe iron deficiency anemia with hemoglobin of 5.7 g/dL, hematocrit 19.9 % and iron studies showing Ferritin 2.7ng/mL, Iron 13ug/dL, 570 TIBC ug/dL. She was admitted for pRBC tranfusions and GI consultation for further endoscopic evaluation. Upper endoscopy revealed gastritis and erythematous duodenopathy. Colonoscopy showed a single colonic angiodysplastic lesion as well as a non-bleeding colonic mucosal ulceration which was biopsied. Pathology of the ulceration stained with D2-40 highlighted lymphatic vessels indicating a submucosal lymphangioma. Once stabilization of her hemoglobin, she was discharged on PO iron supplementation and daily pantoprazole. In two subsequent follow up visits she remains with stable hgb, improving iron deficiency and asymptomatic.

Discussion: Although a rare benign lesion, symptomatic colonic lymphangiomas pose the risk for numerous life threatening complications if left unresected or unidentified. The most common manifestation is severe iron deficiency anemia from GI blood loss followed by case reports of the development of intussusception leading to bowel obstruction and acute abdomen. With the advancements of endoscopic techniques there is less need for open surgical resection. Once removed, there is no indication for ongoing surveillance other than continued age appropriate colon cancer screening. In this case, the colonic lesion identified on colonoscopy lacked the typical diagnostic appearance of a lymphangioma however biopsy of the colonic ulceration provided definitive diagnosis.

C9 Encore Presentation
Don't avoid ear itching it might be cancer

M. Movassaghian,[1] H. J. Rehman,[2] X. Shao,[3] S. Khan.[3] 1. Medicine,
University of Marylan Medical Center, Baltimore, MD; 2. Geriatrics,
University of Maryland, Baltimore, MD; 3. Geriatric Extended Care,
VA Maryland Healthcare System, Baltimore, MD.

Introduction: The clinical presentation of oropharyngeal tumors vary depending on the anatomical subsites. We present an uncommon case of tonsil tumor, presenting as ear itching in an elderly male.

Case report: An 84 yo male with PMH of HTN, Type 2 DM, COPD and smoking x70 pack years, presented with chronic right ear itching for 1 year. He reported to have otic pruritus without otalgia or otorrhea and occasional pruritus on right side of neck in past 1 year. No history of fever, cough, ear infections or ear instrumentation. He denied dysphagia but had odynophagia for one year. On exam auditory canals and TMs were normal bilaterally. Nose, oral cavity, oropharynx, lips, hard and soft palate, tongue and posterior pharynx were normal. But asymmetric enlargement of right tonsil in comparison to left was noted with soft swelling extending into oropharynx, without exudate or ulceration. Poor dentition. No cervical lymphadenopathy. Thyroid was normal.

CT neck w/ contrast revealed largely right submucosal oropharyngeal mass extending to the right soft palate and base of tongue, measuring 2.6x2.5x 4.0 cm, without cervical lymphadenopathy.

ENT consult was done and tissue biopsy showed invasive Human Papilloma Virus related oropharyngeal squamous cell carcinoma. The tumor showed diffuse strong staining for P16. Subsequent imaging confirmed stage 1c T2N0M0 P16 positive squamous cell carcinoma of right tonsil. Patient agreed for external beam radiation treatment.

Discussion: Symptoms of oropharyngeal tumor could be related to primary mass effect and growth into neighboring anatomical structures, involving cranial nerves which may cause referred symptoms. Because of insidious and nonspecific presentation of tumor and limited visualization of oropharyngeal mass, early ENT evaluation is warranted to diagnose suspicious mass. HPV-16 is becoming more common in oropharyngeal SCC during the last decade after decline in tobacco and ETOH use in Europe and North America. Recent studies showed the upsurge of oropharyngeal SCC associated with HPV in elderly population contrary to the belief that this tumor is common in middle age population. Given the unique challenges related to anatomic location and morbidity associated with treatment in elderly population early work up and ENT referral can help in the better outcome.

C10
CMV Colitis in the Immunocompetent Patient with Recurrent Diarrhea

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Margaret's Hospital, Pittsburgh, PA; 2. Department of Medical
Education, UPMC St. Margaret, Pittsburgh, PA.

Background:

Cytomegalovirus (CMV) is a known cause of colitis, usually affecting immunocompromised individuals. Immunocompetent patients with advanced age and significant chronic illness are at increased risk for developing CMV colitis. Diagnosis can mimic the more common C. difficile colitis and should not be overlooked.

Case:

An 83-year-old female with a history of dementia, atrial fibrillation, and sick sinus syndrome who presented to the ED with confusion, weakness and diarrhea. The patient had been having numerous watery stools over the past few days. She had been hospitalized two times this year with C. difficile colitis. She had most recently completed treatment with oral vancomycin one month ago. In the ED, patient's temperature was 36.9°C, heart rate was 82 bpm and blood pressure was 67/42 mmHg. Physical exam was remarkable for confusion and mild lower abdominal tenderness. Labwork showed an AKI (Cr 3.90 mg/dL), leukocytosis (WBC 34.9 µL) and elevated lactate (2.8 mMol/L). She was admitted to the ICU on vasopressors and started on empiric oral vancomycin. Her C. diff culture did return positive, however she continued to have loose stools despite treatment. Eventually had flexible sigmoidoscopy which showed significant pseudomembranes and biopsy which returned positive for CMV colitis. She was started on IV ganciclovir. She showed significant improvement in diarrhea with this treatment. Upon discharge, was transitioned to oral ganciclovir for suppressive therapy indefinitely until she could be seen by Infectious Disease.

Discussion:

CMV colitis can be indistinguishable from C. diff colitis based on clinical symptoms. It is increasingly being recognized in immunocompetent patients. Risk factors include advanced age, female gender and chronic illness. It is suggested that repeated inflammation of the colon wall can provide an access point for viral infection. IgG testing can reveal past exposure to CMV, but it is not helpful in diagnosing active disease. IgM testing, while useful for diagnosing acute viral infection, does not correlate with CMV colitis. Biopsy via endoscopy is the most sensitive test for diagnosing CMV colitis. Treatment is typically with IV ganciclovir for at least 2-3 weeks with eventual transition to oral valganciclovir.

C11
Acute Fracture as a Possible Presentation for AML

M. Koperwas, N. Manov. *Geriatrics, St. Margaret's Hospital, Pittsburgh, PA.*

Background:

Myelodysplastic Syndrome (MDS) and Polycythemia Vera (PCV) are hematologic disorders that result in inappropriate maturation and production of blood cells. Both are known to carry a risk of progression to Acute Myeloid Leukemia (AML). Multiple hematologic malignancies have been associated with decreased bone density and fracture, though it is less common in AML.

Case:

An 87-year-old male with past medical history of hypertension, chronic kidney disease, B-Cell Lymphoma, PCV and MDS presents to skilled nursing facility (SNF) following hospitalization for tibial plateau fracture after ground level fall. Vital signs on arrival to hospital were all stable. Initial labwork showed a Hemoglobin of 8.7 g/dL (had been 11.5 just 3 months prior). WBC 36.5 µL (25.0). Neutrophil count 16% (36%). Platelets 474 µL (326). Serum creatinine around baseline of 1.7 mg/dL. Patient was admitted to the trauma service with Geriatric consult. He was managed conservatively while in hospital, placed in leg brace. Labwork continued to elevate during hospitalization. The WBC increased from 36.5 to 67.9 and platelets increased from 474 to 690. He was evaluated by Oncologist in hospital who diagnosed leukemoid reaction and increased patient's hydroxyurea. Patient was eventually discharged to SNF. While there, he had increasing confusion. Seen by his outpatient Oncologist, who diagnosed patient with AML. Due to patient's declining status and limited options for treatment, he was eventually discharged home with hospice care.

Discussion:

Both MDS and PCV are capable of transitioning to AML. Typical symptoms are progressive fatigue related to anemia and fever, which can be non-specific and mimic the initial diseases. Many patients remain undiagnosed until transition to AML has already occurred. Many leukemias have been associated with skeletal fractures as a presenting factor, however there is no direct link to AML presenting in this way. Most case studies showing osteolytic fractures as a presentation for AML were in non-geriatric patients.

C12
Anaplasmosis in a Patient with Non-Specific Febrile Illness and Pulmonary Emboli

M. Koperwas, N. Manov, D. Yuan. *Geriatrics, St. Margaret's Hospital, Pittsburgh, PA.*

Background:

Anaplasmosis is an increasingly common tick-borne illness that often presents with generalized fatigue, fevers and lab abnormalities. Older patients make up the majority of reported cases. Empiric treatment is warranted to reduce adverse outcomes if a diagnosis of Anaplasmosis is suspected.

Case:

A 63-year-old male with a history of HTN, BPH and gout presented with 3 weeks of fatigue, dyspnea on exertion and 10 lb. weight loss. The patient had been seen in the ER two weeks prior and was given IV fluids for mild AKI. He began to feel better until one week ago. In the ED, patient's temp was 99.4°F, he was tachycardic to 103 and blood pressure was 94/64. Physical exam was largely unremarkable. Labwork showed an AKI (Cr 1.58 mg/dL), leukopenia (WBC 3.3 µL) and thrombocytopenia (Platelets 79,000 µL). CXR and EKG showed no acute process. Patient was admitted to the geriatric service. Given reported history of tick exposure, the patient was started prophylactically on doxycycline. Lyme and Anaplasmosis titers were sent. Due to hematologic abnormalities on admission, a CT Chest/Abdomen/Pelvis was obtained which revealed multiple lobar and segmental pulmonary emboli. Patient was started on heparin drip and was later transitioned to oral rivaroxaban. Anaplasmosis titers returned positive a few days in to hospitalization. Patient continued to improve clinically and was eventually discharged home with a total of 14 days doxycycline 100 mg by mouth twice a day.

Discussion:

Clinical presentation of Anaplasmosis often includes thrombocytopenia, anemia, leukopenia and/or LFT elevations. Symptoms often present 5-14 days after tick exposure. If suspected, empiric treatment with doxycycline should be initiated while waiting for lab confirmation. While rarely fatal, delays in treatment can lead to adverse outcomes. The majority of cases are in elderly patients and reported cases have continued to rise every year. Some tick-borne illnesses, such as Babesiosis have been associated with increased risk for blood clots, however no such association exists for Anaplasmosis. PCR testing is unreliable for diagnosis outside of the first week of infection. IgG testing using immunofluorescence assays should be done, ideally during the first week of infection and then 2-4 weeks later. Doxycycline 100 mg by mouth twice a day is the treatment of choice, with a course of at least 14 days.

C13
Title: Terminal Ulcer: A Failure of Skin or a Failure of Care?

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Introduction: Karen Lou Kennedy first described the terminal ulcer in modern literature in 1989 as the sudden development of a red, black or yellow pear-shaped ulcer on the sacrum or coccyx. It was thought to be a harbinger of imminent death in patients with a terminal illness (Charcot described it as "decubitus ominosus" in the 19th century). Recent literature describes it as a manifestation of skin failure, where there is an inability of tissue to survive increased stress due to a lack of reserve. Currently, there is no agreement on a standardized definition, leading to debate regarding pathophysiology, epidemiology, and efficacy in prognostication.

Case Report: A 92yo man with severe dementia requiring 24-hour care developed progressive cognitive and functional decline after multiple hospitalizations. When he became acutely lethargic with concern for aspiration he was referred to home hospice per patient wishes to avoid hospital transfers. His daughter struggled with his hospice course and our inability to accurately prognosticate his decline. Four months later, a black and red sacral ulcer approximately four inches in size rapidly developed over the course of a day despite frequent repositioning. His hospice nurse diagnosed a Kennedy ulcer and notified the family that his death was imminent. He died 15 days later.

Discussion: Pressure ulcers are common in bedbound patients, particularly those with terminal illness. Whether a terminal ulcer is a marker of imminent unavoidable death or a progression on the spectrum of skin failure continues to be debated. We present a case in which a terminally ill patient rapidly developed an ulcer which marked his progression to the pre-active stage of dying. Given the lack of agreement regarding the existence of this phenomenon, more research is needed to determine etiology, prevalence and usefulness in prognostication.
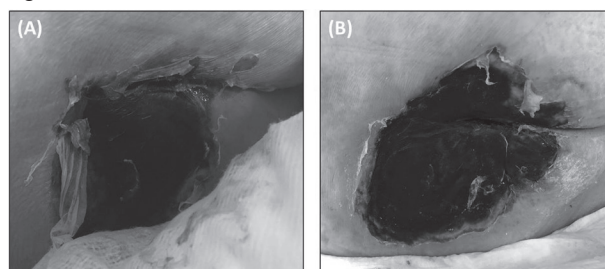
Rapidly developing sacral ulcer in a hospice patient at 24 hours (image A) and one week (image B)

C14

Serving The Solitary Patient With Co-Morbid Psychiatric Illness and Dementia

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Case:

Ms. A is a 77 year old woman with multiple uncontrolled psychiatric co-morbidities, including complicated grief, hoarding, and major depressive disorder, as well as a recent diagnosis of mild to moderate Alzheimer's dementia. She lives alone, and has no family. Her only support is an acquaintance, Ms. M.

Ms. A can perform her ADLs independently, but is becoming increasingly dependent for her IADLs. She is unreliable in self-administration of her medications, and has missed paying the rent on multiple occasions. Ms. M has been assisting, feeling obligated to do so, but does not wish to be responsible for Ms. A's care. Though she comes to each visit, she is declining to be Ms. A's healthcare proxy. Ms. A declines to hire a health aide due to financial concerns and poor insight.

Ms. A's hoarding behavior has led to threat of eviction, and her labile affect with outbursts over the death of her brother over one year ago are socially and emotionally incapacitating. Attempts have been made by her interdisciplinary team and multiple community agencies to offer the medical care she needs and ensure her safety in the home. However, barriers have persisted. Multiple organizations have declined to offer mental health services in the home on the basis of co-morbid dementia and concern for inability to participate in interventions. Adult protective services has limited their involvement given the patient's unwillingness to allow them into her home.

Per Ms. M, there has been a progressive cognitive and functional decline, and the degree of her own caregiver burden is becoming untenable.

Discussion:

Community organizations are designed to help older adults age in place safely, and many offer essential mental health services. However, they are currently inadequate in their singular focus for those with co-morbid psychiatric illness and dementia.

Furthermore, as older adults with dementia decline, their dependence on community services and the caregiver increase. What happens when there is no one willing and able to perform that duty? This case highlights this question, and the potential role of legal guardianship.

How can we ensure that Ms. A's mental health and overall safety are addressed, and Ms. M has appropriate caregiver support?

C15

"These bugs are killing me" A case of Delusional Parasitosis

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Introduction:

Delusional Parasitosis is an uncommon somatic type delusional disorder characterized by a fixed false belief that a patient is infested with parasites despite a lack of medical evidence of infestation. Prevalence increases with age, and is often associated with neurologic or psychiatric disorders. Patients often present to their primary care physician and experience symptoms for more than 6 months prior to diagnosis. Delusional Parasitosis can have a significant impact on patient quality of life causing marked suffering, caregiver distress, and provider burden.

Case:

Ms. R is a 76 y/o woman with a history of depression and anxiety, recovery from alcohol abuse, and recent diagnosis of Alzheimer's dementia. She called the clinic to report a lice infestation, seeking information on delousing. 2 weeks later her son reported she was "fixated on the issue of bugs," despite the fact that during a check of patient and her home, no bugs were found.

At follow up, she reported "wood worms" burrowing into her skin. She suspected that those who did not find bugs in her home were helping "cover up" the infestation. She had multiple sub centimeter, dry, erythematous lesions on her face and extremities with no evidence of infestation. Medical workup was unremarkable. Referral to a dermatologist found no infestation and confirmed diagnosis of Delusional Parasitosis.

Discussion:

Delusional Parasitosis has been associated with underlying psychiatric and neurologic diseases including Alzheimer's, Lewy Body, and Multiinfarct dementias. Case reports also indicate association with medical conditions including hyperthyroidism, vitamin B12 deficiency and folate deficiency. The use of prescription and non-prescription medications have also been implicated. Hallmarks of treatment are a strong therapeutic relationship with a healthcare provider, reassurance that the patient can be helped, and the use of antipsychotic medications.

Conclusion

Given the increased prevalence with age and the association with underlying dementing diseases, geriatricians should be familiar with the presentation and treatment of Delusional Parasitosis. Maintenance of a strong therapeutic relationship and the use of antipsychotic medications can lead to remission and improved quality of life.

Reference:

Heller, Misha M, et al. "Delusional infestations: clinical presentation, diagnosis and treatment." International journal of dermatology 52.7 (2013): 775-783

C16

All Hands on Deck: A Rare Case of Metastatic Colorectal Cancer

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Introduction: In the United States colorectal cancer is the third most common cancer and the third leading cause of death. Older age remains closely correlated with the incidence of colorectal cancer and prevalence increases dramatically in those over the age of 50. However acrometastases, metastatic disease to the hands or fingers, attributed to colorectal cancer is extremely rate. The literature cites an incidence rate between 0.007 - 0.2%. This case illustrates a unique manifestation on colorectal cancer involving the thumb.

Case Description: A 79 year old man presented to his primary care physician (PCP) for a painful mass on his left thumb concerning for a cyst. He was referred to hand surgery for excision of the 1.4 cm x 0.5 cm x 0.6 cm mass at the base of the left thumb. To the surprise of the surgeon and PCP the pathology report revealed adenocarcinoma of GI origin.

The patient did have a history of treated colorectal cancer diagnosed at age 74. At that time the initial pathology was low-grade adenocarcinoma with invasion of the muscularis propria and positive lymph nodes. He was treated with a right hemi-colectomy and five cycles of chemotherapy. Then at age 77, a routine PET CT showed a single lesion in the right lobe of the liver for which he underwent liver resection. Subsequent PET CT two months after surgery was unremarkable and his CEA level was 1.8. Surveillance by oncology continued with the most recent CEA level of 3.3, which was 15 months after the liver resection. This was only two months prior to presenting with the left thumb mass. Oncology and repeat PET CT are pending at the time of submission.

Discussion: Acrometastases is extremely rare in colorectal cancer. This case serves as an important reminder for clinicians to include acrometastases on their differential diagnosis in patients with a history of colorectal cancer. Prompt identify and treatment can significantly impact the patient's prognosis and quality of life.

C17

Amputation As A High-Risk Palliative Procedure In Critical Limb Ischemia At The End Of Life

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Case Report: Ms. DS is a female nonagenarian with severe mixed vascular/Alzheimer's dementia, stage FAST 7C. She is bed/chair bound, functionally dependent of all activities of daily living, and receives 24-hour care at home. Her past medical history includes diastolic heart failure, aortic stenosis, deep vein thrombosis, peripheral arterial disease, and hypoalbuminemia. She was seen by a home-based geriatric primary care provider for acute right leg pain. Given the clinical presentation, there was a strong suspicion for arterial occlusion. Her son was her designated health care representative (HCR). After discussion regarding treatment options, he decided during that visit to involve hospice and focus medical efforts on optimizing comfort and managing pain. Later that day, he subsequently chose to pursue work up, which confirmed critical limb ischemia and hospitalized the patient. Vascular surgery recommended a "palliative" above the knee amputation. Multiple specialists communicated post-operative risks that could compromise quality-of-life and/or hasten death. However, the surgery proceeded and was completed successfully. Unfortunately, her acute recovery was complicated by sepsis, c. diff infection, delirium, atrial fibrillation, anemia, leukocytosis, and hypernatremia. The patient was discharged on home hospice, dying within days following the operation.

Discussion: For patients of advanced age undergoing urgent or emergent surgery, it is necessary to develop a collaborative approach which includes patient/family wishes tailored with providers' experience and guided by scientific evidence. Major procedures intended to prolong life or relieve symptoms can sometimes unnecessarily increase suffering and violate the ethical principle of nonmaleficence. Risk factors associated with mortality in patients aged over 90 years include high American Anesthesiologist Score, functional dependency, hypoalbuminemia, incidence of septic shock and leukocytosis. Although it is difficult to define medical futility, in this patient, numerous indicators suggested poor prognosis, outcomes, and benefit. Equal consideration should be given to non-operative treatment and the best clinical setting to manage and palliate end-of-life symptoms. In this scenario, there may have been a role for escalation of pain management via continuous opioid infusion and/or admission to inpatient hospice care.

C18

Unusual Presentation of NPH

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Background: Normal pressure hydrocephalus (NPH) is an age-related condition frequently associated with degenerative and vascular brain pathologies. We present a case of NPH that commenced with cognitive deterioration similar to Alzheimer's disease (AD). Motor manifestations (i.e., falls and gait dysfunction) appeared 2 years after the initiation of memory problems.

Case: 87 year old patient who presented to memory clinic for further evaluation. Over the past two years. She gradually had difficulty with word finding, was unable to remember familiar names, and was repeating questions multiple times a day. She had experienced marked cognitive and functional decline approximately over the course of last 4 months after she had a fall from standing, which lead to multiple rib fractures. After the fall, she began needing assistance in all of her ADLs and she became dependent in her IADLs, whereas, she has previously remained independent.

Her cognitive assessment score was 24/30, she lost two points in short-term recall, two points in visuospatial (could not draw clock), one point in comprehension, and one point in orientation. Hypertonicity was noted in both lower extremities, she had no tremors, and sensory and coordination exam were normal. Patient's gait was noted to be wide-based. CT head showed diffuse cerebral atrophy and ventricular dilatation, which were worsened as compared to the CT performed during her hospitalization for fall four months ago. Basic Dementia labs including Vitamin B12, TSH, and Vitamin D were normal.

She had high volume lumbar puncture with improvement in her gait speed by 20%. Unfortunately, she suffered bilateral pulmonary thrombo-embolism before she could undergo a definitive shunt procedure.

Discussion: The prevalence of cases of NPH presenting with memory problems may be underestimated given the traditional view of NPH displaying a clinical triad of gait dysfunction, mental decline of "subcortical" appearance, and incontinence. Careful examination of the structural neuroimaging study in the initial assessment of memory problems and during follow-up could help in diagnosis.

C19

Multiple Aneurysms with Thrombi in a 90-Year-Old Patient with Back Pain, Left Lower Extremity Weakness, and Frailty: A Case Report

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Introduction: Popliteal artery aneurysms (PAA) represent 85% of the peripheral arterial aneurysms with an incidence ranging from 0.8 to 2.8 %. PAA is bilateral in 42–66 % of cases, and associated to an aortic aneurysm in 30–60 % of cases (1). The relationship between abdominal aortic aneurysms (AAA) and femoropopliteal aneurysms has been cited in another study as well (2). There is one case report that has highlighted the management of a superficial femoral artery (15-25% of femoral arterial aneurysms) in a patient with multiple atherosclerotic aneurysms (3). However, there are few reported cases regarding the management of multiple atherosclerotic aneurysms with thrombi in geriatric patients.

Case Presentation: We present a case of a 90-year-old Caucasian male with a past medical history of diastolic congestive heart failure, anemia of chronic disease, coronary artery disease, dyslipidemia, renal insufficiency, trigeminal neuralgia, hypertension, and hypothyroidism who presented to his primary care physician (PCP) with lower back pain, left lower extremity weakness and frailty. Several labs were drawn and were all negative except for an elevated TSH. Thoracic and lumbar x-rays were performed and an abdominal aortic aneurysm was noted. The PCP suspected vascular insufficiency as a cause of weakness and ordered a CT angiogram of the abdominal aorta and bilateral iliofemoral runoff. The CT results noted a saccular infrarenal abdominal aortic aneurysm with intramural thrombus, bilateral internal iliac artery aneurysms, right superficial femoral artery occlusion, distal superficial femoral artery and popliteal artery aneurysms with intraluminal thrombus, and left popliteal/superficial artery aneurysm with intramural thrombus. The patient was referred to vascular surgery and the patient underwent a left popliteal angioplasty with stent placement and primary repair of his right common femoral artery. Due to these interventions, the patient exhibited improved ambulation, decreased weakness, and decreased back pain.

Discussion: Our case highlights the diagnosis and management of a rare case involving multiple aneurysms with thrombi in a 90-year-old patient. Our case adds to the number of reported cases and provides education to physicians in order to more readily identify patients with these specific abnormalities.

C20

Rare Periventricular Presentation of Glioblastoma Multiforme

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Introduction: Glioblastoma Multiforme (GBM) is a fast growing glioma that develops from start shaped glial cells. Most common presenting symptoms include, headache (50-60%), seizures (20- 50%), focal neurologic symptoms such as memory loss, motor weakness, visual symptoms, language deficit, and cognitive and

personality changes (10-40%) GBMs are aggressive, mostly resistant to therapy, and carry a corresponding poor prognosis. Exclusive periventricular involvement is extremely rare. Consequently periventricular GBM is easy to misdiagnose. **Case Description:** 54 year old male was brought to ED by family with complains of headache, memory problems, confusion and personality changes for 2.5 weeks. He was admitted to another hospital 3 days prior with similar complaints. At the time labs were normal & CT head without contrast revealed ventriculomegaly. Neurology was consulted and patient had MOCA 23/30 with deficits in recall and serial 7s, and his memory changes were suspected to be due to stress. He was discharged with recommendation to follow up with memory specialist. As patient's symptoms worsened family brought him to ED for second opinion. Initial dementia workup i.e. TSH, B12, RPR, HIV were normal. CT head unchanged from 3 days ago. MRI revealed multilobulated cystic lesion with rim enhancement in the right occipital horn. Extensive infectious workup remained negative and he was intermittently treated for TB & neurocysticercosis with no improvement. Patient's mental status however continued to worsen and he became more confused with visual hallucinations, gait instability & new onset seizure episodes. He developed hydrocephalus requiring left frontal external ventricular drain. Initial biopsy of ventricular lesion was inconclusive. Multiple repeat MRI and CT brain remained unchanged. Repeat biopsy was done and revealed aggressive glioblastoma multiforme with rare periventricular presentation. Patient expired in hospice 2 months after initial presentation. **Discussion:** GBM usually presents with headache and focal deficits are common. MRI reveals ring enhancing lesions. Our patient had rare presentation with imaging that was not typical for GBM. Additionally, he did not have any focal deficits and presented initially with personality changes. Above case emphasizes the need to consider periventricular GBM when more common etiologies have been ruled out, especially in healthy young adults with rapidly deteriorating mental status.

C21

To be successful or not to be: retrospective analysis of two deprescribing case studies

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Background: A pharmacist-led deprescribing intervention feasibility study was carried out amongst residents aged 65 years or older and prescribed at least one anticholinergic or sedative medicine, in three residential care facilities in New Zealand. A developed protocol with a specific deprescribing process, was followed to conduct the study in a safe manner. Factors that affect the success of a deprescribing intervention have been researched less than factors that drive the initiation of deprescribing. Therefore, two case studies, one where deprescribing was implemented successfully (Case 1) and one were deprescribing was not successful (Case 2), were examined retrospectively to highlight potential factors that can influence the success of deprescribing.

Case description: Case 1 is a 71 year-old female with a Drug Burden Index (DBI) of 1.5 (Table 1). Two target medicines were identified for deprescribing after the pharmacist deprescribing review. Six months after deprescribing (T_2), both medicines were successfully deprescribed. Case 2 is a 87 year-old female with a DBI of 1.13 at T_0. Deprescribing of the two target medicines was not successful and these were re-prescribed with no change to DBI.

Discussion: Examination of factors that contributed to successful versus unsuccessful deprescribing included clear communication between the pharmacist and general practitioners (GPs), understanding of the process of deprescribing and appropriate tapering down

of medicines, as well as monitoring and appropriate management of adverse drug withdrawal effects (ADWEs).

Conclusions: Deprescribing is a complex process that should be individualized to each patient and many factors can influence the likelihood of its success. Strategies to promote education of the process, as well as methods to support seamless communication between health professionals are important; in order to encourage increased uptake of deprescribing amongst our older adults.

Cases summary

	Case 1			Case 2		
Demographics: Age Sex Body Mass Index Charlson comorbity index Falls risk (assessed by an in-house falls risk assessment tool)	71 Female 35 4 High			87 Female 18 3 High		
Target Medicines identified for deprescribing	Nortriptyline (Indication: neuropathic pain) Zopiclone (Indication: insomnia)			Codeine (Indication: pain management) Amitriptyline (Indication: off-label use for urinary retention)		
Process of deprescribing	Case 1's general practitioner had attended a deprescribing education session prior to the beginning of the pilot study. He accepted a face to face visit with the intervention pharmacist to discuss the resident's medicine list and deprescribing recommendations. During this, a plan for deprescribing was discussed. The GP then slowly tapered the nortriptyline dose from 50mg to 25mg. After a month, the pharmacist had a telephone conversation with the doctor advising him that the reduction was successful and a further reduction would be appropriate. Therefore, the doctor discontinued nortriptyline. At three months, a follow up was carried out. Patient reported to be less sedated during the day and no longer took zopiclone before sleeping at night. Nurses confirmed that she had been refusing to take the zopiclone. Therefore, the resident's GP discontinued zopiclone as well.			Case 2's general practitioner did not attend the deprescribing education session prior to the beginning of the pilot study. He received a copy of the deprescribing medication review form summarizing the recommended deprescribing changes and reasons from the intervention pharmacist via e-mail and/or fax. The pharmacist attempted to set up a face to face visit with the GP to discuss the recommendations, however this was not accepted. The GP agreed to the deprescribing recommendations. However, instead of slowly tapering down codeine and amitriptyline, both medicines were stopped abruptly. The resident did not tolerate this well and experienced several adverse drug withdrawal effects (ADWEs) including severe diarrhea, insomnia and agitation. Conservative management such as rehydration was not appropriately charted for the resident and she continued to be unwell. Pharmacist attempted to contact the GP to discuss a plan. GP declined to speak with the pharmacist and both medicines were re-prescribed.		
	T0*	T1*	T2*	T0*	T1*	T2*
Primary outcome: Drug Burden Index total (contributed by regular medicines and as required medicines) Drug Burden Index PRN (contributed by as required medicines)	1.5 0.2	0.6 0.2	0.4 0.2	1.13 0	1.13 0	1.13 0

T0: Time at recruitment.T1: 3 months after deprescribing.T2: 6 months after deprescribing

C22

A little sleep, a little slumber: Atypical Kleine-Levin syndrome in an octagenarian female

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Background: Kleine-Levin syndrome (KLS) is a rare condition, with the typical course characterized by episodes of hypersomnia, and accompanied by behavioral changes including hypersexuality, hyperphagia and occasional psychosis. Previous reports have described cases affecting young adolescents, particularly males. No known cases of affected older adults have been published.

Clinical case: An 87-year-old lady with a history significant for atrial fibrillation, previous deep venous thrombosis, pulmonary embolism, and recurrent VRE UTI presented and was admitted to the Acute Care for Elders (ACE) unit with confusion and possible seizure-like activity. The patient's daughter reported increased somnolence (15-20 hours/day) in the weeks preceding presentation, with transient arousals only to physical stimulation and loud noises. Physical examination revealed an elderly lady who was somnolent. Urinalysis was positive for infection, with leukocytosis and lactic acidosis, which responded to intravenous antibiotics. Neurology consult recommended phenytoin followed by lacosamide for suspected status

epilepticus. Brain imaging including CT was negative for intracranial abnormality. Electroencephalogram demonstrated no epileptiform activity and neurologic workup for leptomeningeal infection was negative by lumbar puncture. Further investigations revealed deficiencies of Vitamins B6, and B12 which were replaced appropriately. Despite this, the patient remained drowsy, with intermittent short-lived episodes of wakefulness during which she was irritable. Her somnolent state persisted until the tenth day of hospitalization, on which a trial of 200 mg oral modafinil was administered. Over the next 48 hours, her condition improved: she was awake during the day, conversing with visitors and feeding herself. She did not remember her previous hypersomnolence. Improvement in alertness and performance of ADLs were sustained with continued use of modafinil.

Conclusion: This case demonstrates that in the absence of indication of common causes of persistent somnolence (or hypoactive delirium) in the elderly, KLS should be considered as a potential cause, given the rapid and sustained response to modafinil.

C23

An elderly with back pain, more than a muscle sprain: A case of Multiple Myeloma

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Introduction: Chronic back pain is one of the commonly reported complaints by the elderly causing disability and reduced functionality. Back pain is the second most common complaint in the primary care setting. An average primary care physician may see less than 10 patients with MM in their career. MM, malignancy of plasma cell, is a disease of older adults, the median age at diagnosis is above 70 years.

Case Presentation: We report an 85 year old female who presents with chronic lumbago and fatigue. Labs including CBC, CMP and TSH were normal except for elevated total protein of 11.2 and anemia. Patient was referred to heamoncologist who previously evaluated for elevated protein however no further work up or treatment was started at that time. Patient continued to feel fatigued and was advised to take iron for anemia. A month later patient developed bone pain at the mid-lower back and was diagnosed with pathological vertebral compression fracture on Xray secondary to MM. Next month patient underwent vertebroplasty and was started on chemotherapy and physical therapy. 4 months later patient was admitted in hospital with a rash at the right thoracic region due to herpes zoster and was treated with valacyclovir and pregabalin. Her severe bone pain was managed with norco, dilaudid and lidocaine patch at various points which was aggravated by post herpetic neuralgia due to immunosuppression. 8 months later patient continued to undergo chemotherapy and pain relief was achieved on norco and gabapentin.

Discussion: With age the morbidity, mortality and social issues increase rapidly putting a strain on the patient's support system as well as on healthcare providers which is one reason appropriately treating chronic pain in the elderly is important. Patients may present to physicians with generalized complaints of fatigue and back pain. Without a complete evaluation and a differential diagnosis MM patients may be misdiagnosed. Approximately 30% of new MM cases are diagnosed incidentally when patients present to their primary care provider for unrelated problems.

Conclusion: Recognition and treatment of multiple myeloma are usually complicated by non specific clinical presentations of fatigue, back pain and the vast differential of clinical conditions causing fatigue and back pain. It is vital to recognize and correlate between the elevated protein and musculoskeletal symptoms with the complaints of fatigue due to anemia in a patient with multiple myeloma.

C24

Diagnosing Dementia with Lewy bodies: Initial presentation of memory loss with hand tremor, perioral tremor and cogwheel rigidity

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Background

Dementia with Lewy bodies is the third leading cause after Alzheimer's and Vascular, accounts for 10 to 25 percent of cases.

Neurocognitive and motor symptoms are prominent feature of Dementia with Lewy bodies and Parkinson's disease dementia.

Objective

Recognizing clinical presentation of Dementia with Lewy bodies

Education and discussion about progression of Neurocognitive disorder and advance directives

Case

Veteran is a 69 yr old white gentleman who presents with worsening memory issues and tremor for 1 year. Pt's son noticed worsening of memory in the past 6 months. Per son patient has difficulty learning new apps on the phone and needs assistance with finances, all bills currently are autodetuctible. Son reports that his father has been having to " think about what he wants to say". Pt reports word-finding difficulty, forgets appointments and has to set reminders in his phone. Tremor started as intentional hand tremor, perioral tremor and later during follow-up visit presented with resting tremor in the right hand and micrographia. Pt still able to live alone and independent with ADLs and needs some assistance with IADLs.

Physical Examination positive findings are Cogwheel rigidity noted in bilateral UE R>L. Perioral tremor and right hand resting tremor noted.

Brain MRI: Mild generalized volume loss may be slightly advanced for patient age.

Neuropsychological testing completed in January 2018 found the patient with above average intellectual ability, consistent with his education and occupation. There was no evidence of cognitive deficit in attention, word-retrieval, visuospation functions, or executive functions. Evaluation of processing speed and verbal fluency were adversely affected, evidence of impairment in verbal new learning and memory.

Patient was diagnosed with Dementia with Lewy bodies

Conclusion: Diagnosing Mild Neurocognitive disorder or dementia, monitoring of functional status may be important as a predictor of disease progression and establishing additional support systems for appropriate levels of care and utilization of resources. Discussion of Advance care planning with patient and family members very useful for future care needs.

C25

Myasthenia Gravis in the Older Adults

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Background:

Myasthenia gravis (MG) is the most common disease of neuromuscular transmission in the older adults with onset after the age of 50 years. The hallmark of the disorder being fluctuating degree & variable combinations of weakness in the ocular, bulbar, limb, & respiratory muscles. The prevalence is about 70 to 320 per million. MG may occur at any age, but there exists a bimodal distribution to the age of onset with an early peak in the second and third decades (female predominance) and a late peak in the sixth to the eighth decade (male predominance).

Case:

A 68-year-old male from Turkey with medical history of hypertension, hyperlipidemia, obstructive sleep apnea & vitamin D deficiency presented with the complaint of fatigue, described being

nonspecific and progressive which later progressed to him noticing double vision and drooping of his eyelids. These complaints were not associated with fevers, night sweats or weight loss.

Pertinent examination finding included a decrease in proximal muscle strength and ptosis.

Initial Lab workup was reported to be normal but for high suspicion of MG Antibodies to acetylcholinesterase were requested which were positive.

Imaging studies showed no thymus involvement.

The patient was referred to Neurology and started on pyridostigmine; he was planned to be started on immunosuppressive therapy. PPD done for the patient before initiation of the treatment was positive, with a subsequent negative Chest Xray and he required treatment for latent TB with Isoniazid and Vitamin B6 for nine months. He eventually began treatment with IVIG and mycophenolate along with pyridostigmine. Presently he reports of symptom improvement on regular follow-ups.

Discussion:

MG is an autoimmune disease in which antibodies are formed against the acetylcholine receptors. Common presenting symptoms include ptosis, diplopia, facial muscle weakness & fatigue. Aging causes a decrease in the total eyelid area with sagging of the lower eyelids, ptosis may be more challenging to diagnose, and ocular symptoms are often ignored. Thymomatous MG is more common among older patients than younger patients. Approximately 10-15% of all MG patients have a thymoma & around 40% of all thymoma cases are associated with MG.

C26

How Sweet It Is To Be Delirious

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Background: Delirium has high prevalence among the hospitalized elderly with acute illness. Early detection of delirium and the identification of its underlying causes are important steps to reduce the associated morbidity and mortality. Although multiple reversible causes have been identified in the literature, delirium-related severe hyperglycemia is not well documented in this age group.

Case Presentation: A 75-year-old community-dwelling woman was admitted to the hospital with a diagnosis of hyperosmolar hyperglycemic state (HHS). On admission, the patient was cognitively intact, but found to have hyperglycemia with a glucose level of 1243 mg/dL, serum osmolality of 366 mOsmol/kg, and no elevated anion gap. The patient was treated with multiple IVF boluses and started on long-acting insulin in addition to short-acting insulin on a sliding scale; glucose levels improved to 300s mg/dL after two days of admission. At that time, the patient was noted to have an altered mental status, and hypoactive delirium was diagnosed based on positive results using the Confusion Assessment Method.

Discussion: Our patient presented with baseline vulnerability risk factors for delirium including advanced age and previous history of stroke; in addition, her extreme hyperglycemia was a precipitating risk factor. An HHS is associated with progressive neurologic impairment and delirium is one of its infrequently documented manifestations. Potential pathophysiology of developing delirium in patients with profound hyperglycemia includes metabolic derangement, cerebral fluid shifts and cerebral edema, altered neurotransmitter function or the side effects of aggressive hyperglycemia treatment. It is important to highlight the osmotic shifts driven by hyperglycemia may mimic those seen more frequently in other electrolyte derangements to result in altered mental status in adults with limited cognitive reserve, and slow correction of the hyperglycemia is considered a key goal treatment.

Conclusion: Clinicians should remain vigilant for underlying causes of delirium, but those with marked hyperglycemia may not need additional diagnostic evaluation. Clinicians should be aware of this association because early detection and treatment can decrease delirium associated complications and unnecessary medical interventions.

C27

Adequate Pancreatic Beta-Cell Function for 25 years after Initial Diagnosis of Diabetes/Latent Autoimmune Diabetes in Adults

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Introduction: Latent autoimmune diabetes in adults (LADA) patients may initially respond to oral medications, they often require insulin therapy within 5 years of diagnosis.[1] We present a case of LADA who continue to produce endogenous insulin for over 25 years after initial diagnosis of diabetes (DM) requiring only non-insulin hypoglycemic agents.

Case: 73-year-old man referred to endocrinology clinic in March, 2015 for management of uncontrolled Type 2 Diabetes Mellitus [T2DM]. He was diagnosed with T2DM in early 1990s and was started on oral hypoglycemic agents. He was prescribed insulin in 2008 but did not tolerate it due to allergic rash. Home medications included Glyburide-Metformin, Canagliflozin and liraglutide. Past medical history included T2DM, chronic kidney disease stage III, coronary artery disease [CAD] and osteoarthritis. Family history was notable for CAD in mother and DM in father. Vitals and physical examination were unremarkable. Patient's initial labs in 2015 showed C-peptide of 3.7 [1.1-4.4 ng/ml] with sugar of 161 mg/dl suggestive of sufficient pancreatic beta cell secretory function. Further laboratory evaluation showed elevated anti-GAD 65 antibody of 4.3 [0.00-1.5 U/ml] and HbA1c 8.1 % confirming the diagnosis of LADA. Subsequent labs in 2016 and 2017 also showed normal C- peptide of 2.2 and 2.1, respectively consistent with functioning pancreatic beta cell. Since patient's glycemic control was suboptimal with lifestyle modifications and non-insulin hypoglycemic agents, therefore insulin was added in March, 2015, approximately 25 years after initial diagnosis of DM.

Conclusion: Our case is unique due to adequate pancreatic beta-cell function for 25 years after initial diagnosis of DM. Diagnosis of LADA is usually missed in geriatric population given high prevalence of T2DM. Timely diagnosis of LADA is crucial for attaining and maintaining glycemic control with proper treatment. Delay in treatment can lead to poor glycemic control.

O'Neal K, Johnson J and Panak R. Recognizing and Appropriately Treating Latent Autoimmune Diabetes in Adults. Diabetes Spectrum 2016 Nov; 29(4): 249-252

C28

Unexpected Black Tongue: What is it from?

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Background

Black discoloration of the tongue can be due to benign conditions such as discoloration from bismuth subsalicylate or black hairy tongue or due to serious conditions including Addison disease and pellagra. Determining the etiology typically requires a comprehensive history and medication review.

Case Description

A 70yo woman with a history of recurrent falls, alcohol use disorder, COPD, GERD, anxiety, and depression was admitted to subacute rehab following a forty-day hospitalization. During her hospital course she was treated for a fall causing temporal fracture and intracerebral hemorrhage, HSV encephalitis, delirium, C. difficile colitis, and dysphagia. Her physical exam upon arrival to subacute rehab revealed unexpected asymptomatic discoloration of the dorsal tongue. The patient inquired about the etiology and best available treatment. Black

hairy tongue was diagnosed and review of potential causes revealed a variety of possible etiologies, including limited oral intake, antibiotic use, and critical illness.

Discussion

Black hairy tongue is a benign condition characterized by discoloration of the dorsal tongue due to defective desquamation of the filiform papillae. This results in papillae elongation and creates a hairy appearance. Potential factors leading to defective desquamation vary widely and include antimicrobial use, critical illness, alcohol or tobacco use, or variations in oral hygiene.
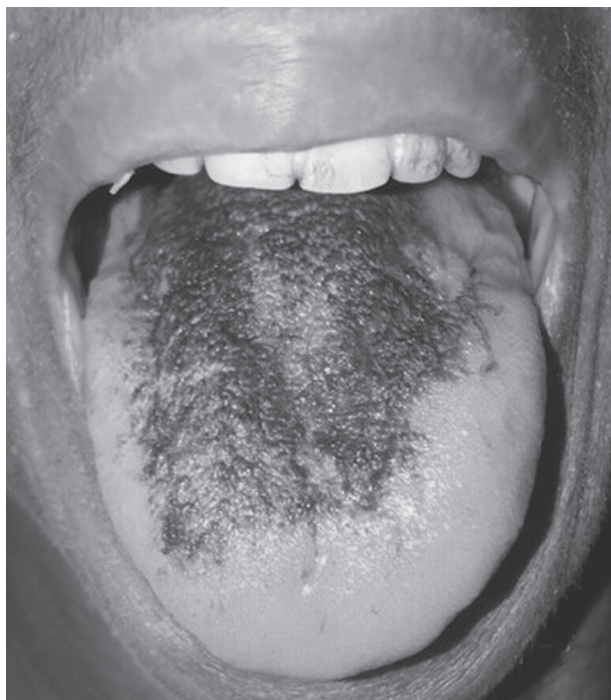
C29
"Seeing" Dementia: Recognizing Posterior Cortical Atrophy.
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BACKGROUND: Posterior cortical atrophy (PCA) is a rare and under-recognized form of early-onset dementia characterized by progressive decline in visual processing ability. It's age of onset and atypical features lead to absent or late diagnosis, scant research, poor disease classification, and limited prospect for future development of viable treatment options. We present a case illustrating its presentation and diagnosis.

Case Presentation: A 53-year-old woman with a master's degree in English and history of hypothyroidism presents to memory clinic for evaluation of progressive cognitive deficits. She worked as a teacher and first noticed organization issues after being reprimanded at work for difficulty arranging her student files alphabetically 3 years earlier. The following year she noted difficulty telling time on a second-hand clock. She was referred to an ophthalmologist who noted normal retinal exam and 20/20 vision in both eyes. Her symptoms progressed to difficulty telling time on a digital clock, spelling simple words and signing her name on the appropriate line which resulted in administrative work leave. Her husband described a driving incident where she was turning left but intentionally got in the right outer most lane to make the turn. Prior workup included normal laboratory data, EEG and CSF studies. Physical exam was unremarkable. MMSE was 21/30 with error on attention, delayed recall and design copy. FDG-PET scan showed hypometabolism in bilateral superior parietal lobes, posterior cingulate gyri and temporoparietal lobes. PCA

diagnosis was confirmed by neuro-ophthalmologist and donepezil was started. She reported subjective improvement including being able to tell time on a digital clock although visuospatial task on MoCA remained abnormal.

Discussion: PCA typically presents in mid 50s-60s. Initial symptoms consist of selective visuospatial and visuoperceptual dysfunction including reverse-size phenomenon (ability to read small but not large text), visual disorientation (difficulty following lines of text) and difficulty judging distances. Advanced imaging shows abnormalities in occipital and parietal regions followed by areas of the temporal lobe. Lack of memory deficits often leads to referral to ophthalmologist with normal eye exam commonly resulting in diagnosis of anxiety, depression or somatization disorders. Presence of high order visual dysfunction with lack of ocular abnormalities should prompt consideration of PCA.

C30
The Silent Spleen – The Quandary of Incidentalomas in the Elderly
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Introduction:

With the advancement of technology and increasing use of imaging, there has been a rise in the number of incidentally found lesions in aging adults resulting in a diagnostic dilemma for physicians and emotional strain for patients. Clinical evidence on how to best manage incidental findings is lacking. We report a case of suspected splenic marginal zone lymphoma (SMZL) that was found incidentally.

Case Presentation:

An 86 year-old healthy man was participating in a longevity research study. As part of the study protocol, he had a coronary calcium scan, which revealed a score of zero, with incidental findings of multiple lung and liver lesions. Follow-up CT chest revealed three lung nodules with the largest measuring 3mm. CT of the abdomen/pelvis showed multiple splenic masses in addition to hepatic cysts. Labs revealed no leukocytosis or anemia, normal creatinine, and high normal calcium. On exam, he had no adenopathy or splenomegaly. Splenic mass core needle biopsy revealed clusters of plasma cells. SPEP and UPEP confirmed an M-spike in the gamma region with elevated IgM and suppression of IgG and IgA.

Discussion:

We present an asymptomatic patient with incidental findings on imaging; splenic mass biopsy was not diagnostic. Given the lack of adenopathy and focality within the spleen, the differential diagnoses includes plasmacytic differentiated SMZL and Waldenstroms Macroglobulinemia. SZML is a rare B-cell neoplasm involving the spleen, splenic hilar lymph nodes, bone marrow, and peripheral blood.[1] Its incidence is less than 1% among all non-Hodgkin's lymphomas and is typically indolent.[2] Waldenstroms is also an indolent disease.

Conclusion

Given the natural history of these diseases, the patient has reservations about undergoing any further work-up. There is a paucity of literature on how to best manage incidental imaging findings. More studies are needed in the aging population, especially in those whose life expectancy is more than ten years.

References

1. Ayyappan, S & William B.M. Marginal Zone Lymphoma: Clinicopathologic Variations and Approaches to Therapy. Curr Oncol Rep (2018) 20: 33.

2. Mohanpuria, A et al. Important Diagnostic Clues for Diagnosing Splenic Marginal Zone Lymphoma in Absence of Splenic Histology. J Clin Diagn Res. 2017 Jul; 11(7): ED15–ED17.

C31

Wounds Related to Malignancy in Post-Acute/Long-Term Care: A Case Series

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Background: Wounds related to malignancy in post-acute/long-term care (PALTC) have not been well studied. An understanding of these conditions is essential for resource allocation to improve outcomes and quality of life for older persons with cancer.

Methods: We reviewed all patients referred for wound consultation over one year in an urban, academically affiliated 514 bed PALTC facility. Inclusion criteria included diagnosis of cancer with wounds related to malignancy or complications from cancer-related debility and/or treatment. Residents were analyzed for age, sex, type of malignancy, presence of metastases, wound type, and infection.

Results: Of 190 consults, 27 (14.2%) met our inclusion criteria. 74% were female and average age was 69.5 (range 48.1 – 86.7). Reason for consult included pressure ulcer (PrU) (44.4%), surgical wound (22.2%), malignant wound (14.8%), and infection (14.8%). Surgical wounds included dehiscence and unhealed graft donor sites. 4 patients (14.8%) had infections that included bacterial, fungus, and zoster. Most common malignancies were breast (29.6%), rectum (14.8%), colon (7.4%), oral (7.4%), lung (7.4%), uterine (7.4%), and lymphoma (7.4%). Other tumors (18.5%) included renal, esophageal, hemangioblastoma, neuroendocrine, and vulvar. 51.9% of all patients had metastases. 92.9% of patients with metastases had PrU.

Conclusions: Wounds related to malignancy are common in PALTC. By 2030, 70% of all cancers will be diagnosed in older adults. The increase in cancer and related sequelae will stress our healthcare system in terms of morbidity and cost. Our data suggests a different array of malignancy-related skin issues than previously published. These findings highlight a gap in knowledge of the spectrum of wounds in residents with cancer admitted to PALTC and reinforces the importance of the wound care skill set including PrU prevention. Efforts focused on quality cancer care for older adults must anticipate severe skin complications not only from the tumor but from long-term sequelae of immobility, immune compromise, and nutritional depletion. The close association of metastatic disease with PrU raises issues of terminal ulceration and casts doubt on routine use of PrU for quality measurement.

C32

The Great Mimicker: Cutaneous T-Cell Lymphoma in a 90 y/o Black Female with Decades of Atopic Dermatitis and Acute Unrelenting Pruritus

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Introduction: 66% of patients with Cutaneous T-Cell Lymphoma (CTCL) report pruritus as a common feature with their skin condition. Two major subtypes of Cutaneous T-Cell Lymphoma are Mycosis Fungoides (MF) and Sezary Syndrome (SS). Patches, plaques, tumors, generalized erythroderma, alopecia, and, rarely, papules are commonly seen. Atopic dermatitis, parapsoriasis, and drug eruption are most often mistaken for this condition.

Case Presentation: 90 y/o BF with decades of atopic dermatitis presented to her primary clinic for a routine visit with intense pruritus. Pt had managed her atopic dermatitis and occasional pruritus with emollients and moderate potency topical steroids which were no longer effective. Pt requested H1 and H2 antihistamines which were given to patient in limited amounts with minimal improvement of symptoms. Pt underwent an extensive work up for pruritus with broad differential resulting in multiple skin biopsies from various patches and plaques of her extremities three months from her routine visit. Her skin biopsies showed CTCL. Pt finally managed her pruritus with a home remedy of sponge baths of isopropyl alcohol followed by olive oil lathering of her skin.

Discussion: CTLC is currently diagnosed in 6.4 per million persons based on Surveillance, Epidemiology, and End Results (SEER) with highest incidence among males (2:1) and African Americans. Median age at diagnosis is mid-50's, and a four-fold increase in incidence is seen in pts over 70 yrs old. Possible risk factors include HTLV-1 infection in adult T-cell leukemia/lymphoma and a medication induced antigen-driven T-cell lymphoproliferation or dyscrasia such as seen with hydrochlorothiazide. Diagnosis of CTLC is based on clinical and histopathologic data. Poor prognosis is associated with advanced staging, male gender, increasing age, elevated LDH, and follicultropic variant of MF. Treatment is based on expectant management or skin-directed therapies.

Disclaimer: The views expressed are those of the author and do not reflect the official policy of the Department of the Army, the Department of Defense or the U.S. Government.

References: Pulitzer, Melissa. Cutaneous T-cell Lymphoma. *Clin Lab Med* 2017; 37: 527-546. Wilcox, Ryan A. Cutaneous T-cell Lymphoma. *American Journal of Hematology* 2017; 92 (10).

C33

Atypical Complication of Herpes Zoster in an Older Adult

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Herpes zoster results from the reactivation of latent varicella zoster virus in the dorsal root ganglion and is known for dermatomal rash and radicular pain. It is less commonly associated with bladder and bowel dysfunction. Here we report a patient who developed urinary retention and constipation secondary to sacral zoster.

An 89-year-old man with a complicated medical history including atrial fibrillation, coronary artery disease, volvulus, chronic kidney disease, chronic anemia, and benign prostatic hyperplasia, presented to the emergency department (ER) with abdominal pain associated with urinary retention, and severe constipation with no bowel movement for past 10 days. His recent medical history included 7 days of treatment for gluteal zoster (S2–S4 dermatome) with valacyclovir. He was afebrile and his clinical exam revealed a distended abdomen, normal saddle sensation and a vesicular rash in various stages of evolution with some open skin ulcerations on the right buttock. He had normal rectal tone, no evidence of fecal impaction, and a post-void residual of 860 ml. Laboratory investigation including urine examination were within normal limits. His X-Ray of his abdomen was consistent with a large stool burden. In the ER, a foley catheter was placed and patient had a large bowel movement, after which his abdominal pain improved. Extensive evaluation including urodynamic studies, cystoscopy, and MRI imaging did not reveal an another etiology for his urinary retention. He remained unable to void spontaneously over the next several months and remained with a chronic foley catheter per his preferences.

Although a number of cases have reported sacral zoster as the cause of neurogenic bladder and bowel dysfunction, voiding function is usually recovered within 4-8 weeks. However most of these cases are reported in a relatively younger age group 60-85 years. Advanced age may have contributed to our patient's irreversible urinary retention secondary to sacral herpes infection.

C34

Can early detection with biomarker's change the prognosis of asymptomatic family members with family history of Alzheimer's disease?

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Early onset of Alzheimer's Dementia (AD) most prominent presenting symptoms are disturbances in language, visuospatial skills, praxis, or executive functions[1]. Historically, the diagnosis of AD was one of exclusion based on clinical findings or confirmed pathologically from post-mortem reports. Amyloid, tau and neurodegeneration-related proteins are now used as biomarkers to diagnose AD [2]. This case describes a 64-year-old woman with a 6-month progression of memory loss and change in behavior. She has a family history of AD in her mother and has an asymptomatic twin sister. Her CSF biomarker results were significant for low high phosphorylated Tau and low ratio of Amyloid to Tau levels, confirming with testing the clinical suspicion for AD. The patient was a working lab technician, using information technology as a major part of her job; the memory impairment disabled her, and she soon made an elective decision to resign from her job. The diagnosis of AD was life changing for the patient and the family. She was started on donepezil and referred to a social worker for rehabilitation and resources. Early detection of AD in patients who have early signs or are at risk of the disease can change clinical practice. For working-age individuals who have ongoing financial and familial obligations, prompt diagnosis is crucial for mobilizing resources, planning, and anticipating possible functional declines. However, given the family history and a biomarker-based diagnosis in one twin, the questions is raised regarding the impact and consequence of having this information for the other twin? Biomarker based information may be particularly sensitive in the case of twins. Screening asymptomatic individuals who are at high risk of having AD based on family history could potentially be useful for planning purposes, but as there are no current clinical treatments available for the disease, there are ethical and emotional implications related to obtaining this information.

1. Teng, E., Tran, M., Hsiao, J., & Mendez, M. (2013). Cerebrospinal fluid biomarkers in clinical subtypes of early-onset Alzheimers disease. Alzheimers & Dementia, 9(4). doi:10.1016/j.jalz.2013.05.717

2. Silverberg, N., Elliott, C., Ryan, L., Masliah, E., & Hodes, R. (2018). NIA commentary on the NIA-AA Research Framework: Towards a biological definition of Alzheimer's disease. Alzheimers & Dementia, 14(4), 576-578. doi:10.1016/j.jalz.2018.03.00

C35

TB or not TB: the question of diagnosis and treatment in a case of pulmonary tubercuslosis.

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Introduction: This case highlights the care coordination necessary to appropriately address concerns of the individual and that of the public health. A diagnosis of pulmonary mycobacterium tuberculosis (TB) demonstrated the need for close interdisciplinary collaboration including the geriatric, infectious disease and social work teams.

Case: 82-year-old male veteran with a history of medication non-adherence lost to recent follow up, presented to clinic with the help of a hospital social worker for an unscheduled visit. He had been recently discharged from an outside hospital with a diagnosis of COPD exacerbation. Past medical history was notable for COPD, current tobacco use and a known history of latent TB. Prior hospitalizations for COPD had demonstrated negative AFB sputums. Social history is significant for a history of homelessness. Approximately ten weeks after the patient's outside hospital discharge the local Department of Health (DOH) contacted our medical center to inform us that the patient's sputum culture from the outside hospital had grown mycobacterium tuberculosis. Care coordination was needed to help contact this patient and determine an appropriate individual treatment plan. The patient was unable to be reached despite multiple attempts made by the DOH, clinic staff and social worker. Six days after the DOH telephone call, the patient presented to the social worker's office. Coordinating with the infectious disease team, the patient was admitted to the hospital where treatment was initiated with isoniazid (INH), pyrazinamide and rifampin. Initial discharge plans were for discharge to home with outpatient coordination with the local DOH for directly observed therapy. The patient was instead transferred to the skilled nursing facility's rehab unit where he resided until he completed a total of six months treatment needed for TB.

Discussion: In this case, the patient's diagnosis of TB was not made for several months after an acute hospitalization. His lack of specific symptoms and multiple co-morbid conditions demonstrate the diverse possible clinical presentations in patients diagnosed with acute TB. This case illustrated the need for close interdisciplinary collaboration to help determine the safest treatment and discharge plan on both an individual and public health level.

C36

ANCA associated vasculitis in an older frail patient: Setting realistic expectations

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Background: Antineutrophil cytoplasmic antibodies (ANCA) associated vasculitis is a necrotizing vasculitis which predominantly affects the small vessels. This disease usually manifests at age 64-75 and accounts for about 19% of renal failure in patients age>80. It is treated with immunosuppressive therapy with high dose corticosteroids, rituximab and cyclophosphamide.

Case presentation: We treated an 85-year-old woman who was sent to the emergency department from her nephrologist for acute kidney injury secondary to suspected ANCA. She had a prior admission where she was noted to have an acute kidney injury with positive Myeloperoxidase (MPO), ANCA and antinuclear antibody (ANA). She had had fatigue and dyspnea for a few months. On exam her vitals were stable and pertinent findings included decreased breath sounds and 2+ pitting edema. Her creatinine was 3.4 (baseline of 1.0), and urinalysis was positive for blood and protein. Her inflammatory markers were elevated, C3: 103 mg/dL, C4: 24 mg/dL; serologies for Hep C and B were negative.

She received high dose steroids, cyclophosphamide and plasmapharesis was initiated. She underwent a left renal biopsy revealing necrotizing and crescentic glomerulonephritis which was complicated by a retroperitoneal bleed. She was transferred to the medical intensive care unit where she underwent a left renal artery embolization but developed acute hypoxic respiratory failure due to fluid overload requiring a brief intubation. Her renal function continued to decline but she could not tolerate hemodialysis due to hemodynamic instability. Two weeks into the hospital course, we initiated goals of care discussions and she was transitioned to hospice care. There was a delay in this transition due to language barrier, complex family dynamic, and unclear expectations regarding outcomes of therapy within this specific patient population.

Discussion: This is a unique presentation of ANCA associated vasculitis in an older patient. The treatment and work up resulted in a poor outcome. Upon review of literature, there has been implication that ANCA associated disease diagnosed in an older patient may actually carry a terminal prognosis, as older frail patients may not tolerate diagnostic work up and treatment, especially given the high morbidity within the first year of diagnosis. We recommend early goals of care discussions in frail elderly patients which may provide a better quality of life.

C37

How Dare You Let Me Cut Off My Nose To Spite My Face!

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Background: Geriatric patients with personality disorders present unique challenges. During episodes of institutionalization, dysfunctional communication and coping styles can contribute to geriatric morbidity.

We present a case of a nursing home resident with personality disorder traits that exacerbate life threatening geriatric syndromes. We review interdisciplinary approaches that can mitigate decline and support patient-centered goals and quality of life.

Case: L is 67 year old previously independent woman with PMH of T-10 paraplegia, neurogenic bladder & bowel, CVA, htn, DM II, iron def anemia & depression who was admitted to the SNF for IV abx & care of recurrent pressure wounds with osteomyelitis. Prior to admission she was nonadherent with her care at home leading to hospitalization for sepsis. Throughout the hospital & SNF stays she selectively accepted and refused elements of her care, including wound care management times, approaches, & frequency, meds & provider evaluations. She had intact cognition & capacity & was not depressed.

She presented with a pervasive pattern of deep mistrust of the interdisciplinary team, often refusing to engage. She displayed accusatory verbal aggression, low threshold of frustration, mood swings and abdication of responsibility for her declining condition. Her behavior was consistent with cluster B personality traits.

Her behaviors resulted in suboptimal wound care with deterioration of existing wounds & development of new ones. Nonadherence threatened hopes of return to independent living.

A carefully crafted interdisciplinary plan was developed: care during clearly defined time periods, medication types and administration times on a patient determined schedule, liberalized diet at patient chosen times, & twice weekly physician visits (females only) with shared decision making about each step of the care plan. A palliative care consultant helped elicit fears, hopes and goals of care.

The highly individualized, carefully negotiated care plan has resulted in L's improved sense of autonomy and better adherence.

Conclusion: Personality dysfunction can exacerbate geriatric syndromes and ultimately threaten independence and survival.

In dealing with vulnerable yet competent geriatric adults with difficult behaviors in the context of personality disorder traits, a firm yet empathic interdisciplinary approach to a goal-centered individualized care plan is required to support patient autonomy & mitigate counterproductive behaviors.

C38

A Not So Simple UTI –A Case of Complicated Cystitis in the Post-Acute Setting

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Background:

A 63-year- African-American male veteran with multiple medical problems including stage III chronic kidney disease (CKD) and adult dominant polycystic kidney disease (ADPKD) presented with a fever of 101.2F on day sixteen of his post-acute rehab stay. Patient had been discharged to rehab following surgery for a left above-the-knee amputation.

Case:

Patient's labs showed an acute elevation in creatinine level at 3.9 increased from baseline of 1.9-2.3 range. Urinalysis showed greater than 182 white blood cells as well as nitrite and leukoesterase positive. Urine culture was pending. Veteran was transferred from rehab to the hospital for acute kidney injury and concern for sepsis. He was started on antibiotics and imaging studies revealed hemorrhagic kidney cysts. Veteran's family history was significant for ADPKD and both his mother and brother died of renal failure. A diagnosis of infected kidney cyst was made given patient's known history of polycystic kidney disease as well as his clinical assessment, laboratory and radiographic findings. His urine culture grew >100,000 colonies of pseudomonas and enterococcus. Veteran was treated for complicated cystitis with IV antibiotics and his renal function was monitored closely in the acute setting, which improved slightly after treatment. Veteran remained hemodynamically stable and was transferred back to post-acute for continued rehab and oral antibiotics for a total of four weeks.

Conclusions:

This case demonstrates the importance of obtaining a thorough and accurate medical history when acute changes are noted. In this case, patient's history of ADPKD was extremely pertinent to his acute diagnosis and treatment plan. In addition, this case required close collaboration of the primary geriatric team in the rehab unit as well as the consulting specialists including nephrology, urology and infectious disease. When the patient returned to rehab, he continued close follow up with the specialists which was effective in preventing further hospitalization despite the complexity of his diagnosis. Efforts were made for diligent monitoring in the post-acute setting, maximizing resources in rehab to avoid re-hospitalization, and effective communication during transitions of care.

C39

Chronic debilitating dry cough and fatigue in a 73-year-old Caucasian woman

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Background: A 73-year-old woman with no significant PMH who works fulltime in a government office which deals with the public complained of new onset fatigue, dry cough, mild exertional dyspnea and weight loss over 3 months, found to have infiltrates on CXR.

Case report: 73-year-old Caucasian woman presents to the clinic for the evaluation of new onset dry cough and fatigue. She also reported weight loss and low grade fever. Most of the labs were unremarkable except ESR and C-reactive protein (CRP). Patient's initial ESR and CRP were 46 and 119 respectively. Iron panel was as follows: Iron 16, ferritin 398 and TIBC 203. Chest x-ray showed new right upper lobe opacity. CT chest showed 5 cm area of consolidation in right upper lobe and enlarged right hilar lymph nodes. Geriatrics consulted Pulmonary with the concern of suspected pulmonary TB. Repeat ESR and CRP were 106 and 109. She underwent Bronchoscopy with biopsy twice. Bronchoscopic cultures were negative except for Mycobacterium Fortuitum. Biopsy showed inflammation with tufts of young granulation tissue. Acid fast bacilli (AFB) smear was negative. Quantiferon gold test and PPD were also negative. Because of concern for atypical pneumonia she received courses of Levaquin and Clindamycin, without improvement of her symptoms. Meanwhile the infiltrate in the RUL resolved and new infiltrates developed in the left lung. She continued to be exhausted and unable to work.

The diagnosis of Cryptogenic Organizing Pneumonia (COP) was made. She was started on prednisone 20 mg 2 tabs daily, with immediate improvement. Her repeat chest x-ray showed significant improvement.

She has been able to return to work and her prior level of activity.

Conclusion: Cryptogenic organizing pneumonia (COP), formerly known bronchiolitis obliterans organizing pneumonia (BOOP), is a type of diffuse interstitial lung disease that affects the distal bronchioles, alveolar ducts, and walls. Signs and symptoms of COP includes flu like symptoms like cough, fever, malaise, fatigue and weight loss. The exact underlying cause of the condition is unknown. Additional testing such as CT scan or lung biopsy can confirm the diagnosis. A course of steroids that can have significant impact on disease management, but relapse is common after discontinuation of steroids. Prognosis is better than other interstitial lung diseases.

C40

Behaving Madly: When Dementia Is Not Quite As It Seems

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Background: Agitation, behavioral change and cognitive impairment following traumatic brain injury (TBI) occur in 30-70% of patients with severe TBI. Older adults are experiencing increasing TBI resulting from falls. Limited evidence exists to guide symptom management in this population. Neurochemical dysregulation following TBI including acetylcholine deficiency and dopaminergic and serotonergic imbalance can result in memory loss, behavioral change and aggression. When pharmacologic therapy is indicated, thoughtful selection based on underlying diagnosis is essential.

Case: An 81-year-old male with reported history of Alzheimer's Dementia was transferred to our medical center from a community hospital after presenting from rehabilitation with worsened cognition, agitation and hallucinations. Medical history was notable for a six-month subacute decline in mental status resulting in evacuation of a chronic subdural hematoma the month prior. He was discharged to rehabilitation which was limited by worsening hallucinations, agitation and behavior. He was treated with antipsychotics and benzodiazepines without improvement. While hospitalized he had persistent agitation, mood lability and reports of yelling at staff. In the setting of hallucinations and new cognitive deficits, dementia with lewy body was suspected.

Geriatrics consultation obtained additional history. Prior to his decline, he lived independently and was the caregiver for his wife who had Parkinson's Disease. He was assaulted by a family member and had loss of consciousness. Following treatment for the assault, he was discharged to rehabilitation. He was unable to return home due to new behavioral disturbances.

Mood lability, disinhibition and agitation improved with combination therapy of propranolol and depakote. Nudexta was initiated for post-TBI pseudobulbar affect. Family observed marked improvement over the preceding several months. Unfortunately, appropriate therapy was initiated too late in his clinical course and family pursued hospice.

Discussion: Careful identification of underlying causes of agitation and correct identification of underlying diagnoses remain essential clinical skills. Misdiagnosis of post traumatic syndromes can result in missed opportunities to improve quality of life and morbidity for those living with sequala of TBI.

C41

Arrested Development: Behavioral Issues after Cardiac Arrest

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Background: Survivors of cardiac arrests commonly require rehabilitation in post-acute care settings. Establishing therapeutic alliance is important in providing patient-centered care but this can be stymied by consequences of cardiac arrest. An often overlooked effect of cardiac arrest is anoxic brain injury causing challenging behaviors.

Case: A 74-year-old male, previously community-dwelling, with history of coronary artery disease and diabetes mellitus, was admitted to the Veterans Affairs (VA) community living center (CLC) for rehabilitation after an inpatient stay for acute exacerbation of diastolic heart failure with cardiac arrest, pulmonary hypertension and pneumonia. Shortly prior to admission, he had undergone 2 cycles of chemotherapy after recent diagnosis of diffuse large B-cell lymphoma.

His CLC course was complicated by recurrent admissions for heart failure exacerbations, NSTEMI and nosocomial infections with progressive loss in functionality. Therapeutic alliance was difficult to establish, due to emotional lability and challenging behaviors e.g. threats of violence and inappropriate comments. Discussions regarding goals of care were tense, as patient had strong desire to "keep fighting cancer," while refusing interventions for management of

comorbidities, which he perceives as barriers to chemotherapy. He also exhibited apathy, declining to participate in therapy, and was passive in planning for his disposition, despite wanting to move closer to family in California. He is not known to have any prior mental health diagnoses.

While patient declined to speak to key members of the interdisciplinary team (mental health providers or chaplain), discussions with a psychiatrist raised the possibility of frontal lobe dysfunction secondary to transient global ischemia from PEA arrest contributing to his behaviors.

Discussion: Managing patients after cardiac arrest in the post-acute care setting can be challenging for myriad of reasons. While it is easy to identify cognitive dysfunction after cardiac arrest, subtle changes in personality and behavior can be missed. A retrospective study found apathy to be present in 70% of patients after cardiac arrest. Early recognition of apathy and other challenging behavior can allow mental health providers to better equip clinicians with tools to manage patient behavior, and build therapeutic alliance necessary to improve patient care. Caregivers can also be provided with targeted education to reduce caregiver burden.

C42

Alopecia as presenting symptom of malignancy: an imperative to recognize atypical presentation of lymphoma

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INTRODUCTION

Direct skin involvement in lymphoproliferative disorder is rare, and usually occurs in advanced disease. However associated skin lesions are more common, and they are seen in 17 to 53% of patients. Skin involvement of lymphoproliferative disorder is usually a paraneoplastic phenomenon, which presents with pruritus, urticaria, hyperpigmentation, erythema nodosum, and hair loss.

CASE

An 82-year-old women from Ecuador with dementia presented with 3 week history of decrease in appetite, generalized weakness, and 15lbs weight loss. She was noted with significant facial plethora and generalized alopecia on presentation. Further questioning revealed history of generalized pruritus with scalp involvement and gradual hair loss for 18 months preceding the current presentation. She had been treated for these symptoms with topical steroids after biopsy result of contact dermatitis, however the effect was temporary. She underwent CT of neck, chest, and abdomen, which revealed splenomegaly, diffuse lymphadenopathy in the cervical, mediastinal, inguinal and axillary areas. Her initial blood work showed mild leukocytosis with bandemia and hypercalcemia. Infectious work up was negative. Patient had elevated LDH, B2-microglubulin, reticulocyte count, and a positive coombs test. Given her constitutional symptoms, extensive lymphadenopathy along with splenomegaly, and blood work result, patient underwent lymph node excision biopsy with suspicion of lymphoproliferative disorder. Flow cytometry, surgical pathology, cultures including AFB stain are currently pending.

DISCUSSION

The symptoms of lymphoma are often times non-specific, and the diagnosis of which can be delayed or missed. Depending on the type of lymphoma and disease stage, they can be curative. Hence, an early detection is crucial for successful treatment. In this case, patient developed extensive pruritic skin lesion along with alopecia preceding the typical presentation of lymphoma more than a year. With non-specific symptom and misleading biopsy result, the diagnosis and proper treatment were delayed, and now patient presented with extensive disease burden. This highlights the importance of recognition of atypical manifestation of lymphoma and early proper intervention.

C43

Adverse Drug Effect from Common Medications in the Old: The Case for Loratadine

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BACKGROUND

Body itching and seasonal allergy are commonly reported by long term care residents. Older adults in residential settings have multimorbidity, treated with medications with potential adverse drug effects (ADEs) and interactions. Itching is often treated with antihistamines, including loratadine. Elevated liver enzymes can occur as an ADE.

CASE

76 year old male with traumatic brain injury, aphasia, hemiparesis, dysphagia, dementia, seizure disorder and diabetes, presented with chronic generalized pruritus. Medications: carbamazepine, docusate and senna. Blood tests including carbamazepine level, renal and liver function tests were normal. He was treated for pruritus on several occasions with loratadine. In August, he was placed on loratadine for acute relapse of itching. A month later, he had over 3-fold elevation of alkaline phosphatase 417), ten-fold elevation of both aspartate (335) and alanine transaminase (243), and elevated total and direct bilirubin levels. Dilated common bile and intrahepatic ducts were seen in ultrasound. He had no interval illness or any other medication added. Loratadine was discontinued with subsequent resolution of elevated liver enzymes in a month, with alkaline phosphatase coming down.

DISCUSSION

Skin conditions are common in the old, with generalized pruritus a common disorder due to dry skin. Pruritus is commonly treated with antihistamines, such as loratadine, a second generation antihistamine with an active metabolite desloratadine. It is used for allergic rhinitis, angioedema and urticaria. The drug is linked to rare instances of clinically apparent acute liver injury, occurring 2 to 4 weeks after initiating the medication, resolving on withdrawal of drug. Loratadine is metabolized in the liver, via the cytochrome P450 (CYP 3A4, 2D6). The patient previously tolerated this medication!

LESSONS LEARNT

1. Transaminitis secondary to loratadine may occur anytime during a treatment course, despite being previously tolerated
2. Loratadine can be associated with dilatation of hepatic and intrahepatic ducts.
3. Medication review with deprescribing can address polypharmacy and related ADEs, presenting as new manifestations or lab results.

REFERENCE:

Affrime M et al. A pharmacokinetic profile of desloratadine in healthy adults, including elderly. Clinical Pharmacokinetics. 2002;41:13–9.

C44

Atypical Femur Fracture: A Rare Complication of Bisphosphonate Use

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Background: Older adults are at higher risk of developing osteoporosis. Bisphosphonates (BPs) reduce bone loss and prevent fractures in older adults with osteoporosis. Atypical femur fracture (AFF) is a rare but important complication of long-term BP use that requires prompt recognition.

Case: An 87-year-old woman with a history of HTN, HLD, DM, CKD, OA, and osteoporosis presented with a fall after tripping over a rug at home. She fell on her left side and developed left hip pain. X-ray revealed a subtrochanteric left femur fracture that was transverse, non-comminuted, and extended through both cortices, consistent with an AFF. Prior to this fall, the patient had never fallen or fractured any bones. She had been taking alendronate 70mg weekly for ten years for low bone mass. The patient underwent ORIF, which was uncomplicated. Her BP was stopped, her Vitamin D was continued, and she was started on calcium and teriparatide.

Discussion: AFFs include subtrochanteric and femoral shaft fractures and comprise <1% of all osteoporotic fractures. To satisfy the American Society for Bone and Mineral Research (ASBMR) Task Force 2013 Case Definition of AFFs, at least four of five major features must also be present: 1) associated with minimal or no trauma, as in a fall from a standing height or less; 2) transverse orientation; 3) fracture extends through both cortices / incomplete fractures involve only the lateral cortex; 4) is noncomminuted or minimally comminuted; and 5) localized periosteal or endosteal thickening of the lateral cortex is present at the fracture site.

AFF incidence increases with duration of bisphosphonates. The median duration of BP use associated with AFFs is seven years. Although the value of routinely monitoring patients on BPs with serial DXA scans is unclear, repeat DXA imaging among patients on long-term BPs that includes the mid femur to identify cortical thickening may be useful to identify patients at risk for AFF. ASBMR taskforce recommends that AFFs are managed by discontinuation of BPs and consideration of teriparatide, which has been shown to improve fracture healing and pain in patients with AFFs.

Conclusions: Although AFF is a rare complication of long-term BP use, it should be a diagnostic consideration when evaluating an older adult who is undergoing treatment with BP and presents with a hip fracture. Recognition of an AFF should prompt immediate cessation of further BP exposure.

C45

Hypothermia Induced Delirium

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Introduction

Delirium is one of the most common yet complex disorders seen in the geriatric population and can be triggered by a multitude of causes. Delirium is defined as an acute change of consciousness with disordered thought and must carefully be distinguished from other etiologies that can cause cognitive impairment [1]. Common etiologies of delirium in the older adult patient include: infection, hospitalization, electrolyte imbalance, pain, dehydration, sensory impairment and bowel/bladder dysfunction. The following case report highlights an unusal cause of delirium- hypothermia.

Case Description

An 85-year-old female with history of HTN, DMT2, NPH and advanced dementia was seen in her primary care doctor's office for concern of worsening mentation. The patient was more confused than baseline, unable to answer simple questions or follow simple commands. Her movements were slow and she appeared to have generalized weakness. The patient also appeared to have visual hallucinations, describing small animals in her vicinity. Of note, her body temperature was 92.5 degrees Fahrenheit. She was sent to the ED for further evaluation with a concern for sepsis from UTI or other common infection. Evaluation in the ED confirmed hypothermia and was negative for infection, TIA/Stroke, or other metabolic derangement. While no cause of hypothermia was determined, after her core temperature returned to normal the patient returned to her baseline level of functioning.

Discussion

Hypothermia is a rare cause of delirium in older adult patients. Older adults are at increased risk of hypothermia due to decreased physiologic reserve and impaired auto-regulation. Often these patients have chronic diseases and take medications that may affect the compensatory responses to temperature change[3]. Due to this, hypothermia can develop in older adults after only a small drop in temperature or mild exposure to cold weather.

Conclusion

This case demonstrates hypothermia as an unusual cause of delirium in an elderly female patient.

References

1. Adams RD, Victor M, Ropper AH. Delirium and other acute confusional states. In: Principles of Neurology, 6th, McGraw-Hill, New York 1997. p.405.

2. Elie M, Cole MG, Primeau FJ, Bellavance F. Delirium risk factors in elderly hospitalized patients. J Gen Intern Med 1998; 13:204.

3. Ranhoff AH. Accidental hypothermia in the elderly. Int J Circumpolar Health 2000; 59:255.

C46
Acute Confusion in an Elderly Patient

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Introduction

Acute confusional state refers to an acute state of altered consciousness characterized by disordered attention along with diminished speed, clarity, and coherence of thought [1]. The pathophysiology of delirium and confusion is poorly understood with limited availability of studies [2] and multifactorial causes of the disease.

There are many factors that increase vulnerability of acute confusion in the elderly and these include dementia, medications, medical illness, age, and male gender [3]. Precipitating factors for acute confusional state are numerous and varied [2]. Here we present an unusual case of acute confusion caused by hypertensive encephalopathy.

Case Description

A 68-year-old male with a past medical history of well controlled hypertension, hyperlipidemia, and pre-diabetes is brought in to the ER by his wife for acute confusion. He was in his usual state of health until the day of the episode. He was found confused, wandering around his home, unable to speak coherently. He had no prior history of cognitive or mood disorder, CVA, or seizures. In the ER, he was noted to have a very elevated blood pressure of 191/99. On initial examination, he was oriented only to self. His neurological examination was non-focal, MRI/MRA of the brain was without abnormality and EEG was without evidence of seizure activity. As his blood pressure stabilized his mentation returned to baseline. He returned to managing his real estate business without any evidence of residual cognitive impairment. The patient's acute confusional state was found to be a clinical manifestation of hypertensive encephalopathy.

Discussion

Hypertensive encephalopathy refers to the presence of sign/symptoms of cerebral edema caused by severe and/or sudden rises in blood pressure. It is a diagnosis of exclusion and responds dramatically to lowering mean arterial pressure by 10-15%. It has become a rare manifestation of hypertensive emergency due to widespread detection and treatment of elevated blood pressure.

Conclusion

Hypertensive encephalopathy, though rare, should remain in the differential diagnosis for acute confusion in an elderly patient.

Refereces

(1) Adams RD et al. Delirium and other confusional states, In: Principles of neurology 6th edition, McGraw-Hill, New York 1997. p-405

(2) UpToDate. Diagnosis of Delirium and Confusional states. Joseph Francis jr et al. Aug 22 2014

(3) Delirium risk factors in elderly hospitalized patients. Elie M et al. J Gen Intern Med. 1998;13(3): 204

C47
To Smell or Not to Smell: A case of phantosmia in Parkinson's Disease

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Introduction: Phantosmia is defined as the perception of an abhorrent odor without an odorant stimulus. When they occur they can be bothersome, intrusive or frightening to the individual and lead to anxiety, needless expenditures and obsessions.

Case History: A 67-year-old woman with past medical history of Parkinson's disease (PD), HTN, HLD presented to the Geriatric Clinic for evaluation of abnormal smells in her home. She had been seen in the Emergency Department multiple times for upsetting smells in her home including smoke and bleach. She had called Poison Control frequently and was increasingly distraught by the smells. Her medications included Apomorphine, Carbidopa – Levadopa (Sinemet) and Carbidopa - Levidopa CR (totaling 1350 mg L dopa). Her neurologic exam was notable for tremor, shuffling gait, and rigidity in her upper extremities. Nasal endoscopy was performed by ENT and was normal. Laboratory evaluation was significant for a normal vitamin b12 level and no evidence of nutrition deficiencies. SLUMS score was 24/30. A brain MRI, which also visualized her sinuses, showed no evidence of an abnormality to explain phantosmias. In a trial of medication reduction, her phantosmia worsened when her Sinemet was lowered. She was started on quetiapine 12.5 mg qhs and we are awaiting follow up.

Discussion:

Dysosmia is a distortion of the sense of smell Hyposmia and anosmia are diminished and absent smell respectively. Dysosmia has been associated with nasal and paranasal sinus disease or surgery, head trauma, post viral dysfunction, neurodegenerative processes, central olfactory change, exposures, nutritional abnormalities or medications. Neurodegenerative disorders including Alzheimer's disease, Parkinson's disease and dementia with Lewy body are specifically associated with olfactory changes. The presence of hyposmia or anosmia is common in patients with PD due to changes in the olfactory bulb including development of Lewy bodies with neuronal cell loss. However, phantosmia is markedly less common than other disorders of smell. Treatment with low-dose atypical antipsychotics may improve phantosmia in PD patients.

C48
Prosthetic joint infection complicated by Pyoderma gangrenosum

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Introduction Pyoderma gangrenosum (PG) is an immune mediated condition that is characterized by skin necrosis and pathergy. We describe a case where joint replacement was complicated by PG. **Description:** 66 year old man with history significant for asthma, atrial fibrillation, thrombocytopenia (on Hydroxyurea), and diabetes underwent left total knee arthroplasty because of osteoarthritis. Immediate post operative course was unremarkable and patient was discharged to a rehabilitation facility. Within a week patient develops significant pain, erythema and drainage from the surgical site. Initial concern is for prosthetic joint infection after aspiration and patient undergoes total knee irrigation &debridement (I&D) with polymer exchange. Broad spectrum antibiotics started. Final intraoperative cultures negative. Patient persistently febrile with up trending Leukocytosis. Surgical site became progressively more erythematous, swollen with increased desquamation. Decision made to perform repeat knee I&D, which was significant for extensive superficial wound necrosis. Sharp excisional debridement of frank non viable skin was done and sent for pathology which was consistent with PG. Vacuum assisted closure of wound was performed with daily dressing changes. At this point further surgical manipulation of knee was discouraged to prevent pathergy and steroids are started. Evaluation for associated systemic diseases was negative. Wound dressing consisted of bioactive tissue

matrix allograft, petroleum jelly, non stick pad, gauze wrap and then coband. Steroids were transitioned to cyclosporine. Patient continues to get weekly dressing changes while being optimized for skin graft and repeat polymer exchange. Long term antibiotic were instituted. **Discussion:** PG is a neutrophillic dermatosis that presents as skin necrosis and pathergy. Frequently associated systemic causes include IBD, arthritis and malignancies. This case illustrates a dilemma where patient needs a repeat polymer exchange, because of risk of inadequate infection control, but pathergy associated with PG presents a formidable challenge.

C49

Pericarditis; an uncommon presentation of Toxic diffuse Goiter

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Introduction: Toxic diffuse goiter, also known as Graves's disease (GD) is the most common cause of hyperthyroidism (HT). Common symptoms are palpable goiter, tachycardia, tremors, heat intolerance, and exophthalmos. We describe a case of pericarditis (PC) as an initial presentation of GD. **Case Description:** 66 year old man presented with chest pain (CP) for 24 hours. History was significant for psoriasis. Pain was sudden, substernal, and non-radiating. Started at rest and exacerbated by deep inspiration. Nitroglycerin provided minimal relief. Exam was notable for systolic murmur & psoriatic plaques. Blood pressure 142/81, pulse 82/min, and temp 36.8. EKG showed diffuse ST elevation. Labs were significant for elevated troponin. Pericarditis was on the differential, because of persistent CP and EKG findings; cardiac catheterization (CC) was performed. CC was significant for moderate LAD lesions with appropriate flow. Repeat EKG had diffuse ST elevation and PR depressions, consistent with PC. NSAID and Colchicine started. Subsequent labs showed low TSH and high T4, indicative of HT. Methimazole started after positive antibody tests. Additional history revealed weight loss of 18kgs, over the past months. GD provided explanation for HT, weight loss and PC. Work up for other etiologies of PC was negative. **Discussion:** GD is an autoimmune disease. Cardiac symptoms include tachycardia, atrial fibrillation, and heart failure. Documented but rare complication is PC. Exact mechanistic association between GD and PC still requires study.

C50

NSAID induced Allergic Acute Coronary Syndrome: A case of Kounis syndrome.

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Introduction Kounis syndrome (KS) is a hypersensitivity reaction culminating in acute coronary event. We present a case where NSAID allergy led to a myocardial event. **Case Description** 63 year old patient with chest pain (CP) and urticaria. History significant for similar episodes relieved by nitroglycerin (NTG) and negative angiograms (AG). Medications included aspirin (ASA), calcium channel blocker (CCB), statin, and nitrate. Patient non compliant. Labs with elevated troponin and non specific EKG changes. Home regimen was restarted with staged AG that showed coronary spasm relieved by intracoronary NTG (IC-NTG). Ranolazine added. Week later presents with CP and urticaria. Labs show elevated troponins. He is treated for NSTEMI and AG shows subtotal occlusion of a coronary. Failed trial of IC-NTG followed by stent deployment. ASA and clopidogrel started. Again complains of CP, EKG shows STEMI. AG shows patent coronaries and stent. EKG normalizes. ASA allergy is diagnosed and desensitization is started. Following months' patient is readmitted with same symptoms after NSAID usage for joint pains. KS is diagnosed with initiation of antihistamines, coronary antispasmodics and trigger avoidance. **Discussion** KS is a dynamic vasospastic event mediated by mast cell degranulation. Treatment includes revascularization, anaphylaxis control and supportive therapy.

C51

How low can you go? A patient with a Body Mass Index of 8.3 kg/m2.

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Introduction Body mass index (BMI) is calculated to assist in estimating total tissue mass. We describe a case of a patient with a BMI of 8.3. **Case Description** 70 year old patient with altered sensorium and lethargy for 2 days. History of hypertension and alcohol abuse. No home medications. Weight loss due to decreased appetite. Patient orientated to person only, cachectic with sacral ulcer. Blood pressure 156/95, pulse 71/min, temp 33.2, weight 22kg, and height 1.65meters. BMI is 8.3. Labs show Leukocytosis, lactic acidosis, and albumin of 2.8. Antibiotics, fluids and rewarming started. Tube feed started, with monitoring for refeeding syndrome. Antibiotic stopped after negative cultures. Imaging shows chronic microvascular changes and age inappropriate parenchymal loss in brain and posterior mediastinal mass in chest. Patient becomes normothermic and mentation improves. Surrogates pursue hospice, where patient passes away. **Discussion** BMI is a surrogate for body adiposity. Used to categorize patients into quartiles ranging from under weight to obese. Review of literature showed that lowest recorded BMI in adult was 7.5

C52

UnityPoint Health Hospital to Home

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BACKGROUND

New programs treating seniors' acute medical events in place (home, SNF) are emerging. National research suggests these programs can result in better patient outcomes (readmission and satisfaction) and a cost savings of 15-20% per episode as compared to similar inpatient treatment.

In May 2016, a steering committee representing UnityPoint at Home, UnityPoint Clinic and UnityPoint Health (UPH) Des Moines Hospital approved for execution a pilot program using *Hospital at Home*[TM], a program developed by the Johns Hopkins University schools of Medicine and Public Health, which later became known internally as Hospital to Home (HTH). In September of 2016 a board vote approved the ACO Next Gen (NGACO) waiver, allowing services to be provided for this work.

METHODS

The aim was to discharge hospitalized patients early with appropriate care at home. Inclusion criteria included a diagnosis of chronic heart failure, chronic obstructive pulmonary disease, pneumonia or cellulitis. Measures included readmission rate, patient satisfaction and episodic cost savings.

RESULTS

10 Admissions between October 2016 through January 2017.

Readmission Rate

0 of 10 (0%) of HTH patients were readmitted to the hospital during their episode or in the 2 weeks following their episode.

Patient Satisfaction

100% of patients responding to surveying said:

They were ready to transition to home.

The nurse listened and treated them with respect always.

They rated the program a 9 or 10 out of 10.

They recommended this type of care.

Cost

Cost savings was consistent with evidence based national research. See Table A.

CONCLUSION

HTH is a value-based strategic program with great potential in a shared savings model. With HTH, physicians take a holistic approach to achieving and sustaining high outcomes including

lower readmission rates, reduced costs and high patient satisfaction. Recently, UP joined a Learning and Action Network run by the West Health Institute and The Institute for Healthcare Improvement. The Network includes multiple NGACOs and supports initiatives for high value care of unexpected acute events for seniors. Our inclusion in this yearlong arrangement expedited our launch of a fully staffed HTH hospital-avoidance program in September of 2018.

Table A: Cost Savings per admission

HTH actual admissions	$1635
HTH projected candidates	$1298-$1791
National research	15-20% of total hospital stay

Sources available.

C53

Seasonal Affective Disorder (SAD): Never out of Season

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Introduction: SAD is characterized by winter depression, summer remission. It may be associated with significant cognitive impairment (working memory, processing speed), and changes in appetite and sleep. Symptoms vary with severity of depression, often marked in geriatrics. Most commonly associated with winter when light exposure is lowest, a variant, summer SAD, has been identified with similar symptoms. The growth of retirement communities in warm climates makes summer SAD a potential diagnosis in patients with worsening cognitive and somatic symptoms.

Case Scenario: A 76-year-old female with known PMH of depression, fibromyalgia, and CFS which worsens during the summer months in Arizona presented to our clinic in early July with c/o cognitive deficits and difficulty managing her finances. She has a small business, primarily as a hobby, and had difficulty with calculations. She had occasional memory lapses, progressive over the past year. A full neurological workup including laboratory testing was negative. MRI showed chronic small vessel ischemic disease and chronic small hemorrhages in the left temporal lobe suggesting hypertensive changes. There were no changes in hippocampal volume to suggest Alzheimer's Disease. Cognitive testing revealed MCI, no formal diagnosis of dementia. She c/o worsening insomnia and anhedonia, but no changes to appetite or weight. Widowed for 5 years, with no immediate family locally, she lives independently and socializes with friends who winter in Arizona and return home in summer. Her psychiatrist had recently adjusted her Wellbutrin and Fluoxetine, but symptoms were unchanged. We referred her back to psych; she refused. A follow up visit in the Fall showed improved mood and no further cognitive complaints.

Discussion: Her insomnia worsened in summer; weight and appetite did not fluctuate. Both seasonal SAD variants have slowed cognitive processing. This patient's cognitive complaints were likely due to MCI; pseudodementia was a consideration. Multiple factors contributed to her presentation: seasonal social isolation, weather-induced restriction of outdoor activity, lingering bereavement, and extraneous financial burdens. Genetic polymorphisms linked to circadian period lengthening have been shown to worsen depression in women. Summer SAD should be considered in residents of retirement communities with similar complaints.

C54

Phenytoin Toxicity Mimicking Psychosis! A Measure of Serum Albumin Provides the Clue

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Background

Adverse Drug Events (ADEs) are common in the old due to altered pharmacokinetics and dynamics. ADEs are a consideration with new presentations or syndromes. Serum albumin seldom receives consideration, and may provide the clue.

Case

73 year old female hospitalized with visual hallucinations. She described "seeing ghosts, who spoilt her food". At baseline she is communicative and, makes her needs known. She had systemic lupus, old stroke, hypertension, chronic kidney disease. She was afebrile, alert, oriented, no nystagmus. She scored 24/30 on MMSE. WBC count normal. Serum creatinine 2.9, eGFR 19; serum albumin 4.4 g/dl, liver function normal. CT head: chronic microvascular disease. Urinalysis: pyuria; treated with antibiotics. Psychiatry consult: does not have psychosis.

Day 6: she has seizure activity and unresponsiveness, diagnosed as status epilepticus. Hypoglycemia, hypoxia and electrolyte disorders excluded. She received lorzepam and phenytoin. Seizures were deemed secondary to old stroke, confirmed by EEG; she was placed on lacosamide, levetiracetam and phenytoin. Phenytoin level was therapeutic at 13.6 mg/L. Visual hallucinations worsened; psychiatric evaluation: add quetiapine. Phenytoin level was 14.3 mg/L; her serum albumin level was lower at 3 g/dl. Corrected phenytoin level was 20.4 mg/L (Sheiner-Tozer equation), above therapeutic level, increasing to 28.4 shortly. Phenytoin dose was decreased; hallucinations improved to baseline.

Discussion

Phenytoin is a relatively safe antiepileptic drug. High levels cause incoordination and mentation changes. It is largely bound to albumin. Unbound or free phenytoin is pharmacologically active and eliminated via hepatic hydroxylation. Saturation of hydroxylation enzyme occurs within therapeutic range, with elimination of a fixed percent of drug over period time. This results in increase in half-life of phenytoin and steady state. Even a slight increase over therapeutic level causes an increase in free phenytoin level. Hypoalbuminemia alters protein binding of phenytoin with increase in free active form. Total phenytoin level is misleading as free level can't be inferred.

Lessons learnt

New clinical presentations warrant consideration for an ADE.

In this case, phenytoin was the causative agent; predisposition was a low serum albumin.

C55

Acute onset of delirium and a broken heart from goals of care discussion

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Introduction

As physicians, we often engage patients and families in goals of care discussions in the context of advanced illnesses. These discussions are challenging for numerous reasons. We present an atypical case of a woman, who experienced acute onset of confusion, numbness, chest pain, and abdominal pain, after initiating a discussion on her husband's prognosis.

Case

A 70 y/o female with HTN and anxiety, developed sudden onset of confusion, headache, upper extremity weakness, lightheadedness, substernal and epigastric pain after initiating a discussion on the prognosis of her terminally ill husband. She was sent to the ED for suspicion of having a CVA. On evaluation, she was afebrile and hemodynamically stable. Her confusion was transient and resolved within an hour. Physical exam was without focal deficits. CT of the head revealed no acute intracranial abnormalities and no evidence of perfusion or flow limiting defects. EKG revealed no abnormalities indicative of ischemia. Serologic workup was remarkable for a troponin that increased from 0.05 ng/mL to 1.57 ng/mL over 6 hours. She was admitted and treated with an NSTEMI protocol. An echocardiogram revealed normal LV size and thickness but a mid-distal septal, apical akinesis without thrombus and an estimated LVEF of 30-35%. The following day, a left heart catheterization revealed mild

nonobstructive coronary disease and an abnormal left ventricular wall motion with elevated left ventricular end-diastolic pressure consistent with stress cardiomyopathy. She was stabilized and discharged with metoprolol and grief counseling support.

Discussion

Stress cardiomyopathy is associated with severe emotional or physical stress that can cause rapid weakness of the heart muscle. This case highlights a unique yet rare complication of goals of care and prognostication discussions with patients' families. Delivering bad news is very challenging itself, and when compiled with physical manifestations of symptoms, it can be even more so. Our patient developed a constellation of symptoms that manifested from a "broken heart" or stress cardiomyopathy, that after investigation, was attributed to hearing about the terminal state of her husband's illness. Although its mechanism of myocardial stunning is still unknown, it should remain a possible complication of discussing goals of care or delivering news to loved ones of a patient.

C56

I don't know how to keep this patient out of the hospital!

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Background:

Flash pulmonary edema is a kind of pulmonary edema that develops suddenly and is commonly associated with preserved systolic function in the absence of coronary ischemia. The trigger for decompensation is often diastolic dysfunction secondary to a hypertensive crisis. We present a case of recurrent hospitalizations due to recurrent flash pulmonary edema in the absence of hypertensive crisis, and stress on the need to complete a diagnostic work-up and specific management of its cause.

Case:

A 88-year-old female with history of hypertension, coronary artery disease, ischemic cardiomyopathy status post percutaneous coronary intervention, atrial fibrillation, heart block status post pacemaker implantation, was admitted 3 times over 4 weeks because of flash pulmonary edema in absence of coronary ischemia or hypertensive crisis, despite optimal guideline-directed medical therapy for cardiomyopathy. She had normal cognitive function, was independent for activities of daily living and adherent to medical therapy. Work-up for other causes of cardiogenic pulmonary edema was negative, except for moderate to severe degenerative mitral regurgitation. Given she was a very high-risk candidate for open heart surgery, she underwent successful percutaneous transcatheter mitral valve edge-to-edge repair with MitraClip, with subsequent improvement of symptoms, and no re-admissions to date.

Discussion:

Recurrent pulmonary edema or heart failure exacerbation in the elderly is associated with frequent hospitalizations and poor quality of life. Causes of cardiogenic pulmonary edema also include aortic and mitral valve disease, arrhythmias, atrial myxoma, unilateral or bilateral renal artery stenosis and high-output states, such as anemia and thyrotoxicosis. Due to misconceptions about aging, and limited access to medical care, elderly population are at high risk of not getting evidence-based therapies with high impact in improving both quality of life and health care expenditure.

Conclusions:

Management of flash pulmonary edema comprises both diuresis and identification and management of the causing medical entity. Care plans should be based on expected survival and patient's preferences and goals of care.

C57

His lungs sound horrible

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Background:

Dyspnea is a common problem in the older adults. Being linked to multiple causes make it a diagnostic challenge. Amiodarone pulmonary toxicity (APT) is an overlooked cause of dyspnea in the elderly population. We present a case of APT and analyze the factors that led to a delayed diagnosis.

Case:

A 77-year-old man with history of hypertension, coronary artery disease and atrial fibrillation was admitted for chest pain and shortness of breath for 4 days. Chest pain resolved with intravenous nitroglycerine, but given persistent dyspnea he was started on ranolazine, with no improvement. Few days later he presented with diffuse rales and developed respiratory failure and widespread pulmonary infiltrates, requiring non-invasive ventilation. He was afebrile and clinically euvolemic. His dyspnea was deemed out of proportion to any cardiac issue, and he did not have a known pulmonary disease. After thorough medication reconciliation with family, it was noted that patient had difficulties managing his medications at home and that he had been intermittently on amiodarone for 18 months. APT was suspected. Dyspnea slowly improved after subsequent discontinuation of amiodarone and treatment with steroids. Amiodarone was added to his allergy profile, and his outpatient pharmacy was notified. He returned to his baseline and has been able to go hunting (his favorite pastime) afterwards.

Discussion:

History and physical exam give clues to the cause of dyspnea but can be difficult in the elderly. APT should be suspected in any patient taking amiodarone who has new or worsening symptoms and/or new infiltrates on chest x-ray. Diagnosis can be delayed due to the presence of cardiac or pulmonary comorbidity, empiric treatment of more common causes of dyspnea and inadequate medication reconciliation due to time constraints during patient care and patient's cognitive impairment. With early detection, the prognosis is good. Most patients diagnosed promptly respond well to the withdrawal of amiodarone and the administration of corticosteroids.

Conclusions:

A high index of suspicion of APT in the elderly is needed to achieve early diagnosis and to improve prognosis. Geriatricians should be familiar with the recommendations for monitoring of amiodarone side effects.

C58

More than Meets the Eye: Globe Rupture in a Blind Older Adult

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Background: Globe rupture with iris prolapse arises from the disruption of the outer membranes of the eye. This can occur in older adults with rupture at areas of thinning in the sclera or cornea, e.g. from exposure keratopathy, descemetocele, prior surgical wounds and even minor trauma. Symptoms include vision loss, pain, and leakage often mistaken for tears. The diagnosis of globe rupture is often not immediately apparent in older adults. After globe rupture, there is a high risk of developing endophthalmitis and even sympathetic ophthalmia. Globe rupture and any preceding condition, such as descemetocele, mandate urgent ophthalmology consultation.

Case: A 94-year-old home-bound female with left eye blindness from birth due to forceps trauma received a corneal graft transplant 30 years ago for cosmesis. The family noted a new "bulge"

over the cornea. She denied recent injuries, surgeries, trauma or falls. Medications: topical bimatoprost, brimonidine, dorzalamide, prednisolone and artificial tears. On a home visit, symptoms including itching and occasional tearing without pain were noted. Examination revealed mild conjunctival injection with a hazy, raised area over the corneal graft. On urgent ophthalmology consultation, she denied pain, flashes, floaters or vision changes. Examination revealed no vision, a failed corneal transplant with corneal perforation and a ruptured globe with the iris protruding through a 2mm defect that was beyond repair. She was given antibiotics and subsequently underwent left eye enucleation.

Discussion: This case demonstrates the importance of screening patients who complain of minor symptoms for globe ruptures. Although globe rupture often occurs after trauma, it can spontaneously occur in the older adult population due to age-related structural changes in eyes. Symptoms of globe rupture can be missed in a legally blind patient, such as in this case. Our patient's only symptoms were tearing and itching. Delayed diagnosis can lead to orbital cellulitis and cavernous sinus thrombosis. In addition, older patients may exhibit limited recovery capacity or lower functional capacity in their eyes. Patients should be assessed for symptoms of globe rupture since early treatment can prevent further complications such as endophthalmitis and enucleation.

C59
Migraine Presenting as Paroxysmal Behavioral Events in a Nonagenarian

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Case presentation

A 93 year old female patient of the geriatric home care program, with Parkinson's disease, dementia, depression and anxiety, had 2 months of recurrent transient unresponsiveness with unintelligible speech, screaming, laughing or crying, and arm flailing. These occurred 3 times weekly, lasting 15-30 minutes, after which she returned to normal and could recall the events.

She twice visited the emergency department. She displayed no lateralizing neurologic deficits or seizure-like activity. Basic metabolic tests and a computed tomographic brain scan were unremarkable. She began a trial of levetiracetam 250mg daily for possible seizures.

One month later, she had an episode while at her first appointment in the neurology clinic; she became silent, forcefully closed her eyes and intermittently jerked her arms. She opened her eyes to pain and said "ow." This lasted 10-15 minutes. The neurologist prescribed 12.5mg of quetiapine nightly for possible conversion disorder and reported insomnia and anxiety. A routine electroencephalogram was normal and levetiracetam was stopped.

Over the next 4 weeks the events continued. Quetiapine was stopped for inefficacy and daytime drowsiness. She instead received mirtazapine 7.5mg nightly, and her chronic citalopram dose was increased.

After another 4 weeks of these events occurring 2-3 times weekly, the team considered a diagnosis of late life complex migraine, and began a trial of nortriptyline 10mg nightly in place of mirtazapine. In the subsequent 2 months, she had only 1 episode.

Discussion

Paroxysmal behavioral events may represent epileptic or psychogenic seizures, transient ischemic attack, migraine, rarer vascular conditions and encephalopathies. In this case, the core symptom was global aphasia, and was accompanied by inappropriate expressions and movements. Late life migraine is commonly unrecognized. There is usually no associated headache. The most common symptoms are visual and/or speech disturbances. In this case, the predominant aphasia, and impressive response to nortriptyline, are highly suggestive of late life complex migraine. Tricyclic antidepressants are a first line treatment option for migraine prevention. Low doses should be considered in older adults.

Conclusion

Late life complex migraine should be considered in cases of paroxysmal behavioral events in older adults, and may be treated successfully with nortriptyline.

C60
Recognizing Herpes Zoster and its complications as a determining factor in the quality of life of the elderly.

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Background: Two thirds of people with Herpes zoster (HZ) are 50 years or older. Postherpetic neuralgia (PHN) the most common complication of HZ, occurs in about 20% of patients 60 to 65 years of age. HZ and PHN can lead to poor Quality of Life (QoL) changes in the elderly including decline in functional status. We present a case of HZ and PHN, negatively impacting the QoL in an elderly patient.

Case: 67 year old female with hypertension, hyperlipidemia, hypothyroidism, asthma, DM2, osteoporosis, and cirrhosis was admitted to our rehab s/p left hip fracture secondary to a fall. One month earlier patient had an episode of facial herpes zoster s/p post herpetic facial pain that may have led to her fall, and decline in her functional status. Patient at baseline was independent in BADLs/IADLS. Upon rehab admission, her functional status noted to be Max Assist in Bed Mobility and Transfers. Later, patient developed a new shingles outbreak; with significant decline in her QoL due to pain. Patient was instantly treated with PO Acyclovir and Gabapentin.3 days into treatment patient showed great improvement in her functional status, walking 300ft stand by assist with a walker and was discharged within a week with resolution of the rash.

Discussion: Treatment of HZ with Acyclovir should be started immediately, within 48hrs of rash onset. Treatment of PHN focuses on preventing a chronic pain syndrome with either Gabapentin, Pregabalin, or TCAs such as Amitriptyline as first line treatment. Topical Capsaicin can be used as an adjunct. Other anticonvulsants such as Valproic acid are gaining more attention. For elderly patients with shingles, assessing QoL and providing immediate treatment and adequate pain control is essential. Prevention of PHN involves either immediate treatment of acute zoster or the use of a vaccine to decrease the incidence and severity of acute zoster and PHN.

Learning Points:

HZ and PHN, are very common in the old and should be recognized as one of the probable etiologies of impairment in functional status and quality of life in elderly patients.

It is paramount for physicians to diagnose and treat HZ and PHN as early as possible and healthcare policymakers to implement effective protective measures such as vaccination against HZ in order to prevent chronic pain syndrome which could have a devastating effect on patients QoL and functional status.

C61
FAME: Falls Assessment of Medications in the Elderly Program

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Background: Falls are the most common medication-related safety events in older adults. Deprescribing fall-related medications is a key step in reducing falls. We developed a pilot program to improve medication safety in older Veterans. **Methods:** The Veterans Affairs Regional Data Warehouse is queried monthly using health factors, pharmacy records, and demographic data to identify Veterans receiving primary care at high falls risk and with prescription for 1 or more fall-related medication classes. An e-consult with deprescribing recommendations is completed by a multidisciplinary team,

with standard evidence-based algorithms to guide recommendations on reducing fall-related medications. Deprescribing targets include psychoactive, anticholinergic, and antihypertensive or hypoglycemic medications. After the PCP approves the e-consult, the team implements the deprescribing plan with the Veteran during 1-2 telephone visits, and a 30-day follow-up phone call. Outcomes include process measures (the proportion of patients with deprescribing recommendations; proportion of recommendations accepted by PCP and Veteran; proportion of recommendations implemented at 3 months), and clinical outcomes (change in Drug Burden Index, before and 3 months following e-consult; adverse deprescribing events at 30 days; ED/acute visits for fall or fall-related injury in 1 year). Baseline prevalence of fall-related medications in the target population is presented below. **Results:** A total of 18,727 Veterans aged ≥65 years receive primary care in our VA Health System, of whom 9324 (49.8%) were at high fall risk. Of these, 6959 (74.9%) were on at least 1 target medication, 1849 (20%) on 2, 1497 (16%) on 3, and 1050 (11%) on 4. Overall, 5355 (77%) were exposed to at least 1 psychoactive or opiate medication. Exposure was highest to antidepressants (3333, 35.9%), diuretics (2928, 31.5%), and alpha-blockers (2746, 29.6%). **Conclusions**: The use of fall-related medications is prevalent among older Veterans who are at high fall risk and supports the need for implementation of the Falls Assessment of Medications in the Elderly (FAME) Program.

C62
A Systematic Review of Outcomes in Food Provision Studies for Older Adults

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Background: Approximately 10% of older adults living alone and almost 60% living or staying in long-term institutions are undernourished. They also face the negative consequences of obesity due to low nutrient-density, sugary, and processed meals. This can lead to progression of chronic disease and increased hospitalizations. Also, adherence rates with diet recommendations are less than 50%. Medically-tailored meals provide patients a viable option to improve adherence and positively impact health outcomes. This systematic review examines the clinical impact of food-provision studies in older adults.

Methods: Pre-specified search terms were used in multiple databases, including MEDLINE, CINAHL, and Cochrane Central Register of Clinical Trials. Studies between January 1, 2013-May 1, 2018 were included where participants were provided a portion or full meal. Studies that met inclusion criteria underwent data extraction and appraisal by two researchers independently using a published tool.

Results: Searches yielded 229 articles for further review and 9 studies met the criteria for inclusion (N=765 patients). Adherence in 2 studies ranged from 98-99% (N=148 patients). Six studies were caloric intake or glycemic index interventions, and the remainder were nutrient-specific studies. Clinical outcomes included: significantly lower SBP and improved HDL (p<0.001, p=0.044), lower depression rates (65-67% lower odds), significant increases in weight and fat free mass for undernourished (p<0.05), improved protein intake (p<0.05) and significant decrease in infectious complications (p=0.008). In one study, older adults' satisfaction rates were 90% for the meal delivery service.

Conclusions: Results were promising with significant improvement in key factors for older adults, such as reduction in markers of chronic disease, including blood pressure, cholesterol and non-fat weight gain in malnourished adults. Also, patients were adherent to meals with a 90% satisfaction rate. Obese and malnourished older adults are estimated to have 8.5% higher healthcare costs ($1,496/pp), and account for $4.3 billion in annual costs, respectively. Providing medically-tailored meals may improve clinical outcomes and result in substantial health savings.

C63
Using a novel measure to engage older adults and home health providers in evaluating hospital-to-home care transition quality

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Background: Older adults requiring skilled home health care (SHHC) after hospital discharge are among those at highest risk of re-hospitalization and adverse events. Previously, we conducted a multi-site study at sites of the largest SHHC agencies in the U.S. to develop the "Index of SHHC Transition Quality"—a count of safe transitions practices. This study's objectives were to conduct a pilot study to: 1) assess the feasibility of real-time Index use during transitions; 2) describe the occurrence of safety threats from researcher, SHHC provider, and older adult/caregiver (OA/C) perspectives; and 3) identify concordance/discordance in care transition quality ratings.

Methods: Pilot feasibility study of 50 recently hospitalized older adults referred for SHHC services at one agency. We observed each initial home visit and used the Index to rate the quality of the hospital-to-SHHC transition. We asked older adults, their caregivers, and their SHHC providers (n=9) to do the same. We performed descriptive analyses and Fisher and pairwise kappa tests to fulfill study objectives.

Results: We successfully recruited our target sample size of 50 patients; consent rates were high (>95% of those approached). Index completion time was <10 minutes with no missingness. The vast majority (86%) of transitions had at least one safety issue. SHHC providers identified fewer transition threats than researchers or OA/C (p<0.05). OA/C identified more threats than researchers and SHHC providers in the following areas: medication list accuracy; timeliness of visit; home safety; expectations about home health; use of equipment/supplies; and ability to navigate the healthcare system.

Conclusions: Hospital-to-SHHC transitions are risky and require targeted improvement efforts. The Index identified safety threats and was feasible to use. Older adults and caregivers identified more threats than did SHHC providers and should be key stakeholders in safety reporting and improvement efforts. Study findings can guide the design of patient-centered interventions to improve the high-risk hospital-to-SHHC transition.

C64
Geriatric/Palliative: new innovative model of care for frail older adults in the community

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Background: Baystate Health Geriatrics Workforce Enhancement Program (GWEP) has developed a Geriatric/Palliative interprofessional consultation team (IPT) focusing on frail older adults in our community. Clients are Community Health Center NextGen ACO patients referred to IPT, or identified as high risk due to frequent hospitalizations or emergency room visit. We provide a comprehensive team approach to clients and care partners at home or in clinic as appropriate. The team consists of: an Advanced Practitioner (AP), a registered nurse (RN), social worker, (SW) community health educator (CHE), caseworker (CW), medical assistant (MA) and a geriatrician.

Methods: The enrollment visit (NP/RN) focuses on geriatric syndromes: falls, depression, constipation, incontinence, polypharmacy, pain, memory, sleep, nutrition, vision, and hearing. Medication reconciliation, home safety assessment, and review of health care proxy are completed and educational materials provided. The second visit (NP/MA) focuses on screenings: depression, falls, cognition, and caregiver burden. At the third visit the NP completes cognitive testing

and advanced care planning. All clients are discussed with IPT following every visit. Based on client and care-partner needs, follow up visits continue with appropriate team members.

Results: In 3.5 years we have seen 570 new clients for a total of 1,327 visits in clinic and at home. Approximately 60% of clients were Caucasian, 22% African American, 18% other. 68% identified as Hispanic, 30% as non-Hispanic, 2% unknown with a mean age of 75 years. 64% were female and 36% male. A focus on work flow and improving the rate of screening delayed an analysis of outcomes.

Conclusion: Our innovative consultation model of care responds to the needs of high utilizer, frail older adults and care-partners in our community, as well as supporting primary care clinicians through this team approach which stresses identifying geriatric syndromes and prioritizing advanced directives and goals of care conversations. We have also focused on education and prevention to limit unsafe driving and decrease falls and caregiver burden, increase socialization, and decrease hospitalizations and ED visits thereby contributing to cost savings.

C65

Medication reconciliation error on acute care hospital to skilled nursing facility discharge

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Background:

Errors during transitions of care would bring worse outcomes. 66% of adverse events on transitions are medication related. So far there is no study to look for medication error incidence rates on skilled nursing facility (SNF) discharged patients.

Methods:

We reviewed medical records of Cleveland Clinic Main Campus patients who were discharged to SNFs within a 25-mile radius of the hospital on July and December 2014. Three physicians reviewed the medication list of discharge summary / instructions and compared the list of medications in the medicine administration record and prior hospitalization medication list. We defined medication reconciliation error as the discrepancy including omissions, duplications, dosing errors, or drug interactions which leads to, or has the potential to lead to, harm to the patient which 3 reviewers should agree on. Cleveland Clinic's Institutional Review Board approved the study and waiver of informed consent.

Results:

In July 2014, there were 100 SNF discharged medical patients who met our inclusion criteria. 32 (32.0%) patients were discharged with any medication reconciliation errors. In December 2014, there were 120 SNF discharged medical patients who met our inclusion criteria. 37 (30.8%) patients were discharged with medication reconciliation errors. We looked at the provider characteristics. Advanced practice providers discharged 31 patients and 13 (41.9%) patients had medication reconciliation errors. House staffs discharged 133 patients and 46 (34.6%) patients had medication reconciliation errors. Hospitalists discharged 56 patients and 10 (17.9%) patients had medication reconciliation errors. (p=0.02) Types of errors were omission (N=13), addition (N=18), duplication (N=9), Inappropriate continuation of home medication (N=11) and other inappropriate prescribing (N=18).

Conclusions:

31.4% of patients who were discharged to SNF had medication reconciliation errors. This was quite higher than we expected. And there was no so-called July-Intern effect. (p=0.89) And provider characteristics affected medication reconciliation error. (p=0.02) We need to focus on systemic efforts to reduce medication reconciliation, especially on SNF discharged patients.

C66

Management of urinary tract infections and asymptomatic bacteriuria in a Veterans Affairs Community Living Center

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Background

Urinary tract infections (UTI) and asymptomatic bacteriuria are common among older adults, however, distinguishing asymptomatic bacteriuria from UTIs remains challenging. UTIs are often overdiagnosed and overtreated on the basis of nonspecific symptoms in this population. The CMS reform of requirements for long-term care facilities required establishment of antimicrobial stewardship programs. We aimed to evaluate diagnosis and treatment of UTIs and asymptomatic bacteriuria in a Veterans Affairs (VA) Community Living Center (CLC) as an antimicrobial stewardship initiative.

Methods

This is an observational, retrospective, single-center study to evaluate management of UTIs and asymptomatic bacteriuria in a VA CLC. Patients were included in this study if they resided in the CLC and received antibiotics for a presumed UTI between 7/1/16 and 1/1/17. The primary outcome was number of patients who met the modified McGeer or Loeb criteria for UTI diagnosis. Secondary outcomes were evaluation of drug selection, dose, duration, documentation of symptoms, laboratory-confirmed UTI, and use of urine culture data.

Results

A total of 20 presumed UTI cases were included. All occurred in males with an average age of 76.4 years. Using the modified McGeer and Loeb criteria, 65% of patients did not meet criteria for diagnosis of UTI. Only 50% of urinalysis results were suggestive of UTI based on presence of pyuria and bacteriuria. All antibiotics were dosed appropriately based on renal function, 80% were selected or adjusted based on culture data, 35% were continued for a prolonged course of 14 days. The most common UTI symptoms were dysuria, new or worsened incontinence, change in urine character or acute change in mental status. Presence of symptoms was not clearly documented in many cases.

Conclusion

More than half of patients treated for UTI did not clearly meet criteria for diagnosis based on presence of new or marked worsening of genitourinary or localized symptoms. This may be due to lack of proper documentation or suggestive of inappropriate treatment of asymptomatic bacteriuria. Development of facility-specific treatment algorithms and standardized electronic medical record templates will serve as practical tools to improve treatment.

C67

Implementation of a Volunteer-Based Hospital Visitation Program for Older Adults

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Background: A multi-faceted, volunteer-led, hospital-based program has been shown to reduce the incidence of delirium, decrease length of stay, and reduce hospital costs.1 Implementation of such a program requires upfront investment. It is our hope that a smaller, volunteer-based visitation program for older adults will provide support for the allocation of hospital resources in delirium prevention. Data collected during the pilot period showed that it is feasible to implement a volunteer-based visitation program. This research aims to further investigate the program using the complete data set.

Methods: Data were collected from 11/13/17-11/18/18 and took place on multiple units in a large, urban academic medical center.

Volunteers were trained to complete structured activities based on the Hospital Elder Life Program with patients referred by nurses and physicians. Volunteers completed a questionnaire about each patient visit. Data from the questionnaires were compiled, including quantitative and qualitative measures.

Results: 56 volunteers were trained over 8 sessions. A total of 1157 visits were attempted by volunteers. 1033 successful visits occurred, with 15% of patients seen more than once. 78% of attempted visits were less than 30 minutes. Orientation and conversations accounted for 67% of activities performed. Patient age ranged between 27-94 with an average of 72, with 81% of patients older than 65. Comments from volunteers included concern about patient well-being and suggestions for other activities to incorporate.

Conclusion: The majority of patients were seen for fewer than 30 minutes and only once throughout the stay. The additional data demonstrate continued interest among volunteer staff. Future training should focus on continuity. New data collected contains patient identifying information which will allow for further investigation of outcome data and the program's impact on delirium rates. This research provides evidence that it is feasible to implement a volunteer-based visitation program.

Reference: 1. Inouye SK, et al. The Hospital Elder Life Program: a model of care to prevent cognitive and functional decline in older hospitalized patients. Journal of the American Geriatrics Society 2000;48:1697-1706.

C68
Overcoming Medication Management Challenges for Older Adults at Home
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Background

Appropriate medication use can keep older adults healthy and independent. Increased medication use and aging is associated with polypharmacy and increased risk for medication mismanagement. C-MEDS provides brief, in-depth customized medication safety, management and support intervention services to adults 55+ with medication safety issues. Services are provided at-home by trained pharmacists, nurses and pharmacy technicians. Medication safety issues are identified, a patient-specific medication care plan is developed and clinical, educational and support services are provided. We present initial findings from a program evaluation.

Methods

Referrals are from the community and local providers. The team conducts a medication use assessment that includes medication review. A care plan is developed to address identified issues, education, medication access or disposal services are provided. Data are collected at enrollment and the end of the intervention period. We report on 135 C-MEDS applicants, of which 66% are female with a mean age of 73 (SD=8.5). Patient population is diverse: 43% white, 19% African American, 28% Hispanic/Latino, and 9% Asian/Pacific Islander. Number of routine prescription medications taken averages 8.6 (SD=4.4). One-third (37.6%) lacked prerequisite cognition/literacy requirements, 34.8% had an unplanned ER visit and 1.41% had a fall in the prior 6 months. Descriptive analysis and paired sample t-tests are used to describe the sample and outcomes. Primary outcomes include reduction in number of medication problems and increases in medication knowledge, medication adherence, and coordinated medication system management.

Results

Significant issues with medication management, especially adherence, were reported by 58% at enrollment. Median length of service was 10 weeks. At program completion, pill counts demonstrated significantly higher adherence rates (p<.001; pre-program, 38.4%; post-program, 71.7%). Improved self-efficacy (MUSE) from enrollment to completion was seen (p<.001; pre-program, 25.6%; post-program, 28.7%). Risk for medication non-adherence (MedAdhIR) improved (p<.001; pre-program, 4.8%; post-program, 1.7%).

Conclusions

We show that at-home medication safety support services can be successfully implemented and reduce medication problems and increase adherence.

C69
Assessment of Caregiver Burden using NW Cognitive Impairment and Dementia Registry
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Background: Dementia negatively impacts patients, families, and can burden health systems. In 2011 we created a Collaborative Dementia Care Program with Geriatric Medicine, Psychiatry, Neurology, social workers, and nurses to improve processes for Veterans with cognitive impairment. The foci of this team included specific diagnoses, appropriate medication prescribing, behavioral management, advance care planning, and caregiver assessment/support. We created a Cognitive Impairment and Dementia Registry to track outcomes and facilitate ongoing quality improvement. Goals for this project included description of caregiver burden and the efficacy of caregiver-focused interventions.

Methods: Within a sample of primary care patients seen in the VA Portland Health Care System as of October 20, 2018, we used the Cognitive Impairment and Dementia Registry to assess prevalence of dementia and number of patients with diagnosis of dementia who had caregiver assessments using Zarit Burden Interview screen or Care Coordination Home Telehealth Caregiver Risk Assessment. Using Dementia Social Work Caregiver Consult/Support, documented Dementia Caregiver Support, and documented advance care planning or advance directive discussion, we compared caregiver assessment and documented interventions.

Results: 63,131 patients were identified on the registry on October 20, 2018. Of those patients, 2,250 (3.6%) patients had a diagnosis of dementia on their problem list. Only 234 (10.4%) had documentation of caregiver assessment despite 1,928 having documentation of an advance care directive. Caregiver assessment included either ZBI screen or CCHT score, and only 73 (31.2%) had more than one ZBI or CCHT score. Only 59 (25.2%) patients had a caregiver focused intervention in addition to advance directive, thus there was limited data to correlate intervention and caregiver burden assessment.

Conclusion: Despite available Cognitive Impairment and Dementia Registry to track Veterans with dementia, documentation of caregiver burden, specifically caregiver support, was not evident in our sample. This sets the stage for more concerted efforts to improve and document these interventions in veterans with dementia. Future directions should be aimed at implementing specific caregiver assessment tools so that further studies can assess if specific interventions are able to reduce hardship.

C70
Why are geriatric patients readmitted to the hospital?
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Background

Reducing readmissions is a priority to improve care of medically complex and frail older adults, but underlying causes of readmission are poorly understood. We conducted root cause analysis of all 30-day readmissions as part of a quality improvement project to reduce readmission to a Geriatric Acute Care and Evaluation (ACE) unit.

Methods

Investigators used published research literature on readmissions and an existing hospital transitions tool to design a chart review tool. They categorized factors contributing to readmission as *inpatient clinical, outpatient clinical, patient choice, patient intrinsic* and *system* factors. Geriatricians used the tool for root cause analyses on all 30-day readmissions cases, and noted if factors were actionable and by whom. When the main contributing factor was actionable, a case was deemed avoidable. The inpatient service director, geriatric fellows and QI project manager met monthly to discuss all cases.

Results

Investigators reviewed 45 readmissions of 41 patients during a 7 month study period. Readmitted patients had a mean age of 76, 56% were re-admitted from home and 37% from nursing facilities. Only 6 (13%) cases were avoidable, due to inpatient failures to address functional and/or cognitive impairments, provide an accurate medication list, or give adequate caregiver training and discharge instructions. Most cases (87%) were deemed unavoidable. *Intrinsic* factors were cited 62 times, usually *serious illness with inevitable decompensation*. In a majority of cases the primary contributing cause was deemed unavoidable for social contextual reasons and/or progressive chronic disease.

Conclusions

Root cause analyses provide a mechanism to understand why frail and medically complex older patients are readmitted to the hospital. In a majority of these cases the primary cause was deemed unavoidable, reflecting the concept that not all readmissions are preventable, and the need for a more realistic, actionable hospital care quality metric than 30-day readmissions rates. Through chart review the research team glimpsed the impact of access, social support, and education gaps, and recognized the need to incorporate patient and caregiver perspectives for a more nuanced understanding.

C71

Identifying and overcoming barriers to gait speed and foot assessments in a multidisciplinary geriatrics consult clinic

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Background:

Gait speed has been associated with survival in older adults (Studenski S et al., 2011) and is an important component of the assessment of frailty. A brief foot exam, with attention to long and unkempt toenails, may represent a window into function and access to adequate support in the healthcare system (Orkaby AR and Schwartz AW, 2018). Both examinations are essential to the comprehensive geriatrics examination. Despite the utility and relative ease of these low-cost assessments, they are performed with lower frequency than other parts of the physical examination, even in a specialized geriatrics consult clinic. The goal of this project is to identify barriers to gait speed and foot assessments in a multidisciplinary geriatrics consult clinic staffed by medical trainees.

Methods:

A quality improvement project underpinned by Plan-Do-Study-Act (PDSA) methodology was undertaken. Trainees in the clinic were instructed in measuring gait speed and performing foot exams. A chart review was performed to determine the baseline rate of these examinations over a six-month period prior to initiation of PDSA cycles.

Results:

Baseline measurements of 25 patients (10 new consults, 15 follow-up), with an average age of 81.2 years, revealed that gait speed was documented in 20% (2 of 5 had a gait speed less than 0.8 m/s). A foot exam was documented in 84%. The prevalence of long toenails was 14% among 21 patients with foot examinations; 36% of patients reported cutting their toenails themselves, while others relied on a podiatrist for foot care. A cause-and-effect fishbone diagram revealed several categories of barriers to completion of these examinations:

electronic medical record template, time constraint, clinical prioritization, lack of standardized assessment, and patient factors including lack of mobility aid or declining assessment (e.g. fear of falling or out of a sense of modesty in declining foot exam). PDSA cycles were planned to overcome each of these barriers with the goal of improving rates of gait assessment and foot exams.

Conclusions:

The rates of gait speed and foot assessments in a comprehensive multidisciplinary geriatrics consult clinic were suboptimal due to a number of modifiable factors. These exams may reveal hidden markers of rising risk of adverse outcomes in older adults.

C72

Using Clinical Video Telehealth to Provide Support to Rural Veterans' Caregivers

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Background: Attending support groups is one way to help caregivers caring for those with dementia. However, in rural areas support groups are less available because of scarcer resources and increased travel time. Use of telehealth may help fill this gap in services. The VA Pittsburgh *TeleDementia clinic* has provided interdisciplinary care (geriatric medicine, geriatric psychiatry, psychology, social work) using clinical video telehealth to rural Veterans with cognitive decline since 2013. A telehealth support group for caregivers was added in 2016.

Methods: Caregivers with Zarit Burden scores ≥ 17 (high caregiver burden) were targeted for inclusion in the telehealth support group. Of 129 eligible primary caregivers, 14 chose to attend monthly video telehealth support groups. These two groups were compared and effect of caregiver support group attendance on Zarit Burden score was assessed. Univariate and bivariate relationships of continuous variables were conducted to determine means and correlations. Means were analyzed using Wilcoxon rank sum tests and Spearman's correlation. Group comparisons of categorical data was conducted using chi square tests and Fisher exact tests.

Results: Zarit burden scores were similar in both groups initially but there was a significant difference in final Zarit score (attend group Zarit=16.5 (8.3), not attend group Zarit= 22.7 (8.7)(p=0.03). Correlations found to be significant with the final Zarit score were last MOCA score (Coeff= -.18, p=.02), ADL score (Coeff -.26, p=.001), IADL score Coeff=-.19, p=.02). Linear regression modeling of the last Zarit burden score while adjusting for a number of factors found only the last MOCA score to be significant (p=.04). Those who did not attend support group were more likely to have greater use of non-VA inpatient care for the Veteran (chi square p=.01).

Conclusions: Caregiver burden, as would be expected, is worse as cognition and function declines in the patient. Use of a support group provided via clinical video telehealth to rural caregivers can improve caregiver burden as measured by the Zarit burden score. Decreasing burden may potentially improve the ability of the caregiver to continue to provide care and may have some influence on use of inpatient services.

C73

Dying at Home: Dispositions for Veterans in the COACH Program at the End of Life

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Background: COACH (Caring for Older Adults and Caregivers at Home) is an innovative interdisciplinary home-based dementia care program which coordinates care and supports caregivers of Veterans with dementia. The goal of the program is to help Veterans with dementia live at home as long as possible.

Methods: We reviewed records of all Veterans enrolled in the COACH program since its inception on 8/30/2010 through 10/22/2018 who had since died, determining the care setting – home, care facility, or hospital – in which they had died. The care settings were then divided into "Home" and "Not at Home." The "Not at Home" category included Veterans who died in the hospital, skilled nursing facility, assisted living facility, and had an unknown location of death. Demographic data was also obtained including age, race, caregiver relationship, dementia level of severity, and length of time in the COACH program and these factors were analyzed as possible predictors for the place of death.

Results: 430 Veterans died after enrollment in the COACH program, 41.4% of whom died at home. The Veterans were stratified based on age <85 or ≥85; race AA or Caucasian; whether the caregiver was a spouse or child; dementia level of severity mild, moderate, or severe; and length of time in the COACH program. No statistically significant differences for location of death were found based on age, race, type of caregiver, dementia level of severity, or length of time in COACH.

Conclusion: Through participation in the COACH program, Veterans with dementia have an increased likelihood of dying at home, regardless of age, race, type of caregiver, dementia level of severity, and length of time in the program.

C74

Impact of Bed Alarm Removal and Implementation of Hourly Rounding to Reduce Falls

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Audible pressure bed and chair alarms in the post-acute and long term setting (PA/LTC) have proven to be an ineffective intervention for reducing falls. A.G. Rhodes Health and Rehab facility (AGR) is a 150 bed non-profit nursing organization situated in Atlanta, Georgia, committed to fall prevention. As a 2 pronged approach, AGR eliminated all pressure alarms from its facility and implemented a patient-centered hourly rounding policy among nursing staff. Fall rates were analyzed before and after pressure alarm removal and after the implementation of hourly rounding.

AGR began removal of bed, chair, and floor alarms in January 2018 with an alarm-free facility achieved by April 1, 2018. Fall rates for 6 months before and after eradication of alarms were compared. Admission and quarterly fall screenings, weekly fall prevention meetings, and individualized fall interventions were continued per the institution's established protocols. Proactive hourly rounding was initiated over a 4 week trial period in October 2018. A staff in-service was held to instruct all clinical staff of the new policy. Hourly sign-in sheets assigned to each resident were used to document staff compliance and were collected by management to provide regular feedback to nursing staff members. Staff to resident ratios remained relatively constant throughout the evaluation period with ratios in the memory unit, long term care, and post-acute floors averaging 4.9:1, 5.4:1, and 4.4:1, respectively.

Rate of falls over the 6 months prior to pressure alarm removal was approximately 246.2 falls per 1000 occupied bed days while rate following eradication of alarms fell to 173.6 falls per 1000 occupied bed days (p <0.001). Fall rate after implementation of an hourly rounding protocol increased to 271.3 falls per occupied bed-days over the 4 week trial period. Compliance of nursing staff was estimated to be 92% based on documented sign-in sheets.

Removal of pressure alarms did not increase rate of falls and in fact were associated with a decline in falls. Implementation of frequent hourly rounding did not reduce falls and interestingly showed a paradoxical association with increased fall rate.

C75

Prevalence of Contamination in Urine Cultures of Older Patients

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Background

Urinary tract infections (UTI) account for 10.5 million office visits nationwide and 3 million emergency department visits each year, with an annual health care cost for hospitalization of over $2.8 billion. This study explored the prevalence of contamination in urine cultures collected across settings within a large health system.

Methods

All urine cultures collected from older adults (65 and over) between 1/1/16 and 12/31/17 in 9 hospitals, 7 nursing homes (NH), and 8 outpatient clinics (OC) were analyzed. Contamination was defined as "growth of three or more types of organisms." Data were analyzed using R Statistical Suite.

Results

A total of 100,308 urine cultures (58% females; average age 80 years, range 65-109) were analyzed from hospitals (n=88,902, 88.6%), NH (n=8,005, 8%) and OC (n=3,401, 3.4%). The overall contamination rate was 8.3% (n=8,355).

Cultures collected in women were twice as likely to be contaminated vs men (10.4% and 5.5%, respectively; OR: 1.99, p<0.001). Urine samples from NH were almost three times more likely to be contaminated vs hospitals (17.9% and 7.5%, respectively; OR: 2.7, p<0.001), while OC samples (8.7%) had similar rates of contamination as hospitals (OR: 1.2, p=0.006).

Binary logistic regression was used, with age as a continuous predictor. Age was inversely related to odds of contamination (b=-0.02, Wald=211.1, p<0.001, OR: 0.98). Data were examined collectively to explore interactions between gender, setting, and age using log-linear regression. Age was coded into three groups: 65-74, 75-84, and ≥85 years.

The odds of contamination was highest for males age 75-84 in NH (21.3%; OR: 1.44, p<0.001), followed by males age 65-74 years in NH (20.1%; OR: 1.34, p<0.01) and then females age 75-84 in NH (19.7%; OR: 1.31, p<0.001). The relationship between males age ≥85 in NH, females age 65-74 in NH, and females age ≥85 in OC was not a significant predictor of contamination (all p>0.1).

Conclusion

Urine contamination rates were twice as high in older females vs males. Yet, the odds of contamination were highest for males aged between 75 and 84 years, residing in nursing homes. Further research is needed to better understand clinical approaches for management of contaminated urines in older adults.

C76

Association of Physical Performance and Patient Reported Functional Decline in Older Patients with Advanced Colorectal Cancer Receiving Chemotherapy

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Introduction: Cancer is associated with frailty, and frail older patients (pts) with cancer are more likely to have functional decline after chemotherapy. Understanding the relationship between baseline physical function and functional decline after treatment can assist oncologists with decision making.

Methods: Secondary analysis of data from an ongoing nationwide geriatric assessment (GA) trial conducted by the University of

Rochester NCI Community Oncology Research Program. Pts aged ≥70 years with stage III/IV solid tumor or lymphoma, ≥1 GA domain impairment and scheduled to begin a new chemotherapy regimen were enrolled. This analysis included only pts with colorectal cancer (CC). Physical Performance (PP) measures, Short Physical Performance Battery (SPPB; an objective validated tool that quantifies lower extremity function and balance) and Timed Up and Go (TUG; an objective measure that identifies older adults at high risk of falling) were used. Outcomes were analyzed using T-tests.

Results: Fifty-nine pts with CC (mean age: 77 years; range: 70-93; 97% stage IV) and scheduled to start a new chemotherapy regimen (36% Fluorouracil, 46% FOLFOX) were evaluated. At baseline, a high prevalence of pts were impaired in SPPB (76%; mean=6.9, SD=3.0) and TUG (44%; mean=12.9, SD=5.7). There was a trend of SPPB decline with chemotherapy; SPPB score declined in 37% of pts (mean change= -0.57; p=0.07) at 6 weeks and 43% of pts (mean change= -0.73; p=0.08) at 3 months. Pts with impaired SPPB at baseline reported more problems with activities of daily living after 6 weeks of treatment (mean change: 0.24 vs -0.77; p=0.04) and more problems with instrumental activities of daily living after 3 months of treatment (mean change: 0.41 vs -0.70, p=0.04). SPPB impairment (vs not impaired) was also associated with mortality within 3 months of treatment (9% vs 0%).

Conclusion: Chemotherapy worsens PP of older pts with advanced CC, and SPPB may predict pt reported functional decline and mortality in these pts. SPPB is an easy objective tool that can aid oncologists in determining which pts will have decline in PP with chemotherapy.

C77
Factors Associated with Dental Symptoms, ED Visits and Hospitalizations in a Sample of Community-Dwelling Older Adults Receiving Coordinated Care

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Background
Older adults often face declining medical, oral, and mental conditions that may be exacerbated by economic and logistic barriers to coordinated care.

Methods
We have developed and tested a community-based care model integrating dental, care coordination, mental health and case management by digital comprehensive geriatric assessment (CGA) and metrics-based referral for older adults at co-located urban senior wellness and dental centers. We hypothesized that dental, medical and psychosocial factors are interconnected and examined the relationship between dental metrics, ED visits and recent hospitalization. We analyzed bivariate associations and odds ratios (OR), adjusted for sociodemographics, for 996 patients ≥65 years seen between June 2016-January 2018.

Results
Mean age was 72, 51% were men, 77% reported pain, 51% had ≥2 chronic medical conditions, 43% reported ≥4 medical and dental symptoms. Most (98%) single referrals were to dental care, 68% of whom had urgent needs, 39% reported toothache, and 14% were referred to care coordination. Dental symptoms were correlated with poorer general health ($r=-0.3$), lower quality of life (QoL) ($r=-0.24$), and isolation ($r=0.23$). Dental urgency was associated with difficulty chewing (OR=3, 95% CI=2.1-3.7), ≥4 dental symptoms (OR=2, 95% CI=1.8-3.2), dental pain (OR=2, 95% CI=1.6-2.7), and self-rated health (OR=1.8, 95% CI=1.3-2.4). Those with ≥4 dental symptoms were more likely to have had recent ED visits (OR=1.6,

95% CI=1.1-2.3) or hospitalization (OR=1.47, 95% CI=1.1-2.1). Predictive factors for recent hospitalization were lack of PCP (OR=3, 95% CI=1-8.5), homelessness (OR=2.6, 95% CI=1.5-4.6), self-rated health (OR=2.5, 95% CI=1.76, 3.59), low QoL (OR=2.4, 95% CI=1.7-3.5), low functional status (OR=2.2, 95% CI=1.5-3.2), hypertension (OR=2, 95% CI=1.4-2.9), and active depression (OR=1.97, 95% CI=1.3-2.9). All p <0.05.

Conclusions
Older adults' health challenges suggest the need for a holistic approach of their medical, dental and psychosocial needs. Comprehensive needs assessment and coordinated care may allow for prioritization of services which may result in effective and efficient care.

C78
Implementation of caregiver stress screening tool in patients with neurodegenerative diseases

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Background
4.6 million new cases of dementia are diagnosed globally each year. Dementia has already become a leading cause of morbidity and mortality with a projected 42 million persons by 2020. Paralleling this rise are persons caring for them. The burden of caring for someone is great and has been shown to be an independent risk factor for mortality. There is also a correlation between poor caregiver mental health and patient mortality. A first line treatment for dementia is caregiver education and support. Recognizing caregiver burden is an important component of being a provider for those with neurodegenerative diseases. The aim of our project was to identify caregivers with stress and facilitate easier access to geropsychology to provide stress management techniques and psychoeducation.

Methods
Using the geriatric population at the Rocky Mountain Regional VA, we screened caregivers of our patients for stress and burden. A screening tool was created using modified questions from the Zarit Burden Interview to be used during established pre-clinic visit phone calls. If a caregiver screened positive, the tool prompted to ask if they would be interested in a same-day visit with our geropsychologist. The goal was to limit office visits and integrate psychological support as part of our interdisciplinary approach to patient care. The primary endpoint was determining the number of caregivers enrolled in geropsychology.

Results
As of November 2018, a total of 17 screens have been collected. Of the 17 collected, 12 screened positive. Of those, eight agreed to a visit with our geropsychologist. There were four caregivers who declined a supportive visit. There was one caregiver who was already receiving caregiver support either through our clinic or outside services. Data collection will continue to April 2019.

Conclusion
Our data demonstrates that a significant number of caregivers (70.6%) experience stress. Two thirds (66.7%) of those screened expressed interest in a visit specifically aimed at providing education and tools to care for themselves and their loved ones. Recognizing the high prevalence of caregivers in the geriatric population, screening for burden may be more appropriately applied on a grander scale in clinical settings that provide care to a large number of patients with neurodegenerative diseases.

C79

Modified Implementation of STRIDE (AssiSTed EaRly MobIlity for HospitalizeD Older Veterans) at one Veterans Affairs Medical Center

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Background: Hospitalization for acute illnesses can precipitate irreversible functional decline in the elderly and lead to falls, prolonged hospitalization, institutionalization and readmissions. STRIDE is an evidence-based supervised walking program that aims to optimize physical functioning through increasing time walking while hospitalized. Previously reported results of STRIDE implementation using a dedicated walk assistant showed decreased likelihood of institutionalization and a trend toward decreased length of stay. Hiring dedicated personnel can be a barrier to implementation. This report describes the fidelity of implementation of STRIDE at a Veterans Affairs Medical Center without a dedicated walk assistant by evaluating the % days enrolled patients received at least one walk >5 min. **Methods:** Patients were eligible for enrollment if they were age >60yo, admitted from home to the inpatient medicine service, ambulatory at baseline and able to follow one step commands. Patients were first assessed by a physical therapist and if appropriate enrolled. Once enrolled patients received supervised walking up to 20min daily until discharge. In this modified implementation walking was supervised by any of 49 existing staff trained as STRIDE walk assistant rather than one dedicated walk assistant. **Measurements/Results:** We evaluated the number and % of eligible days with at least one walk >5 min over a 10 month period. There were 31 patients enrolled with a total of 245 eligible walking days from enrollment to discharge. On 102 days enrolled patients received at least one walk which was 41.6% of eligible days. **Conclusion:** STRIDE implementation without a dedicated walking assistant resulted in eligible patients walking on less than half of eligible days. This may be due to lack of clear roles and responsibilities for staff. Further examination of reasons/barriers at this site is needed to inform future implementation.

C80

Importance of Memory Clinic

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Intro:

There were about 360,000 people living with Alzheimer's in Texas last year. By 2020, that will increase to 400,000 and by 2025 it is expected to be approximately 490,000. In 2014, Alzheimer's was the 6th leading cause of death in Texas and about 6772 elderly adults lost their lives to it. It appears the macro trend of under diagnosing dementia contributes to these outcomes. To help alleviate this challenge, the Internal Medicine Residency Program at Methodist Dallas launched a Memory Clinic to serve the geriatric community's cognition needs. There were two primary objectives; confirm the need of a memory clinic and incorporating Cognitive Assessment in teaching residents.

Method:

The Internal Medicine Program at Methodist Dallas Health System launched a 3-month Memory Clinic at Golden Cross Clinic. The collaborative program was supported by the residents on geriatric electives and the clinic staff membrs. The clinic was scheduled weekly on Thursday afternoons. All scheduled patients were staffed by a Board Certified Geriatrician. Since launch, 8 patients have been scheduled. Of this population, 4 were confirmed to have undiagnosed

dementia. One patient had cognitive impairment while one patient had no cognitive issues. Two patients were "no show".

The encounters consisted of a detailed history including Geriatric history, Depression screen and a Saint Louis University Mental Status Exam (SLUM) test.

The Memory Clinic was also used as a platform for the Alzheimer's Association coordinators to come and educate the scheduled patients and families about the resources available in their community.

Difficulties encountered during the establishment of the Memory clinic were categorized into three groups:

1.Information Technology:

Getting the schedule slot done with the right physician name on Epic Setting up referral in Epic

2.Advertising:

Building awareness of the clinic to patients and families in the community

3.Billing:

Setting billing code 99483

Conclusion:

The memory clinic pilot was a success because 63% of the patients encountered were diagnosed with a cognitive impairment that would otherwise have been undiagnosed. Consequently, these patients would not have received the appropriate care and support needed to manage their diagnosis. Two primary objectives were met. Firstly, we confirmed the need for a memory clinic and secondly, we confirmed through qualitative and anecdotal feedback from the residents that the pilot enhanced their ability to manage geriatric patients with cognitive issues.

C81

The Great Medication Reduction Challenge: Implementation of a Deprescribing Quality Improvement Intervention within a Nursing Home.

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Background: Polypharmacy is commonly seen in nursing homes (NH) and has been associated with an increased risk of delirium, falls, hospitalizations, and other adverse events, especially among older adults with multiple comorbidities. Deprescribing is the process of identifying and discontinuing potentially harmful medications in situations where they may no longer be indicated or where the risks now outweigh the benefits. While previous studies have examined various deprescribing methods, there is no clear evidence demonstrating best practice in implementing this within a long-term care facility. The purpose of this study was to initiate deprescribing in a NH by completing an individual chart review of each resident, challenging and empowering providers to practice medication reduction, and creating an overall culture of change regarding the medication review process.

Methods: The quality improvement project took place at one NH in Rochester, NY, which serves a diverse population with complex care needs, including dialysis, memory care, and ventilators. Chart review of 519 long-term care residents was performed during one-on-one meetings with a geriatrician medical director and medical care team providers. Based upon clinical judgment and review of perceived risk-benefit ratios, consensus was obtained on medications that could be discontinued, dose-reduced, or changed to non-pharmacologic treatments. After implementation of these changes, medical providers were empowered to continue to review and deprescribe. To determine the efficacy of this intervention, a pre-implementation baseline was established and number of medications was measured for 4 months following this intervention.

Results: From March to July 2018, the total number of medications prescribed for all long-term care residents decreased by 19.8%, from 7,218 medications to 5,788 medications. The number of

medications/resident also decreased, from 14.98 medications/resident to 12.06 medications/resident.

Conclusions: Individual chart review of medication lists and empowerment of medical providers to deprescribe was demonstrated to be a successful method of medication reduction in this setting. While this was shown to be efficacious at one NH in the short-term, further study is needed to determine whether this intervention is a sustainable means of implementing deprescribing within the long-term care setting.

C82

Advance Care Planning in Adults Aged 85 and Older in a Continuing Care Retirement Community

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Background: Advance care planning (ACP) is a process in which patients, in partnership with family and their healthcare team, discuss end of life care and make decisions regarding treatment preferences. These preferences are often documented in an advance directive (AD), with the goal being that patients receive care consistent with their values if they are unable to make decisions for themselves. This is particularly important in an older geriatric patient population (age 85 and older), who are at high risk of hospitalization. However, there is little information in the current literature regarding ACP and patient values in this population. We investigated the completion rates and qualitative components of advanced directives in a geriatric patient population aged 85 and older.

Methods: We performed a cross-sectional chart review of a geriatric primary care practice based in a continuing care retirement community. Eligible patients were 85 years and older, living within the ambulatory and assisted living community, and receiving care at the clinic. Data abstracted included age, gender, comorbidities, hospitalization or emergency department visit within 90 days, and AD completed. Patients were considered to have an AD if there was a document uploaded and indexed in the Electronic Medical Record (EMR).

Results: There were 192 patients who met the inclusion criteria. The mean age was 91.1 (SD 4.2), and 132 (69%) were female. In terms of comorbidities, 51 (26%) had coronary artery disease, 36 (19%) had congestive heart failure, and 22 (11%) had diabetes. There were 24 (12%) patients who had been hospitalized or presented to the emergency department within 90 days. Of the 192 patients, 24 (12%) had an AD uploaded in their EMR. In 4 of 24 patients, the AD included only a designated power of attorney (POA). In 18 of 24 patients (75%), the AD included language directing a focus on comfort-based treatment in the event of imminent death. Two patients (8%) included information about values to guide treatment decisions.

Conclusion: Advance directives were documented in the EMR in only a small percentage of patients age 85 and older. The majority of these directives included instructions for comfort based care in the event of imminent death / medical futility, but only two included information regarding the patient's values to help direct medical care.

C83

From Hospital to Home: Factors relating to transitions of care in a FQHC

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Background: "Transitions of care" describes the continuum of care from one care setting to another. Poor transitions are very common, compromising patient safety and quality of care, and increasing risk for readmission. This study was designed to identify the factors that impact transitions of care from hospital discharge to home by surveying patients scheduled at a post-hospitalization clinic at a Federally Qualified Health Center (FQHC).

Methods: From November 2016 to March 2017, a 20 items survey was given to patients presenting for a post- hospital discharge clinic visit at an FQHC in Southern California. Since the no-show rate was 50%, those who missed their appointments were contacted by phone to conduct the survey. The survey, developed by geriatric experts, covered patient knowledge of discharge, including medications, and medical conditions as well as function and caregiving needs.

RESULTS: A total of 62 patients and/or their caregiver were surveyed; 31 in-person, and 31 conducted via phone; 16 in Spanish(16) and 15 in English. Of the In-person survey group, results were significant for 6 (19%) readmissions since discharge and prior to post hospital followup within 7 days. 50% of these readmissions were related to unavoidable medical problem, and 50% were considered preventable, caused by lack of coordination.

Of the 31phone-surveys, 12 readmissions (39%) were noted the phone Interview participants were asked 2 additional questions: 1- Do you think you will be admitted to the hospital in the next 6 months and if so, why?" 9 replied "yes" with the main cause of an uncontrolled medical condition like pain and DM. 2- "Do you have anything to share regarding the transition from hospital to home?" 3 replied "yes". The most commonly cited barrier to followup clinical care was transportation. The other, most commonly cited issues include lack of communication before discharge from the hospital, misunderstanding medications and memory and mobility problems.

CONCLUSIONS: Not presenting for a post-discharge appointment is associated with increased risk of hospitalization. Developing a program to address and improve transitions of care between settings, should be targeted to address transportation, medication education, and cognitive and functional assessments.

C84

Establishing Shared Understanding in the Level of Care a Patient Needs After Hospital Discharge

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Background:

Understanding the level of support a patient needs is critical for successful discharge planning. Poor post hospital care transitions are associated with higher readmission rates and resource utilization. At our institution, physical (PT) and occupational (OT) therapists provide recommendations on the level of care needed and discharge settings via a standardized template. If there are discrepancies between PT, OT, and/or hospital provider assessments, PT/OT are often called to reevaluate the patient, which increases workload.

Methods:

This multidisciplinary team quality improvement project aimed to increase shared understanding of patient care needs upon discharge. Unclear terminology was identified in the PT/OT recommendations template. This prompted an iterative process to develop 6 new "level of care" terminologies, with each level accompanied by a description of caregiver support and possible living settings. A baseline pilot study explored the impact of terminology on the level of agreement between multi-disciplinary providers. Physician, PT, and OT were asked to assess patient caregiver needs and suitable discharge location using current terminology. The same individuals were provided new "level of care" terminology and asked to judge discharge needs using just the new terms.

Results:

A total of 14 patients were involved in the pilot sample. Using current terminology, differences in discharge location recommendations between PT and OT occurred in 43% of patients, and between physician and PT/OT in 14% of patients. New terminology decreased the frequency of differences between PT and OT in the level of care

from 36% to 29%. The degree of this disagreement also decreased from 1.4 levels to 0.8 level. The level of caregiver needs often differed between PT/OT and physician assessments using both current (29%) and new terminology (50%). However, new terminology decreased the degree of disagreement between physician and PT/OT providers from 2.0 to 1.43 levels.

Conclusions:

The specific terminology used to communicate the level of care a patient needs after hospital discharge appears to be an important factor in ensuring shared understanding of discharge needs. Further study is planned to validate the new discharge terminologies and study the impact of improved communication on patient outcomes.

C85
Inappropriate use of medications at a community based dementia practice.

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Background: The elderly are at risk of polypharmacy; which has been defined as 5 or more medications being taken, however more significant may be identifying inappropriate use of medications as the Beers criteria has. Studies have shown that older adults with dementia have a higher prescription medication use than those without dementia leading to increased risk of falls and adverse drug reactions. We describe the use of inappropriate medications in a community based dementia practice.

Methods: The Montefiore-Einstein Center for the Aging Brain (CAB) provides a multidisciplinary (geriatrics, neuropsychology, and neurology) evaluation for patients with cognitive complaints. A retrospective chart review was performed on all patients who had a comprehensive geriatric assessment over a 2-year period. Patients were defined by cognitive status (dementia, mild cognitive impairment (MCI) syndrome, or subjective cognitive complaints (SCC). We documented the number of recommendations by the geriatric consultant for medication reduction (discontinue or reduce dose) and class of the specific agents.

Results: 518 charts with a geriatric assessment over a 2-year period were reviewed (mean age 77 + 9 years, 70% females, 35% Hispanic, 28% African American, 28% white). Average number of medications was 7 (range 0 - 21). Medication reduction was recommended in 49% of patients with dementia, 40% MCI, and 37% with SCC. Among the 236 (46%) patients who needed a medication reduction, there were a total of 518 recommendations for discontinuation or dose reduction. Common classes or medications that were recommended for discontinuation or dose reduction were: antihypertensive or cardiac agents 43%, diabetic agents 29%, anticholinergic agents 16%, benzodiazepines 11%, sleeping agents 7%, gabapentin 5%, antipsychotic agents 4%, muscle relaxants 3% and opioids 2.5%.

Conclusions: This retrospective review underscores the importance of avoiding inappropriate use of medications in the older adult especially those with cognitive impairment. We propose that medication reconciliation occur at each patient encounter.

C86
Essential components of a quality improvement intervention for patients with DM-ADRD

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Background: As many as 25% of older adults with diabetes (DM) may have co-occurring Alzheimer's Disease and Related Dementias (ADRD), complicated by over- and under-treatment, caregiver burden, and excess healthcare utilization. Despite these co-occurring conditions, there is no specific clinical guidance forsafe and high-quality treatment to achieve health outcomes that matter to patients andcaregivers. describe potential barriers and facilitators to implementing a quality improvement intervention focused on management of patients with DM-ADRD; and explore the support needs of patients and their family caregivers.

Methods: This qualitative study was conducted in the formative phase of "Enhanced Quality in Primary care for Elders with DM-ADRD (EQUIPED-ADRD) a pragmatic randomized controlled trial in a large, diverse healthcare system. Key stakeholder interviews with clinic staff, providers and caregivers (n=11) guided by a semi-structured interview guide elicited in-depth descriptions of current processes in clinical management including strengths and weaknesses; identified potential barriers and facilitators to the proposed intervention and explored patient and caregiver needs. Qualitative data were analyzed using content analysis and findings were used to refine the intervention.

Results: The overarching theme across all stakeholders was that DM-ADRD management should address the unique and individualized needs of patients and caregivers without disrupting patient-provider relationships. Coordinated communication across teams and with patients/caregivers is essential. Caregivers reported increasing burden and need for resources to help manage day to day caregiver responsibilities including tangible (education, transportation, e.g.,) and emotional support.

Conclusions: An EQUPED-ADRD toolbox to facilitate intervention training and utilization and promote communication among the healthcare team and with patients/caregivers will support implementation success. Activating existing available resources (social/nursing services, respite care) and care coordination may help caregivers especially, as patient care needs increase over time. Health education should focus on DM and ADRD with ongoing re-education as care needs change.

C87
Implementation of a Needs Assessment for Caregivers in an Inpatient Senior Behavioral Health Unit

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Background: Caregiver stress affects the health of both the caregiver and recipient yet it is not routinely addressed in care plans. The aim of this quality improvement project is to implement a protocol to assess the stress of caregivers for patients who are admitted to the Senior Behavioral Health Unit (SBH).

Methods: Using the Model for Improvement, the Geriatric Fellows implemented a team-based screening protocol with iterative Plan-Do-Study-Act (PDSA) cycles. They drew a flow chart of current SBH processes, created a Driver Diagram of factors causing caregiver stress, discussed feasibility with SBH staff, and reviewed the literature to identify the Kingston Caregiver Stress Scale (KCSS), a 10-question self-assessment. In the protocol, the nurse handed KCSS forms to visiting caregivers. Protocol adoption was tracked weekly in a run chart by proportion of caregivers who completed the KCSS. Prior to protocol start and at one month, the fellows sought feedback from staff about the KCSS's utility.

Results: After one month, 12 KCSS's were handed out and 8 were completed. Run chart analysis revealed variable protocol adoption by staff with competing priorities. On a Likert Scale of 1 (no stress) to 5 (extreme stress), there was significant individual variation in caregiver responses. However, a theme emerged that the single most stressful issue for caregivers was concern about future care needs of the patient (mean=3.9, SD=1.46), while caregivers tended to report less stress about their current ability to care for the patient (mean=2.0, SD=1.51), family conflict (mean=1.12, SD=0.96), and financial issues (mean=1.19, SD=2.0). The social worker felt the KCSS helped to focus family meetings on the caregiver's greatest concern, although it did not otherwise change management.

Conclusion: The KCSS was useful to identify the greatest source of a caregiver's stress, though widespread adoption by staff will require that KCSS results easily translate into actionable items in their care plan. Staff training in advance care planning that focuses on future needs of the care recipient may be one of the higher yield action items to reduce caregiver stress at SBH. Next steps include feedback from caregivers on how to best address sources of stress.

C88
Improving Medicine Reconciliation and Polypharmacy Intervention in Cognitive Assessment Clinic

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Background: The study assesses the management of polypharmacy and role of medicine reconciliation (Med Rec) in interdisciplinary Cognitive Assessment Clinic (CAC) at the Department of General Internal Medicine at The Ohio State University Martha Morehouse Pavilion, Columbus, OH.

Methods: Data were collected through a retrospective chart review for 96 men and women age 55 years or older seen at CAC from October 2015 to March 2017. Polypharmacy (PP) was defined as the use of 5 or more prescription medicines. Use of more than 1 high-risk drug i.e. high risk for cognitive impairment, delirium or falls and use of more than 3 Central Nervous System (CNS) activating drugs as defined by Beers list was also measured.

Results: 58% (N=56) of the population had polypharmacy. 56% (N=54) were prescribed at least 1 high-risk drug. Out of the 56 patients with PP, 77% (N=43) used at least 1 high-risk drug, anticholinergic (ACG) being the most frequent (79%, N=34). 43% (N=24) of the PP patients received some form of intervention. Results showed that PP intervention rate is not affected by the presence of high-risk drug use (42%) and stays the same for patients taking ACG (44%). 46 patients who had dementia were on PP. 48% (N=22) got intervention. This stays almost the same if the patient was taking an ACG (50%). Even without PP, the intervention rate for dementia patients on an ACG does not change. 50 out of 96 patients had Med Rec. Out of these 50 patients, PP was detected in 32 patients (64%). But for the 40 patients in which polypharmacy was not observed, Med Rec had not been done for 22 patients (55%). Polypharmacy detection rate increases if Med Rec is performed by the pharmacy team (64%).

Conclusion: The study reinforces assessing anticholinergic burden for all patients with cognitive impairment and discontinuing unnecessary anticholinergics. It recommends the pharmacy team should be notified of patients coming for CAC appointments. Medicine reconciliation should be done prior to the patient meeting the provider as it increases PP detection rate by 8%. Better documentation of indication for specific ACG such as depression or urinary incontinence would allow for more specific intervention.

C89
An Initiative for Improved Hypertension Control at an Outpatient Geriatrics Clinic

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Background: Hypertension (HTN) is common among older adults and increases the risks for adverse outcomes. Blood pressure (BP) control for older adults is complex and nuanced, balancing medication effects and competing risks. We implemented a patient-entered HTN control intervention in an urban geriatric medicine clinic.

Methods: We identified patients with HTN at Bellevue Hospital's Geriatric Clinic age 65-75 with BPs >140/90 from the electronic medical record. We asked each patient's primary care physician (PCP) to assign a BP goal and identify high-risk patients. We contacted patients determined by their PCP to need intensive BP management including medication side-effects and compliance assessment. We also developed a multi-pronged BP-control intervention clinic-wide for all patients, which included training nursing, medical assistant, and PCPs in best practices in BP measurement. We also ensured proper documentation, repeat measurement of all BP >150/90 and educational materials for patients in English and Spanish. We scheduled a focused BP visit with a nurse within 2 weeks and if BP was not at goal, the patient would be seen by a physician for repeat BP measurement, compliance assessment and treatment optimization. We continued close follow up with these patients until they reached their BP goal.

Results: Pre-intervention, we identified 128 patients, of whom 71% had diabetes, 12% had a stroke, 20% had coronary artery disease, 15% had dementia, 8% problems with dizziness, and 69% problems with medication compliance per their PCP. The percentage of patients assigned to goal of BP<130/90 was 13%, 82% to a goal of <140/90, and 5% to a goal of <150/90. After PCP review, 42% (54 of 128) were at their specific BP goal based on home readings or proper in clinic measurement. After 4 months, among the 73 patients identified as needing further BP management, 52.1% were controlled. Clinic-wide, the percentage of patients whose blood pressure is <140/80 improved from 66% to 74% within 4 months since program initiation. Our intervention is currently ongoing.

Conclusion: BP management among older adults requires individualized goals and intervention. Our interventions which emphasized proper BP measurement and documentation, formal education of both providers and patients, and focused BP visits have improved BP control for our clinic population.

C90
Implementation of Integrated Behavioral Health in an Academic Geriatric Primary Care Clinic

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Background: Integration of behavioral health into primary care aims to increase accessibility and reduce stigma. Prior research with geriatric patients has demonstrated positive outcomes for integrated services. The implementation of behavioral health into an academic geriatric primary care clinic setting is described. The objective is to report preliminary data on provider response to implementation and to highlight strategies critical to success.

Methods: A quasi-experimental, mixed methods evaluation design was used. Data was collected anonymously from providers 6 months prior to the launch of the program (T1; n=9, response rate=69%) and 1 month after (T2; n=8, response rate=61%) in a geriatric clinic. Satisfaction with the program, referral process, and accessibility were evaluated.

Results: Providers at T1 identified depression, anxiety, grief, and caregiver stress as primary issues requiring behavioral health services. At T2, providers reported increased satisfaction with behavioral health services, accessibility, and the referral process (See Figure 1). Availability of behavioral health warm hand-offs was reported as the most important aspect of the service.

Discussion: This study suggests that full-time behavioral health services in geriatric primary care is a vital service that enhances patient health and provider satisfaction. Three strategies were critical for successful implementation. Feedback from geriatric providers iteratively guided efforts throughout the launch. A patient advisory council was vital for enhancing acceptability of the program to the patient population, including feedback on advertising preferences, duration/frequency of structured behavioral interventions, and inclusion of peer support. Finally, development of partnerships with community mental health agencies and providers was essential for referring to specialty care as needed.

Figure 1. Average geriatric provider ratings at T1 and T2 on measures of satisfaction and accessibility

C91

It Takes a Village to Care for an Older Adult: Update on Senior Villages in Washington DC

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Background: Senior Villages are neighborhood organizations designed to bring resources to help older adults age in place successfully. The first village started in 2001 in Boston's Beacon Hill neighborhood. Today more than 200 are in operation in 45 states and the District of Columbia.

Methods: Five geriatric fellows surveyed senior villages in DC via website information and telephone interviews. Queries focused on village history, geographic distribution, membership criteria, services offered, types of financial support, and challenges.

Results: 18 DC senior villages were identified including Capitol Hill, Mount Pleasant, Palisades, Woodley Park, Dupont Circle, Georgetown, Foggy Bottom, East Rock Creek, Glover Park, Northwest Neighbors, Waterfront, Kingdom Care, Pennsylvania Avenue and Southeast. Three villages are new in the past three years, and at least two villages, Legacy Collaborative and Ward 7 serve low socioeconomic areas. Annual membership fees range from $50 to $625 for individuals and $100 to $945 for households. One village has no fees at all. Various levels of financial aid are available and range from full scholarships to sliding-scale membership, and a 60-day trial membership. Membership restrictions included geographic location, age, or certain criteria such as cognitive impairment. Villages depend on volunteers to provide services, and each village has anywhere from 30 to 350 volunteers. All villages offer basic household services, transportation, technological support, wellness programs, recreational and socialization activities. Some villages offer medical note-taking and advocacy. The DC Office on Aging at the Department of Health provides support and guidance on how to start a village. Common challenges include funding, meeting needs of cognitively impaired members and the need for more volunteers. A few villages partner with medical housecall programs.

Conclusions: Senior villages continue to expand in Washington DC and offer various support services for older adults in the community. The socioeconomic status of the neighborhood appears to be an important determinant of senior village presence.

C92

Delirium Education for Patients and Family Caregivers in the Perioperative Setting: A Quality Improvement Initiative

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Background: Few studies have examined the feasibility of family caregiver engagement in delirium identification, prevention, and management. The Perioperative Optimization of Senior Health (POSH) program, an integrated care model between surgery, anesthesia, and geriatrics, provides an opportunity for educating patients and families about delirium. Our project focuses on the development and implementation of this novel delirium education program within the POSH program.

Methods: We used a rapid cycle improvement methodology to develop a new tool for teaching patients and caregivers about delirium. Input was provided by a number of sources, including patients and families within the POSH program, a patient and family advisory council on perioperative care, and geriatricians. Respondents provided feedback via a questionnaire about a pre-existing delirium handout used during preop, and indicated preferences for learning style and format. A revised handout incorporating this feedback demonstrated improved readability (from a 14th to a 3rd grade level, according to Flesch-Kincaid score) and used a checklist format to encourage active engagement. Outcomes were measured using a confidential survey of knowledge and self-efficacy, administered to family caregivers during the inpatient encounter after surgery.

Results: Thus far, we have surveyed 11 family caregivers. Our goal is to achieve at least 30 responses. The mean age of respondents was 61.6 years, and the mean score on a knowledge assessment of delirium risk factors, identification, and management was 76.8%. Mean scores on a Likert scale of 1-5, measuring confidence in identifying delirium, confidence in ability to manage delirium, and usefulness of the handout, were 3.0, 3.2, and 3.7, respectively. Respondents identified that 27.2% of their loved ones developed postoperative delirium. Of note, 90.9% of caregivers utilized at least one method of delirium prevention and management when visiting the patient in the postoperative period. Open-ended feedback included a suggestion to use other media such as video.

Conclusions: Education on delirium is feasible for family caregivers, most of whom are able to apply the teachings. Future directions include improving caregiver confidence in delirium identification and management, and adding other media and formats to engage different learning styles.

C93

Hospice Rapid Response: Development, Implementation and Outcomes of a Clinical Process for Managing Symptom Crisis in Hospice Patients in Acute Care Setting

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Background:

There is no protocol for management of symptom crisis in patients receiving hospice care in acute care setting.

Aim Statement:

We developed and implemented a clinical process, utilizing the principles of established protocols of ACLS (code blue) and Rapid Response (RRT), to manage symptom crisis in hospice patients in the inpatient setting of our VA Medical Center.

Methods:

A process was developed using the following steps:

1. Identifying Crisis Management Team: Palliative Care Physician, Nurses, Pharmacist

2. Educating the team about symptom crisis in end-of-life care, basic pharmacology of commonly used medications, subcutaneous administration of medications, communication, team-work

3. Defining responsibilities of team members: leader, medication administrator, recorder, coordinator, courier

4. Planning logistics: medications, supplies, equipment

5. Developing clinical process: symptom assessment, medications, dosing, route, interval, frequency

6. Mapping the process

Results:

Between April 1, 2018 and June 30, 2018, we followed this process to manage crisis of air hunger, agitated delirium and pain on 4 terminally-ill patients (75% men) receiving end-of-life care in acute care setting. All of them had valid DNR orders and clearly established

goals of comfort care. Primary terminal diagnoses were respiratory failure, dementia and malignancy. Resolution of symptom crisis was defined as reasonable symptom control and patient's physical comfort, based on objective assessment by Crisis Management Team and subjective report by the family members at the bedside. This process resulted in resolution of symptom crisis within an hour of its initiation for all patients involved without alteration in anticipated clinical trajectory and without a need for transfer of patients to a higher level of care setting.

Conclusion:

A well-defined process is effective in managing symptom crisis in terminally-ill hospice patients in inpatient acute care setting.

Limitations:

Small sample in a single setting

Implications:

Robust studies are needed to further test and validate this process for its wider implementation as an evidence-based clinical protocol.

C94

Social Vulnerability and Non-Attendance at an Embedded Geriatrics Co-Management Clinic

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Background: Social deficits have been shown to increase risk for adverse health outcomes. The risk associated with the accumulation of social deficits has been operationalized as a social vulnerability index (SVI). The geriatrics co-management clinic experiences a high rate of appointment non-attendance. In an effort to improve attendance rates at the clinic, SVI was compared in patients who completed appointments vs. those who no-showed.

Methods: An 8-item clinical SVI was selected for use in this study. SVI is reported on a scale of 0-1 with higher scores indicating increased vulnerability. A chart review was performed for patients who were scheduled to be evaluated in the clinic at two sites. The time period Dec 2017 to Jan 2018 was selected as a pilot phase. No show status was defined as a cancellation less than 24 hours before the scheduled appointment. An unpaired two-sample two-tailed t-test was performed to compare show or no show status with SVI.

Results: In patients who completed appointments (n=44), mean SVI was 0.36 (SE 0.03) whereas patients who had a no show status (n=12) had a mean SVI of 0.47 (SE 0.05; p=0.08).

Conclusion: Increased social vulnerability may be associated with non-attendance in an outpatient geriatrics clinic.
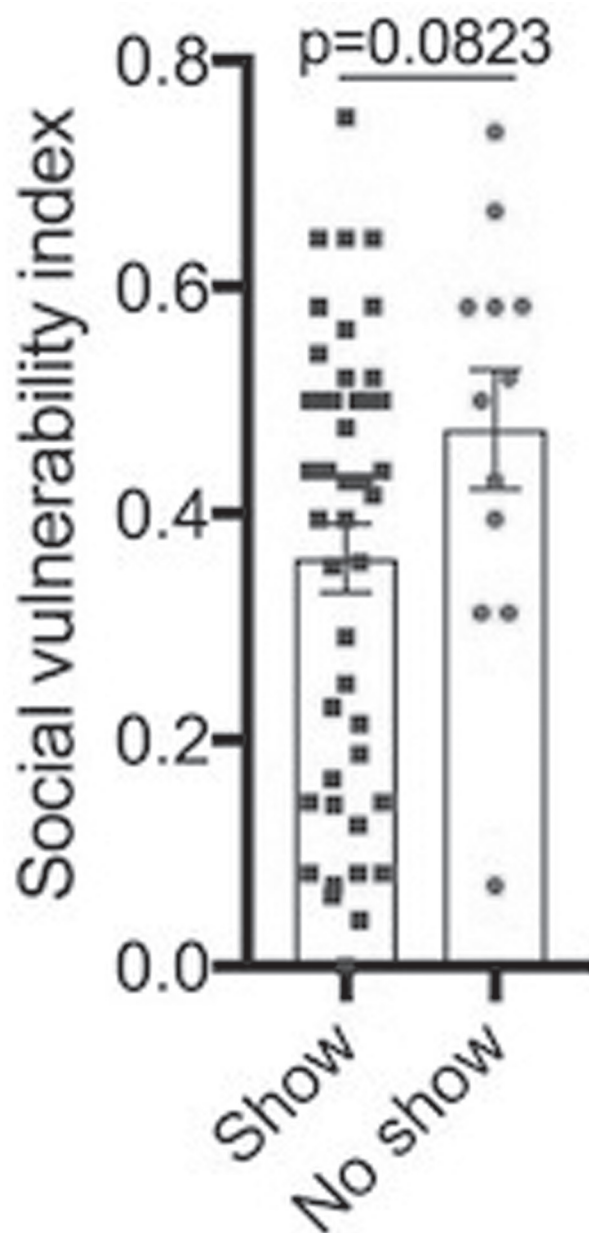
C95

Feasibility of Implementing STEADI in a Senior Primary Care Clinic: Lessons Learned

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Background Falls are the leading cause of injury-related deaths for older adults.[1] Research shows that many healthcare providers do not assess fall risk effectively.[2] The Centers for Disease Control and Prevention developed STEADI (Stopping Elderly Accidents, Deaths & Injuries) to address these issues. This study assessed the feasibility of implementing STEADI in a senior primary care setting located at an assisted living facility.

Methods A champion was identified and staff were trained to use the functional assessment tools, three key questions, and *Stay Independent* brochure. Patients were assessed at low, moderate, or high risk, and provided recommendations accordingly. Implementation was evaluated using staff feedback and participant surveys.

Results 84 participants were recruited with 17 lost to follow-up, for a sample size of 67. Participants were primarily female (65.7%), white (86.6%), not Hispanic (94.0%), and 82.1 years old on average. 53.7% were low fall risk, 41.8% moderate, and 4.5% high. Average follow-up response rate for all participants was 60.0%. At the 12-month follow-up, 77.8% of lower risk and 61.3% of higher risk respondents were taking Vitamin D, while only 27.8% of lower risk and 32.3% of higher risk respondents were taking calcium. Patients at lower risk had higher rates of exercise (69.4%) compared to higher risk respondents (51.5%). Clinic staff reported STEADI was implemented 'sometimes' or 'most of the time' in the clinic, and they were 'somewhat' confident in the clinic's ability to reduce falls. Staff reported time as a barrier, while education and resources were identified as assets.

Conclusions Findings suggest a need to reconsider STEADI in the clinic's work flow to improve implementation. Documentation of provider recommendations and referrals, and patient compliance, should be evaluated to determine feasibility from the patient perspective. Improved patient education by clinic staff may further increase patient safety.

References

1. Albert SM, King J, Boudreau R, Prasad T, Lin CJ, Newman AB. Primary prevention of falls: effectiveness of a statewide program. Am J Public Health 2014;104:e77-84.

2. Smith ML, Stevens JA, Ehrenreich H, et al. Healthcare Providers' Perceptions and Self-Reported Fall Prevention Practices: Findings from a Large New York Health System. Frontiers in public health 2015;3:17.

C96

Improving Interprofessional Prognostication in the Nursing Home Setting Through Use of The Palliative Performance Scale

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Background:

The Palliative Performance Scale (PPS) is an assessment tool used in hospice settings to evaluate functional decline and prognosis. Given its prognostic and monitoring value, the PPS could provide meaningful information for interprofessional teams for advance care planning in the nursing home setting. Our project examines the impact of a structured teaching session on interprofessional staff's knowledge of, and comfort with, the PPS.

Methods:

Teaching: A one-hour training session was designed, including a didactic portion and sample cases.

Study population: 41 nursing home staff: nurses, physicians, nurse practitioners, social workers, dieticians, physical therapists, and therapeutic recreation.

Data collection: Pre and post session surveys were administered, obtaining demographic information and assessing knowledge of and comfort with the use of the PPS. The same 9 knowledge-based questions were given before and after the training. Three questions regarding comfort were rated on a four-point scale: 1= very uncomfortable to 4 = very comfortable. After training, 12 care planning meetings were observed for correct use of the PPS.

Results:

Knowledge: There was a statistically significant increase in scores demonstrating understanding of the PPS. Mean number of correct answers at pretest= 6.89, mean correct posttest answers = 7.76, (t=2.08(28); p < 0.05).

Comfort: There was a statistically significant increase in staff comfort in the following tested domains:

a. Using the PPS: Mean comfort level pre= 2.68, mean post= 3.36, (t=4.54(24); p<0.05).

b. Assessing whether a patient would benefit from advance care planning: Mean comfort level pre= 3.10, mean post= 3.29, (t=2.72(40); p < 0.05).

c. Assessing when a patient was approaching end-of-life (6-month life expectancy): Mean comfort level pre=3.05, mean post= 3.47, (t=4.14(42); p <0.05).

Follow up: observation of staff performance of the PPS at care planning meetings showed 80% accuracy.

Conclusions:

Structured teaching for interprofessional teams improved understanding of the PPS and increased comfort in its use. This demonstrates the feasibility of the PPS as an assessment and prognostication tool for use by the interdisciplinary team in the nursing home setting. Further study on its impact on advance care planning is needed.

C97

Understanding the Needs Gaps in Vulnerable High Need High Risk Veterans

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Background: Using predictive analytic modelling, the Veterans Affairs (VA) has identified Veterans considered to be High Need High Risk (HNHR) who need increased support.

Methods: To better understand the need gaps regarding function, mobility, mood, access, and caregiver status in this group of Veterans, we sent needs assessment questions to 1112 HNHR Veterans, of whom 341(30.7%) responded. Responses were tabulated.

Results: Among 341 respondents, 310(90.4%) had ≥high school education and 293(85.4%) were confident filling medical forms by themselves. One hundred ninety-two (56%) reported ability to use the Internet and 174(50.7%) had an email account.

Average Barthel ADL score was 81.5±22.8. Average Lawton IADL score was 5.8±2.2. Walking or balance issues were present among 260 (75.8%) and 227(66.2%) said they use an assistive device, such as a cane (108, 31.5%), walker (76, 22.2%), or a wheelchair (43, 12.5%); 224 (65.3%) experienced difficulty while walking up 10 steps and 223 (65%) had difficulty walking several hundred yards without resting or using aids. In the previous year, 167 (48.7%) had suffered between 1 and 4 falls while 43 (12.5%) had had 5 or more falls; 93(44.3%) of those that fell needed medical attention.

About a third (34.7%) screened positive for depression. Two hundred sixty-one (76%) Veterans rated their health as average or worse, 138(40.2%) said they felt tired most or all of the time.

A quarter (24.8%) reported at least some trouble getting transportation to their primary doctors and 22.7% reported delaying a doctor's appointment due to this. In the previous month, only 122 (35.6%) had left their home ≥once a week, 24 (7%) needed help to go outside, 36 (10.5%) Veterans experienced at least some difficulty leaving their home to go outside.

When asked about their social life, 136 (39.7%) said they got together with friends or family ≥once a week. Only a third (103, 30%) Veterans had a caregiver, of whom 11 had paid/professional caregivers.

Conclusion: Addressing mobility and transportation concerns would improve access in this vulnerable group. Screening for falls is key, as is offering integrated interventions incorporating mental health needs. Lack of caregivers in a significant majority will require strategic long-term planning by VA.

C98

Compliant flooring in long-term care: Qualitative findings and lessons learned

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Background: Fall related injuries are associated with a host of negative outcomes. Compliant flooring has potential to reduce fall-related injuries. This pilot project presents findings from an evaluation of novel compliant flooring in a long-term care setting.

Methods: Two types of compliant flooring were installed in seven rooms (5 rooms SmartCell, 2 rooms SafeLandings). Standard vinyl flooring was present in remaining rooms/beds ($n = 52$). Qualitative interviews were conducted with interdisciplinary staff after installation of compliant flooring and at six-month follow-up ($n = 18$). Interview questions focused on look/feel/walkability, safety, durability, infection control issues, moving equipment/patients and overall impression. Quantitative data collected included falls, fall-related injuries, room occupancy, and Morse Scores over the same six-month period.

Results: Compliant flooring was overwhelmingly perceived as positive regarding the look, feel, and walkability. Staff were evenly spit on perceptions of its potential protective properties (as they were not installed in bathrooms). They reported concerns about the durability due to floors being easily indented by heavy equipment and furniture after the installation, but after adding the Lexan sheets under beds, the floors did not get worse over time. While floors were easy to clean and there were no infection control issues, putting Lexan sheets under the beds made it harder to clean spills. Some staff reported greater difficulty in moving patients and heavy equipment. Overall, staff felt that compliant flooring is best for ambulatory patients and those that are independent wheelchair users but not good for bariatric patients. There was no difference in fall or injury rates, as there were only 26 falls (with only 1 fall occurring on compliant flooring and 1 major injury on traditional flooring).

Conclusions: Overall, staff had a positive perception of look, feel, and walkability of compliant flooring; it was easy to clean and there were no infection control issues. Due to durability issues and issues with moving heavy equipment, staff felt that bariatric patients should not be placed in rooms with compliant flooring. We did not have enough adverse events to evaluate the protective properties. Compliant flooring may represent one solution for select patients to reduce fall-related injuries in long-term care.

C99

Utilization of EPIC Dementia Smart Set as a tool for early dementia diagnosis and management in primary care setting.

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Background

Most older adults with dementia will be cared for by primary care physicians. However, 57 - 65% of the early dementia symptoms are not being recognized or documented by the primary care physicians. (Valcour, V.G., Kamal, H.M., Curb, D.J., et al. The Detection of Dementia in the Primary Care Setting. *Arch Intern Med.* 2000;160(19):2964-2968). Standards of care suggest physicians should initiate an early search for reversible causes of dementia (Small, G.W., Rabins, P.V., Barry, P.P. et al. Consensus statement: diagnosis and treatment of Alzheimer's disease and related disorders. *JAMA.* 1997;2781363- 1371). In addition, study in 2006 on early primary care-based collaborative intervention resulted in statistically significant improvement in the quality of care and in behavioral and psychological symptoms for patients and their caregivers. We studied whether utilization of EMR system can be used to aid in cognitive work-up, diagnosis and treatment.

Methods

Epic smart set was developed to aid PCPs in cognitive work up, diagnosis, and treatment of dementia. It was made available to limited number of providers at OHSU Internal Medicine clinic. Providers received a training session on utilization of Epic smart sets to aid in cognitive work-up, diagnosis, and treatment of early dementia. Research team retrospectively reviewed charts of patients whose PCP participated in the study. Chart review was conducted 6 months prior to smart set implementation and 6 months after the implementation. Results were compared to assess whether training session and Epic smart set increased the rate of early dementia detection, documentation and/or work up.

Results

Data analysis showed increase in MCI diagnosis documented in the chart as well as increase in referral to Geriatrics and Physical Therapy after the intervention. There was no significant change noted in provider coding, work up, additional screenings/assessments or medication use.

Conclusions

This project shed light on the inadequate diagnosis and assessment of dementia patients in primary care and has helped us launch further clinic wide quality improvement projects to help providers identify patients with dementia and assist in providing appropriate cognitive assessment and treatment

C100 Encore Presentation

Effect of Geriatric Pharmacist TOC interventions on Heart Failure Readmission Rates

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Background: 60% of patients during transitions of care (TOC) have medication-related errors, resulting in high healthcare cost.[1] Heart Failure (HF) patients have some of the highest readmission rates and costs, many due to suboptimal TOC practices. Some studies show pharmacists improve TOC outcomes; single pharmacist interventions yield mixed results.[2] The primary aim of this study is to evaluate the effect of comprehensive geriatric pharmacist interventions vs partial services on reducing readmission rates in HF. The secondary aim is to describe this practice in terms of interventions made.

Methods: Adults with HF admitted to a small community hospital were included in this 6-month retrospective analysis. Groups were stratified based on pharmacist TOC intervention: those receiving all 3 vs ≤ 2. The interventions were: admission medication reconciliation, discharge medication education, and post-discharge follow-up phone calls. The calls were a series of at least 4 over the first 30 days after discharge. The primary outcome was 30-day readmission rates, analyzed via Chi Square. Continuous baseline characteristics were compared using the student T test; nominal variables with Chi Square.

Results: 33 patients were identified: 10 with all 3 activities and 23 with ≤ 2 (control). Both groups had a mean age of 76. The control group averaged more medical conditions (9 vs 6 p <0.05). Patients with all 3 activities had a lower readmission rate (0 vs 13% p >0.05). Each patient was reached an average of 2.9 times by phone, averaging 1.1 interventions/patient. Ninety-two medication discrepancies were identified, averaging 2.8/patient; 112 interventions were made.

Conclusions: Comprehensive pharmacist TOC services resulted in no 30-day readmissions, although not statistically significant. This was likely due to an underpowered analysis, and possibly the higher rate of control group medical conditions. Pharmacist involvement resulted in multiple medication-related interventions. Larger studies are needed to fully evaluate the impact on 30-day readmission rates.

1. Soong C et al. **Do post discharge phone calls improve care transitions? A cluster-randomized trial.** PLoS One. 2014 Nov 11;9(11):e112230

2. Rodrigues CR et al. **Effect of Pharmacy-supported Transition of Care Interventions on 30-day Readmissions: A Systematic Review and Meta-analysis.** Annals of Pharmacotherapy 2017;51(10):866–889

C101

Effect of a multi-setting, Interprofessional TOC Pathway on 30-day Readmissions in Older Adult Heart Failure Patients

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Background: According to local CMS data, heart failure (HF) is one of the top 3 reasons for readmissions in northeast IN; almost 90% are from home without supportive services. The objective of this study is to evaluate the effect of an interprofessional, multi-setting TOC pathway on 30-day readmission rates and cost in older adult HF patients.

Methods: A HF pathway was developed at a local community hospital to maximize patient education, provider communication, and supportive services for older adult HF patients. On admission, nursing case-managers performed a disease-specific evaluation and communicated needs with a geriatric pharmacist, a local skilled facility, a local home health agency, and the affiliate HF clinic. Each party provided discipline- and setting-specific education to the patient, including self-care and support options, with a patient-centered approach. After option and self-care education, referral to skilled care (in-home, inpatient, or both) were performed based on patient preference, needs, and coverage. A HF Clinic appointment within 7 days was made, and a geriatric pharmacist followed up via phone, performing in-home visits when patients agreed. Readmission rates were compared to a control group via Chi Square, and cost savings were calculated based on the average 2017 Indiana Hospital Medicare HF reimbursement rates.

Results: 155 patients were included in this 6-month analysis: 40 in the 3-month control phase and 115 in the 3-month intervention phase. Readmission rates were lower in the intervention group (4.3 vs 7.5% p > 0.05). Total savings estimate associated with the reduction in readmission rates was $175,260.

Conclusions: Standardized, interprofessional approaches to patient education, navigation, and follow-up have the potential to decrease 30-day readmission rates for older adults with HF, although results of this pilot analysis were not statistically significant. This is likely due to an underpowered analysis. A larger scale and more in-depth analysis comparing patient characteristics and tracking completion of each portion of the intervention is necessary to further elucidate the effect on readmission rates and cost savings.

C102

The Transitionalist Pathway: Multidisciplinary TOC to Reduce Pneumonia Readmissions

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BACKGROUND: Pneumonia (PNA) continues to be a severe health problem in the United States, responsible for close to 1 million hospital admissions and nearly 140,000 hospital readmissions per year. Approximately 1 in 5 patients with PNA is readmitted to the hospital within 30 days of discharge. Important reasons for readmissions are illness as well as issues related to discharge follow-up, medication reconciliation, care compliance, lack of teach-back and inadequate psycho-social support.

AIM: Aging Adult Services (AAS), based on the *Transitions of Care Model (TCM), is using technology and innovations to address readmission reduction, patient wellness and post-discharge care in high-risk hospitalized PNA patients. Current focus was to formalize a sequential handoff process to optimize adoption of the established pathways. Incomplete handoffs can lead to adverse events for patients and result in avoidable rehospitalization.

METHODS: The sequential handoff includes a multidisciplinary model of physicians, nurses, social workers, rehab, AAS and pharmacists. Adherence to the sequential handoff process was facilitated by a well thought out tracker developed by the AAS team and quality personnel. AAS continues to use a Risk of Readmission tool, high-risk hospitalized PNA patients are provided with comprehensive in-hospital planning and home follow-up by AAS RN Transitional Care Coordinators.

RESULTS: 12 months of utilization of a well-developed tracker resulted in adherence to the sequential handoff pathways. Patients with this handoff process and a consult from an AAS RN Transitional Care Coordinator resulted in a 10% reduction in PNA readmissions as compared to the General Medicine PNA readmission rate.

CONCLUSION: With a focus on transitional care, adherence to a multidisciplinary sequential handoff process, along with care coordination and home visits provided by the AAS RN Transitional Care Coordinator is being endorsed as valuable best practices within Stanford Health Care. The handoffs are resulting in medication reconciliation, discharge planning, home visits, care coordination with PCP, linkages and resources, home technology, and teach-back.

* Medsurg Nurs. 2010 Jan-Feb;19(1):62-3. The transitional care model (TCM): hospital discharge screening criteria for high risk older adults. Bixby MB1, Naylor MD.

C103

Development of a herpes zoster immunization protocol at a veteran long-term care center

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Background:

Long-term care (LTC) residents are at the highest risk of contraction of herpes zoster, which often leads to painful, costly, and debilitating post-herpetic neuralgia. Facilities must follow federal regulations for administration of pneumococcal and influenza immunization but not for herpes zoster. In addition, the zoster immunization is covered under Medicare Part D, making cost a potential barrier. The purpose of our project was to examine the immunization rates at William E. Christofferson Veteran's Home in Salt Lake City (VNH) and to work with VNH leadership to develop a protocol for immunizing residents against herpes zoster while controlling the cost of an immunization campaign.

Methods:

In March of 2018, a review of the care facility EMR and Salt Lake City VAMC CPRS was performed to determine our current herpes zoster immunization rate. A meeting was then held with the VNH administration team to outline the importance of and recommendations for immunization and to brainstorm potential solutions to improve our vaccination rates with a goal of 100% vaccination of eligible residents.

Results:

Of 80 residents, 17 (21%) were documented as having received any zoster immunization. VNH leadership supported improving the vaccination rate. Based on the current literature and CDC recommendations, the medical team and VNH leadership agreed to proceed with the new recombinant zoster vaccine rather than the live attenuated vaccine. It was decided the facility would provide batched immunizations by dividing current residents into groups of 10 residents and

vaccinate one group monthly. New residents would be incorporated into each group as they were admitted to the facility. Each group would be rotated through twice, once for each dose of the vaccine.

Conclusions:

Herpes zoster immunization significantly reduces cost and patient morbidity, but vaccination rates remain low particularly at LTC facilities which house the most vulnerable individuals. We worked with facility administration and the nursing leadership team to create a plan to improve the immunization rates while controlling cost. Improving herpes zoster vaccination rates will translate to decreased morbidity and mortality and improved patient function and quality of life. Future steps will be to compare incidence of zoster and zoster-related morbidity and mortality in the VNH population before and after the facility-wide immunization campaign.

C104
Improving Medication Use Through Collaborative Deprescribing; a Student Pharmacist Driven Medication Surveillance Initiative

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Background: To combat inappropriate polypharmacy, deprescribing has emerged as a key component in quality elderly care. Despite its recognized value, the extensive time required to understand the full history of use for a particular medication can often hinder an attempt to deprescribe. This quality improvement pilot project aims to overcome this barrier through the use of student pharmacists on ambulatory care rotations within a collaborative deprescribing surveillance program. The objective of this study is to evaluate the effect of this program on elderly potentially inappropriate medication (PIM) use within a General Internal Medicine clinic.

Methods: Student pharmacists on primary care rotations from June 1, 2018 to November 1, 2018 proactively reviewed and assessed PIMs (as defined by the Beers criteria) for elderly patients with an upcoming clinic visit two to four weeks out. Students accessed the electronic medical record (EMR) and could filter by specific provider to view a report of all the PIMs for the provider's patients over 65 years old. Students analyzed each PIM via chart review to produce a note in the EMR describing the PIM history of use along with a deprescribing recommendation ("recommend deprescribing," "consider deprescribing," or "no change recommended") with supporting rationale. After preceptor vetting, these recommendations were sent to the provider for consideration at the upcoming clinic visit. Descriptive statistics were used to characterize the impact of the student recommendations on PIM use as determined by the medication status after the subsequent office visit.

Results: Twenty-nine PIMs (41% proton pump inhibitors, 17% benzodiazepines) were reviewed over the course of the pilot period by three different student pharmacists. Of those, 18 recommendations were made to deprescribe with a 50% provider acceptance rate.

Conclusions: The findings from this initiative suggest the potential value of a PIM surveillance program fostering collaborative deprescribing to reduce PIM use in elderly ambulatory patients. Further analyses from this pilot will inform plans for project expansion to other clinics and will include provider surveys to determine effectiveness in overcoming perceived deprescribing barriers.

C105
Direct-to-Consumer Research Dissemination: A Multi-Targeted Approach to Reach Older Adults

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Background: Disseminating clinical research results to older adults and others (e.g. caregivers, clinicians) is crucial for improving the healthcare system and people's ability to make informed decisions. However, traditional methods of disseminating research, such as publications in academic journals, are typically not accessible or tailored to many of the audiences who could benefit from the information. We disseminated PlanYourLifespan.org, a proven-effective planning tool that helps older adults plan and connect with resources to age-in-place, using a multi-targeted direct-to-consumer approach.

Methods: Over a 2-year period (2016-2018), patients/stakeholders conducted a nationwide dissemination of PlanYourLifespan.org using a direct-to-consumer approach to three audiences using multi-variable modalities:

Caregivers & older adults: Direct dissemination via print media (flyers, information cards), community presentations (e.g. schools, libraries, hospitals); Clinical/healthcare professionals: Podcasts (GeriPal), social media, incorporating website into patient annual wellness visits and within Epic/MyChart (electronic patient portal); and Other patient partner/community stakeholders: Train-the-trainer strategy, development and use of a dissemination toolkit. Each modality was tailored by and for each distinct audience. Dissemination was measured through PlanYourLifespan.org analytics (visits, accounts created, geocoding).

Results: Dissemination reached users in diverse geographies and resulted in robust website utilization. Over this period, 21,957 web visits were recorded and 2,925 unique web accounts were created. Users accessed the website across the U.S., with hits in 47 states and in several international locales such as Canada, Argentina, Germany, Mexico, Brazil, Thailand, Singapore, and Japan.

Conclusions: Disseminating research and resulting interventions using a direct-to-consumer approach is an effective way to communicate results, reach diverse audiences, and improve communication and utilization of research findings. With research intended for use by older adults, we showed that a multi-modal approach leveraging key consumers (clinicians, caregivers, community groups) can result in widespread dissemination.

C106
Leveraging Patient and Stakeholder Partnerships to Disseminate Patient Centered Outcomes Research

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Background: With the growth of patient-centered outcomes research (PCOR), partnerships between researchers and patients have presented novel opportunities for disseminating results. A large gap exists in disseminating PCOR results to patient end-users. We sought to examine the experiences of patient/stakeholder partners in disseminating PCOR results and characterize lessons learned that may facilitate future researcher-patient/stakeholder dissemination partnerships.

Methods: Patient/stakeholder partners who participated in PCORI-funded research and were active in disseminating results, as part of their planned activities, were recruited for one-to-one qualitative interviews. Constant comparative and thematic analysis were used

to identify and describe common themes that emerged in a survey of open-ended questions.

Results. Ten individuals (4 stakeholders, 6 patients) aged 55-87 years were interviewed. Analysis revealed that for successful dissemination, subjects felt it was vital to reach out to people affected by the results, leverage personal stories, and tap into pre-developed programming. Patient/Stakeholders identified potential audiences through word-of-mouth, community requests, and mapping a list of audiences targeting those directly affected as well as those who worked with the audience (e.g. not specifically medical). Patient/stakeholders recommended that researchers engage patient/stakeholder partners for suggestions on audiences, show empathy, include diverse populations, and maintain a community-focus. One stakeholder stated, "Why wouldn't we help disseminate results? It's a no-brainer. We know people!"

Conclusion: Patient/stakeholders provide effective ways to communicate results, new audiences to reach, improved communication with different audiences, and improved credibility of the findings. Patient/stakeholder partners are invaluable in disseminating PCOR results, offering innovative insight on future partnerships in dissemination.

C107
Utilization of the HOSPITAL score to risk stratify potentially avoidable readmissions on an inpatient geriatric consult service
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Background: Hospital readmissions put older adults at risk for health complications and increase health system costs. Research shows post-discharge calls to patients and caregivers help improve transitional care and reduce readmission risk. The NYU inpatient geriatric consult service provides post-discharge calls, but a triage method was needed to target patients at greatest risk for readmission. The HOSPITAL score is a validated prediction model to identify patients at risk for potentially avoidable 30-day readmissions. We present the first known application of the HOSPITAL score to risk stratify patients for post-discharge calls and review its feasibility.

Methods: The HOSPITAL score was calculated for patients 65 years and older admitted to a medicine team with a geriatrics consult starting October 2018. The HOSPITAL score stands for Hemoglobin, Oncology service, Sodium level, Procedure, Index Type, Admissions in the past year, and Length of stay. HOSPITAL score 0-4 is low risk (5.8%), 5-6 is intermediate risk (11.9%), and ≥ 7 is high risk (22.8%) for potentially avoidable 30-day readmissions. A post-discharge call within 1 week of discharge was provided to patients with a HOSPITAL score ≥ 5 deemed intermediate or high risk to address their current condition, care plan, and medication adherence.

Results: Preliminary data showed a total of 50 patients on the inpatient geriatric consult service with a HOSPITAL score calculated in October 2018 and 64% meeting criteria for post-discharge calls. The average age was 86 and the average HOSPITAL score was 5 with a range from 1-11. The total all-cause 30-day readmission rate to NYU was 14%. The low risk HOSPITAL score group included 18 patients with a 2% readmission rate while the intermediate or high risk HOSPITAL score group included 32 patients with a 12% readmission rate.

Conclusion: The HOSPITAL score was a feasible tool to risk stratify patients for post-discharge calls given its use of readily available data and quick calculation. The HOSPITAL score provided an effective triage method for post-discharge calls on the inpatient geriatric consult service and may be applicable to other medical teams who seek to allocate their transitional care services.

C108
Falls Prevention model for Geriatric/Palliative House Calls program
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Background: Falls are the leading cause of injuries for older adults and contribute to mortality and loss of mobility. Baystate Health Developed the "Geri-Pal" house calls program as part of its Geriatrics Workforce Enhancement Program (GWEP) funded by HRSA. The team has implemented the CDC's, Stopping Elderly Accidents, Death &Injuries (STEADI) process to reduce falls through screening, assessment and intervention. The inter professional team consists of geriatrician, Nurse Practitioner, nurse (RN), Medical Assistant (MA), Social Worker and Community health Educator (CHE).

Methods: All patients are screened by the MA with a falls questionnaire and a Timed Up & GO (TUG) performance test. Patients are then categorized as low, moderate or high risk. Our inter professional team then develops a fall care plan during out weekly meetings. The CHE provides chair exercise education and community resources to increase mobility and socialization. The RN assesses home environment safety, reviews medications, durable medical equipment needs and vision assessment reports. The NP refers patients for physical therapy and orders appropriate tests and equipment.

Results: Since the start of IHI 4M's collaborative on August 2018, 81 patients have been seen by house calls program. Fifty-six percent (n=45) had a TUG and one hundred percent falls STEADI assessment performed by our team within 12 months. Patients with three or more visits have an increase in TUG sixty-nine percent (n=54). Fifty-two percent are (n=42) Hispanic, twenty-seven are (n=22) black, and twenty-one percent are (n= 17) white. The mean age is 74 (sd=6) years old. All had medications reviews in the home to identify high-risk, inappropriate medication. All patients have been encouraged to visit local senior centers and fitness center for exercise and socialization.

Conclusion: Our innovative House Calls program successfully identifies and risk stratifies frail older adults in the community, defines risk factors and formulates individualized care plans. Ongoing quality improvement initiatives must ensure that all screened patients receive a full evaluation and care planning. By providing "gold standard" falls evaluations it is likely that based on the literature our intervention will decrease falls, improve mobility, independence, socialization and quality of life.

C109
The Pharmacy Hypertension Management Service (PHMS): A Physician-Pharmacist Collaborative Management Clinic in Older Adults
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Background: Physician-pharmacist collaborative management (PPCM) has been shown to have a significantly positive impact on blood pressure (BP) control for patients with hypertension (HTN). Our objective is to pilot a PPCM program to improve BP control for the University of Chicago Medicine (UCM) Primary Care Group (PCG) patient population, 63% of whom have controlled blood pressure.

Methods: We created the Pharmacy Hypertension Management Service (PHMS) in June 2018, a PPCM clinic for patients with uncontrolled HTN. PHMS received consults via direct referrals from PCPs or via screening for patients with uncontrolled HTN from a population health database. Primary outcome: reduction in systolic blood pressure (SBP) from initial to subsequent PHMS visits. Secondary outcome: reduction in medication discrepancies. PHMS inclusion criteria: patients ≥ 18 years old; exclusion criteria: patients with certain secondary causes of hypertension, stage 4/5 chronic kidney

disease or on dialysis, class III-IV heart failure, severe aortic stenosis, pregnancy, or BP actively managed by specialist.

Results: Since June 2018, 24 patients have been enrolled in PHMS; 16 patients have consented to participate in the study. Mean age is 70.7 years, 75% are female, patients entered PHMS on mean 1.9 antihypertensive medications, and mean 9.4 total medications. Mean number of PHMS visits per patient is 3.3 (range 1-7); 12 patients had 2 or more PHMS visits. SBP dropped a mean 21 mm Hg from the initial to the most recent visit, from 166 to 145 mm Hg. Eight percent (1/12) of these patients' BP was at goal at their initial PHMS visit; this rose to 42% (5/12) at their most recent visit. Ninety-two percent (11/12) of these patients had a medication discrepancy at initial PHMS visit; this decreased to 50% (6/12) patients at their most recent visit.

Conclusions: PHMS is a growing service at UCM that has great potential to improve HTN management and decreasemedication discrepancies for primary care patients. Future directions will include increasing number of PHMS consults and assessing BP control in comparison to a control group of patients.

C110

Expansion of a geriatric and pre-admission testing partnership to improve recognition of postoperative delirium in older adults undergoing elective spine surgery
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Background: Postoperative delirium occurs in 11-53% of older hospitalized patients, and is associated with cognitive and functional decline, increase in hospital associated complications, prolonged hospital stay, and a greater mortality. Delirium is often unrecognized which delays interventions that can reduce the burden on patients and caregivers. We report on a partnership between geriatrics and pre-admission testing (PAT) now expanded to improve recognition of preoperative cognitive impairment in patients undergoing spine surgery to proactively address modifiable delirium risks.

Methods: This project was initiated in March 2018 and is ongoing. A trained RN in PAT conducted a Mini-Cog screen on patients aged ≥65. The inpatient geriatric consult service (GCS) and spine surgical team were notified if the patient had a positive screening result (≤3/5). GCS identified any high-risk deliriogenic medications in the EMR and searched the controlled substance registry in NY and surrounding areas. GCS collaborated with the surgical team day 1 post-operatively to consider a proactive geriatric consultation for delirium prevention.

Results: 150 patients over the age of 65 with planned elective spine surgery completed a Mini-Cog screening test in PAT from March-November 2018. Eleven patients had a positive Mini-Cog screen. Of the 11 patients, 1 did not have surgery and 2 developed delirium postoperatively. GCS was consulted for both patients who developed delirium and saw 1 patient proactively who did not go on to have delirium. One of the patients who developed delirium was on a high risk medication preoperatively and 2 patients were on high risk medications and did not go on to develop delirium.

Conclusion: This unique collaboration between PAT and geriatrics suggests a framework can be established to increase surveillance for delirium in the perioperative period. This population of patients over 65 years old with planned elective spine surgery are a particularly high risk group due to deliriogenic medications used in the preoperative period to manage pain and muscle spasms, along with the potential need for benzodiazepenes for muscle spasms in the postoperative period. We plan to continue to evaluate trends in delirium occurrence in patients with abnormal preoperative cognitive screening and work towards interventions that can be tailored to this population.

C111

Pilot of the APPROACHES Pragmatic Clinical Trial – An Advance Care Planning Specialist program in nursing homes
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Background: Advance care planning (ACP) is recognized as central to providing patient centered care to nursing home residents. Nursing home staff are rarely trained to facilitate ACP or provided with strategies to integrate into practice resulting in highly variable practice and inaccurate documentation. The APPROACHES pragmatic trial is testing implementation of an ACP Specialist program and is funded using the R21/R33 mechanism.

Methods: In the R21 pilot phase, 4 nursing homes were chosen to participate by 3 national nursing home chain partners representing 180 facilities. ACP Specialists, 1-2 per facility, were identified and given access to a 7 part on-line curriculum on ACP facilitation created for the trial. An ACP discussion form was integrated into the electronic health records of each chain for data collection. Over 6 months, ACP Specialists implemented the study protocol and facilitated conversations. Qualitative data was collected through interviews with stakeholders at each site.

Results: In 3 of 4 facilities, at least 1 ACP Specialist completed the full training, facilitated discussions with residents and families, and recorded data in the electronic health record. ACP Specialists included chaplains, social services, nurses, and an admissions coordinator. ACP Specialists were able to implement the core components of the program, including completing training, receiving a monthly list of residents to systematically approach for ACP, use of the tracking tool, and documenting in the electronic health record. The ACP Specialist program was viewed favorably by clinical and administrative leaders. Findings from the qualitative interviews underscored that ACP is considered a priority, but a lack of structured processes or dedicated time has hampered ACP efforts. Competing priorities, particularly implementation of new regulatory requirements, and staff turnover are barriers to program implementation.

Conclusions: The ACP Specialist program, a structured role with training and systematic protocols to integrate ACP in nursing homes, is feasible and acceptable to stakeholders. The R33 pragmatic clinical trial phase will include 90 intervention and 90 control facilities and protocols have been modified based on pilot findings.

C112

Elevated BUN is associated with delirium and death in hospitalized patients with *C. difficile* infection
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Background *Clostridium (Clostridiodes) difficile* infection (CDI) severity has increased, especially among hospitalized older adults. In previous studies, we evaluated clinical factors to predict mortality following CDI and found that patients with delirium (n=120, 33%) were at the highest risk for dying within 30 days of CDI diagnosis. In addition, we have shown that these patients with delirium has significant differences in microbiome compared to similar patients with no delirium. In this study, we aim to evaluate standard clinical laboratory values at day of CDI diagnosis to develop a tool to identify which of these patients at highest risk for delirium to ultimately evaluate options for possible future interventions to prevent delirium in patients with CDI.

Methods We analyzed data from an established cohort of 362 hospitalized patients with CDI as described in previous studies (HSR-IRB# 13630). We evaluated standard clinical laboratory results (peripheral white blood cell count (WBC), serum albumin (ALB), blood urea nitrogen (BUN), serum creatinine, and glomerular filtration rate (GFR)) on day of CDI diagnosis. SPSS was used for student's t-test, significant $p \leq 0.10$.

Results We found that only elevated BUN (32 vs 25, p=0.017) at diagnosis was significantly associated with development of delirium. In addition, change in BUN in 3 days following diagnosis (19 vs 14, p=0.004) was also significantly associated with delirium. Neither WBC (13.26 vs 13.73, p=0.716) nor other measures of renal function were significantly associated with poor outcome.

Conclusions Elderly hospitalized patients who develop delirium following CDI are at increased risk of dying within 30 days of hospitalization. In review of clinical laboratory results on day of diagnosis, BUN was most significantly associated with development of delirium. Further study is needed to evaluate potential intervention and hydration protocols to see if incidence of delirium could be reduced and consequently, improve outcomes in this patient population.

C113
The Effect of Footwear on Postural Sway in Community-Dwelling Older Adults

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Background: Non-slip socks are used in some settings to decrease the risk of falls. The effectiveness of non-slip socks on the velocity of postural sway has yet to be determined. An increased velocity of postural sway has been shown to relate to an increased risk of falling. Previous studies attempting to determine fall risk in relation to footwear have reported conflicting results. This study compares the velocity of postural sway of community-dwelling older adults in static standing and during a simulated fall while barefoot, wearing athletic type shoes, or wearing non-slip socks.

Methods: Computerized dynamic posturography was used to measure velocity of postural sway in static standing and during a simulated backward fall. Twenty seven subjects with an average age of 58.07 years completed three trials of a simulated backward falls in each of three footwear conditions (barefoot, shoes, non-slip socks). Subjects completed a post-study survey to subjectively rank perceived stability in each condition. Data was analyzed using three-way ANOVA and the Generalized McNemar's Test.

RESULTS: In static standing, the mean velocity of postural sway for barefoot was 0.26 m/s, athletic shoes was 0.31 m/s and non-slip socks was 0.26m/s. Barefoot and non-slip socks had a p-value of P<0.05 when compared to athletic shoes. In dynamic standing, the mean velocity of postural sway for barefoot was 2.57m/s, athletic shoes was 2.66m/s and non-slip socks was 2.38m/s. Non-slip socks had a p-value of P<0.001 when compared to athletic shoes. In combined (static and dynamic), the mean velocity of postural sway for barefoot was 1.41 m/s, athletic shoes was 1.49m/s and non-slip socks was 1.32m/s. The p-value between footwear conditions for the combined data was P>0.05. Post-study survey analysis revealed a p-value of 1.000.

Conclusions: A significant difference in velocity of postural sway during static standing between non-slip socks, barefoot and athletic shoes was found. During dynamic standing, a significant difference was found with non-slip socks. The p-value of 1.000 for the post study surveys concludes that the subjective rank of the most stable footwear condition did not match the objective data indicating subjects do not know which is most stable. Non-slip socks may be effective at reducing fall risk in some situations.

C114 Encore Presentation
Validity, reliability, & psychometric properties of Cognivue®, a quantitative assessment of cognitive impairment

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Background: Many tools for assessing cognitive function decline have limited utility due to issues of accuracy, testing bias, and clinician uptake. The objective of this study was to clinically validate Cognivue®, a brief, easy-to-use, FDA-cleared tool for the adjunctive assessment of cognitive impairment risk.

Methods: Adults (55-95 y) at risk for age-related cognitive decline or dementia completed Cognivue®, St. Louis University Mental Status (SLUMS), & other neuropsychological tests. Analyses included: regression analyses for agreement and re-test reliability, and rank linear regression and factor analysis for psychometric comparisons.

Results: 401 subjects completed ≥1 testing session and 358 subjects completed 2 sessions 1-2 weeks apart. Previously determined Cognivue® classification scores were validated, demonstrating good agreement with SLUMS scores (weighted κ 0.57; 95% CI 0.50-0.63). The study of test-retest reliability showed similar scores across repeated testing for Cognivue® (regression fit, R^2=0.81; r=0.90) and SLUMS (regression fit, R^2=0.67; r=0.82). The Cognivue® risk classifications of high, low to moderate, and no risk of impairment, did not differ significantly across repeat testing; however, for SLUMS, the relationship between scores and classifications across repeated testing was less robust. Psychometric validity of the Cognivue® test battery was demonstrated vs. traditional paper & pencil neuropsychological tests. Scores were most closely correlated with measures of verbal processing, manual dexterity/speed, visual contrast sensitivity, visuo-spatial/executive function, and speed/sequencing.

Conclusions: The Cognivue® validation study demonstrated good agreement between Cognivue® and SLUMS; good test-retest reliability of Cognivue® test results; and validated psychometric properties of the Cognivue® test battery vs. traditional neuropsychological tests. This study was supported by Cognivue, Inc.

*INDICATIONS FOR USE: Cognivue® testing is indicated as an adjunctive tool for evaluating perceptual and memory function in individuals aged 55-95 y. It is not intended to be used as a stand-alone device to identify the presence or absence of clinical diagnoses. Cognivue® is intended to be used by medical professionals qualified to interpret results of a cognitive assessment examination.

C115 Encore Presentation
Comparison of the Cognivue® quantitative assessment tool and SLUMS to classify risk of cognitive impairment

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Background: Cognivue®* was developed based on clinical experience and NIH-funded research into neural mechanisms of functional impairment in aging and dementia. The computerized testing tool provides automated brain functional assessment not tied to traditional question & answer testing and consists of 3 sub-batteries of 10 separately scored sub-tests given over 10 minutes. These include basic motor & visual ability, perceptual processing, and memory processing. The objective of this study was to determine Cognivue® cut-off scores corresponding to the St. Louis University Mental Status (SLUMS) 3-level classification for risk of cognitive impairment.

Methods: Adults (55-95 y) at risk for age-related cognitive decline or dementia were invited to complete the SLUMS and Cognivue® tests. Optimization analyses by positive percent agreement (PPA) and negative percent agreement (NPA), and by accuracy and error bias were conducted.

Results: 92 subjects, at 5 sites, completed SLUMS (reference standard) and Cognivue® tests. Based on SLUMS score, 50% were

not impaired (>26), 38% were intermediate (26-21), and 12% were impaired (<21). Analyses using 2 measures of objective function (inaccuracy & error bias), showed that a <21 SLUMS cut-off score (impairment) corresponded to a Cognivue® score of 54.5 (NPA=0.92; PPA=0.64). The SLUMS cut-off score of >26 (no impairment) corresponded to a Cognivue® score of 78.5 (NPA=0.5; PPA=0.79). Based on 2 separate analysis techniques, results showed Cognivue® scores of 55-64 corresponded to SLUMS scores for impairment, and Cognivue® scores of 74-79 corresponded to SLUMS scores for no impairment.

Conclusions: Cognivue® scores ≤50 provide a conservative standard for high risk of impairment that will avoid misclassification as impaired. Cognivue® scores ≥75 provide a conservative cut-off for no risk of impairment that will avoid misclassification as not unimpaired. This study was supported by Cognivue, Inc.

*INDICATIONS FOR USE: Cognivue® testing is indicated as an adjunctive tool for evaluating perceptual and memory function in individuals aged 55-95 y. It is not intended to be used as a stand-alone device to identify the presence or absence of clinical diagnoses. Cognivue® is intended to be used by medical professionals qualified to interpret results of a cognitive assessment examination.

C116 Encore Presentation
Safety of Lemborexant in Elderly Subjects with Insomnia: Results from SUNRISE 1

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Background: SUNRISE 1, a randomized, double-blind, placebo (PBO)- and active-controlled 1-month global Phase 3 study (n=1006), evaluated the efficacy and safety of lemborexant (LEM) in subjects (females ≥55y; males ≥65y) with confirmed insomnia disorder (chief insomnia complaint: sleep maintenance difficulties) and no comorbid sleep disorders. Results of safety parameters from the subgroup of elderly subjects (≥65y) are reported here.

Methods: Following an ~2-week single-blind PBO run-in period, SUNRISE 1 subjects were randomized to PBO, zolpidem tartrate extended release (ZOL, 6.25mg) or LEM (5mg, LEM5; 10mg, LEM10). Adverse events (AEs) were monitored; additional safety assessments included postural stability upon waking after the first and last 2 nights of treatment (body sway in 360° in units of 1/3° angle of arc [units]; higher values indicate more body sway).

Results: SUNRISE 1 included 453 subjects ≥65y (137 males, 316 females); 95.6% (433/453) completed the study. 8 (1.8%) subjects discontinued due to an AE (PBO, 1; ZOL, 3; LEM5, 2; LEM10, 2). Serious AEs were reported in 3 subjects (all ZOL); none were considered treatment-related and all resolved without sequelae. Most AEs were mild to moderate in severity. The most common AEs were somnolence and headache (Table). Falls were reported by 4 subjects (all LEM5); all were considered mild in severity, not treatment-related, and not due to cataplexy. No significant differences were observed in change from baseline in body sway for either LEM group vs PBO at the beginning of treatment (LEM5 vs PBO, 0.16 units; LEM10 vs PBO, 2.69 units) or end of treatment (LEM5 vs PBO, -0.87 units; LEM10 vs PBO, 0.87 units). After the first 2 ZOL doses, change from baseline in body sway was significantly greater than with PBO (ZOL vs PBO, 6.97 units; p<0.01) and both doses of LEM (LEM5 vs ZOL, -6.81 units, p<0.01; LEM10 vs ZOL, -4.29 units, p<0.05).

Conclusions: LEM was well-tolerated in this population. Combined with robust efficacy data (presented separately), safety-related results suggest that LEM, if approved, may be a suitable treatment for patients ≥65y with sleep maintenance insomnia.

Table. Summary of AEs ≥5% in Any Active Treatment Group and >PBO in Elderly (N=453)

AE, n (%)	PBO (N=93)	ZOL (N=120)	LEM5 (N=119)	LEM10 (N=121)
Somnolence	2 (2.2)	1 (0.8)	4 (3.4)	9 (7.4)
Headache	4 (4.3)	5 (4.2)	6 (5.0)	6 (5.0)

C117
Impact of frailty on hospitalization and ED visits among patients enrolled in the Program of All -Inclusive Care for the Elderly (PACE)

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Background: Frail older people are at higher risk for hospitalization, compared to pre-frail and robust older people. Frail adults can live longer in the community when managed by interdisciplinary teams, through enhanced communication, medication adherence, better management of comorbidity, preservation of function and fewer hospitalizations. PACE has emerged as one of the nationally recognized, long-term care models for community- dwelling nursing-home eligible people over age 55. PACE enrollees are less likely to be hospitalized. However, there is little data regarding the long-term impact of PACE on healthcare utilization of frail adults. The aim of this study is to explore the relationship of frailty (vs. non-frailty) status and incident hospitalization in PACE patients.

Methods: This is a follow up study looking at the 2-year outcome of the 30 patients enrolled in PACE who were assessed for frailty in 2016 at Johns Hopkins Bayview hospital in Baltimore, MD. Incidence of ED visits and hospitalization among frail and pre-frail patients were measured. The data was collected retrospectively from the patient's EMR and PACE patient activity log from 2016 through 2018. Hospitalization for the elective procedure were excluded. The statistical analysis was performed by negative binomial regression.

Results: Of the 30 subjects selected from the Hopkins PACE program, 83% were female, 70% African Americans; using Fried's physical frailty phenotype, we identified 3% (n=1), 47% (n=14), 50% (n=15) as non-frail, pre-frail and frail, respectively. Using negative binomial regression, we found that the number of incident hospitalization days over two years in the frail was 1.5 (95 CI = 0.43-5.08) times that of the pre-frail after adjusting for age and Hierarchical Condition Categories (HCC); however, the association was not statistically significant (p=0.543). There was no association between frailty and incident of ED visits (incidence rate ratio=0.99, p=0.977).

Conclusion: There were higher number of hospitalizations among frail older adults enrolled in PACE program as compared to pre-frail patients but this was not statistically significant. Although it is likely that frail older adult required more services to achieve these rates, further study is warranted to analyze the utilization of ancillary services including home-healthcare and nursing home and cost of care for these patients.

C118 Encore Presentation
Effect of mirabegron on cognitive function in elderly patients with overactive bladder: Results from a Phase 4 placebo-controlled study (PILLAR)

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Background: Antimuscarinics are often used for treatment of overactive bladder (OAB), but can be associated with adverse cognitive effects. The impact of OAB treatment with mirabegron, a β_3-adrenoreceptor agonist, on cognitive function was assessed during a Phase 4 placebo-controlled study (PILLAR; NCT02216214).

Methods: Community-dwelling patients aged ≥65 years with OAB with incontinence were randomized 1:1 to receive placebo or mirabegron, stratified by age <75/≥75 years. There were no exclusion criteria regarding cognitive status. Patients randomized to mirabegron initially received 25 mg/day but could increase to 50 mg/day at week 4 or 8 based on patient/investigator discretion. Cognitive function was measured by the Montreal Cognitive Assessment (MoCA) at baseline and end-of-treatment (EOT, Week 12).

Results: Of 887 randomized patients who received ≥1 dose of study drug, 72.3% were female, 79.5% were white, and 28.1% were aged ≥75 years. All patients had ≥1 comorbidity and 94.3% were receiving ≥1 concomitant medication. One third of patients had a history of psychiatric disorders, most frequently depression (17.2%), insomnia (15.7%), and anxiety (11.4%). Among patients with MoCA data available at baseline/EOT, 34.6% (147/425) and 38.0% (156/411) of mirabegron and placebo group patients, respectively, had impaired cognitive function at baseline (MoCA total score ≤26). The baseline mean (standard error, SE) MoCA total scores were 26.9 (0.1) and 26.8 (0.1) in the mirabegron and placebo groups, respectively. There was no statistically significant change in adjusted mean (SE) MoCA total score from baseline to EOT in the mirabegron group (0.0 [0.1]) or the placebo group (0.1 [0.1]).

Conclusions: Treatment with mirabegron for 12 weeks had no impact on cognitive function in patients aged ≥65 years, as measured by the MoCA. Together with the efficacy demonstrated during the PILLAR study, these data suggest that mirabegron does not worsen cognition in older adults treated for OAB.

C119 Encore Presentation

Abaloparatide Effect on Bone Mineral Density and Fracture Incidence in Postmenopausal Women with Osteoporosis Aged 80 Years or Older: ACTIVExtend Phase 3 Trial

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Background: It is important to understand efficacy and safety of osteoporosis treatments in elderly patients (pts) since fracture risk increases with age. In the ACTIVE phase 3 study, 18 months (M) of abaloparatide (ABL) treatment significantly increased bone mineral density (BMD) and reduced the risk of new vertebral (VF), nonvertebral (NVF), clinical (CF), and major osteoporotic (MOF) fractures vs placebo (PBO). Women receiving ABL or PBO in ACTIVE were offered enrollment in ACTIVExtend to receive 24M open-label alendronate (ALN) 70 mg/wk for a total of 43M (18M ABL or PBO, 1M reconsent, and 24M ALN). This post hoc analysis evaluates efficacy and safety of ABL followed by ALN (ABL/ALN) vs PBO/ALN in ACTIVExtend pts aged ≥80y.

Methods: ACTIVExtend enrolled postmenopausal women with osteoporosis 50-85y of age. Pre-specified endpoints, including BMD, and fracture incidence, were assessed over the 43M period. NVF endpoints were assessed using the Kaplan-Meier (KM) method, proportional hazard model, and logrank test.

Results: 56 ACTIVExtend pts (29 ABL/ALN; 27 PBO/ALN) were aged ≥80y at ACTIVE baseline (mean age: 81.8y). Mean percent changes from baseline in total hip (TH), femoral neck (FN), and lumbar spine (LS) BMD were significantly greater with ABL/ALN vs PBO/ALN at all timepoints assessed, except for TH at M6. At M43, BMD mean percent change from baseline was 5.3% ABL/ALN vs 3.1% PBO/ALN (*P*=0.024) at the TH, 4.6% ABL/ALN vs 3.1% PBO/ALN (*P*=0.044) at the FN, and 17.2% ABL/ALN vs 8.6% PBO/ALN (*P*<0.0001) at the LS. Fracture rates were very low in both groups in this small subset of women (VF: 0 ABL/ALN, 1 PBO/ALN; NVF: 1

ABL/ALN, 2 PBO/ALN). Adverse event rates were similar between treatment arms (pts reporting ≥1 TEAE: 78.6% ABL/ALN; 81.5% PBO/ALN).

Conclusion: Significant BMD gains were maintained through 43M with ABL/ALN vs PBO/ALN. This post hoc analysis suggests that an ABL/ALN treatment was effective in an elderly subgroup of ACTIVExtend, with a safety profile similar across treatment arms.

C120

Give Us a Break! Evaluating Rates of Osteoporosis Treatment Following Fragility Hip Fractures in a Community Health System

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Background: Hip fractures are associated with a one year 25% mortality rate. Individuals who sustain a hip fracture suffer loss of independence, a decrease in overall mobility, and are 2-4 times more likely to have a repeat hip fracture than those without fracture history. Increased bone fragility and loss of muscle mass in the elderly population puts these individuals at risk of falls and fractures. Treatment with osteoporosis medication can reduce the risk of subsequent fractures, reduce mortality, and improve quality of life[1]. Multiple studies have shown low rates of pharmacological treatment of osteoporosis following fragility fractures, ranging from 3-40%[2]. The aim of this study was to investigate our institution's rate of effective pharmacologic treatment of osteoporosis following hip fracture.

Methods: A retrospective chart review was utilized to identify new diagnoses of hip fracture within a community hospital system from January 2017 through December 2017. Charts were reviewed to determine if an osteoporosis treatment was prescribed or recommended during a 12 month follow up.

Results: Of 206 charts with hip fracture diagnoses, 111 subjects met inclusion criteria. Eleven were started on osteoporosis treatment, 9.9% (95% CI 5.5-17%). Mean age of subjects: 79.12 years (SD 9.5). Mean age of those treated: 73.7 (SD 7.9). Difference in age was not statistically significant (p=0.070). Mean time to onset of treatment was 137 days (SD 153).

Conclusions: There is a substantial treatment gap in patients with fragility fractures receiving recommended drug treatments for osteoporosis. This community hospital demonstrated suboptimal rates of post fracture treatment. Future studies could help elucidate barriers to prescribing osteoporosis medication after hip fractures. Fracture Liaison Services have demonstrated improved rates of secondary preventive treatment and could be explored at this institution and analyzed for cost effectiveness.

References: 1. Bauer DC. Osteoporosis treatment after hip fracture, bad news and getting worse. JAMA Network Open. 2018; 1(3). 2. Solomon DH et al. Osteoporosis medication use after hip fracture in US patients between 2002 and 2011. J Bone Miner Res. 2014; 29(9); 1929.

C121

Patterns of Central Nervous System (CNS)-Active Medication Use in Older Adults after Fall-Related Injury

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Background: CNS-active medications are an important modifiable risk factor for falls in older adults. We evaluated change in CNS-active medication use at 3, 6, and 12 months following a fall-related injury in a sample of community-dwelling older adults compared to matched controls.

Methods: We included subjects aged ≥65 years from the Adult Changes in Thought (ACT) study. Subjects with a healthcare encounter (hospitalization, emergency department, or outpatient visit) for a

fall-related injury were matched with up to 5 control subjects without fall-related injury but with a healthcare encounter for other reasons within a comparable time period. Matching was based on age, sex, calendar time, ACT study cohort, use of CNS-active medications at time of encounter (index), and encounter type. Medication use was obtained from automated pharmacy data. We estimated average change in CNS-active medication standardized daily dose (SDD) at 3, 6, and 12 months following index, separately for users and nonusers at index, using linear regression models adjusted for matching factors and other subject characteristics. Model parameters were estimated using generalized estimating equations.

Results: 1,516 subjects with fall-related injury (449 CNS-active medication users at index and 1,067 nonusers) were matched to 7,014 controls (1,751 users and 5,236 nonusers). Average SDD at index was 2.4 and 2.2 SDDs, respectively, for users in the two groups. Results of average change in SDD are described in the table. Of those who fell and used a CNS-active medication at index, most common classes were antidepressants (56%), opioids (31%) and benzodiazepines/sedative hypnotics (16%).

Conclusions: Among CNS-active medication users, those with a fall-related injury, on average, had a decrease in SDD at 3, 6, and 12 months, although controls without a fall-related injury had greater decreases. These findings reveal an important opportunity for improving care of older adults with a recent fall-related injury, specifically with regard to dose reduction and elimination of CNS-active medications.

Average change in SDD of CNS-active medications

Time period after index date		3 months	6 months	12 months
Average change in SDD among users of CNS-active medications at index	Subjects with fall-related injury	-0.38 (95% CI: -0.53, -0.23)	-0.39 (95% CI: -0.56, -0.22)	-0.43 (95% CI: -0.62, -0.23)
	Controls without fall-related injury	-0.66 (95% CI: -0.75, -0.58)	-0.64 (95% CI: -0.73, -0.56)	-0.66 (95% CI: -0.77, -0.55)
	p-value	p = 0.001	p = 0.009	p = 0.047
Average change in SDD among non-users of CNS-active medications at index	Subjects with fall-related injury	0.18 (95% CI: 0.12, 0.24)	0.18 (95% CI: 0.14, 0.22)	0.17 (95% CI: 0.13, 0.21)
	Controls without fall-related injury	0.21 (95% CI: 0.18, 0.24)	0.22 (95% CI: 0.19, 0.25)	0.24 (95% CI: 0.20, 0.28)
	p-value	p = 0.437	p = 0.123	p = 0.005

C122
A Third of the U.S. Geriatric Population are on Potentially Inappropriate Medications

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Background: With age comes wisdom- physiologic changes and often the accumulation of medications. The geriatric population is especially vulnerable to adverse effects from polypharmacy and potentially inappropriate medications (PIMS), as published by the American Geriatrics Society in the Beers Criteria. In this study, we utilized the National Health and Nutrition Examination Survey (NHANES) 2011-2014 to quantify the percent of the U.S. geriatric population ($\geq$ 65 years-of-age) with PIMS or polypharmacy.

Methods: Our two outcomes of interest were use of PIMS and polypharmacy. We report population estimates of each outcome for the non-institutionalized population $\geq$65 years-of-age. PIMS were analyzed by matching the Beers list of medications with the NHANES generic drug codes. Polypharmacy was defined the use of $\geq$4 medications. Logistic regression was performed for each outcome by sex, recent hospitalization, and age group (65-74 years; $\geq$75years). Odds ratios and p-values are reported.

Results: In our population, 35.0% (95% CI: 31.9% - 38.1%) of participants had $\geq$1 PIMS in the previous month. Recent hospitalization (OR: 1.76; p <.001) and female sex (OR: 1.20; p = .029) increased the risk of PIMS usage. Polypharmacy was present in over half of our population (53.4%; 95% CI: 50.4% - 56.4%). Hospitalization (OR: 2.38; p < .0001) and age $\geq$75 years (OR: 1.66; p < .0001) increased risk of polypharmacy.

Conclusion: The U.S. geriatric population has a high rate of use of PIMS and polypharmacy. As providers, we must work across multiple domains to address the complex challenges, minimize the risk of adverse events, and ensure the health and well-being of our geriatric patients.

C123
Gender Differences in Polypharmacy Rates in Adults with Multiple Chronic Conditions

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Background: Polypharmacy (simultaneous prescription of multiple medications) is common in populations with multiple chronic conditions (MCC). Modern practice guidelines do not sufficiently address the management of MCC. Mixed evidence of gender differences in prescription patterns were previously reported, however there is a gap in understanding the role of gender on the complexity of medication use for various MCC clusters. This study seeks to determine gender differences in polypharmacy use across various MCC combinations. **Methods**: This study involves a cross-sectional analysis of the 2004 Health and Retirement Study linked to the 2005 Prescription Drug Study data (n=3,877, $\geq$51 years of age). Dyads, triads and quadriads of MCC were identified based on 9 chronic conditions (hypertension, diabetes, stroke, arthritis, cancer, heart and lung diseases, high depressive symptoms, cognitive impairment). Participants were grouped into 5 categories based on their medication use: 0-1, 2-3, 4-5, 6-9, 10+ medications; polypharmacy was defined as 6+ medications used. Chi-square tests and logistic regressions were used to assess the association between polypharmacy and gender for the most prevalent MCC combinations. **Results**: About 70% of men and 72% of women had at least one MCC cluster. The leading dyad was hypertension-arthritis (women: 50.9%; men:39.3%). The most frequently occurring triads/quadriads all included hypertension-arthritis alongside combinations with heart disease, diabetes, and depression. Combinations with depression were twice more frequent in women than in men (4.4-16% vs. 2.3-9%). Women with MCC were more likely to use 6+ medications (38.6% vs. 26.2%). The statistically significant gender differences in polypharmacy levels were identified for dyads of heart disease-arthritis (women on polypharmacy: 54.6%; men:46%), and hypertension-heart disease (56.1% vs. 49.7%). Compared to men, women had higher odds of having polypharmacy in the presence of depression (adjOR:1.65-2.00). **Conclusions:** As compared to men, polypharmacy is more likely among women in clusters with depression, and combinations of cardiovascular conditions with arthritis. Findings identify target groups for future care management programs. Identification of gender differences in medication use in common MCC combinations could facilitate practice guideline development for managing MCC.

C124
Substitution or Restitution? Trends in Opioid Use Among Adults in Arkansas, 2014-2017

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Background: Several steps have been taken to curb the opioid epidemic and reduce opioid prescribing. According to the National Institute on Drug Abuse, in 2013, the average U.S. opioid prescription rate was 79.3 for every 100 persons compared to Arkansas rate of 117.5 opioid prescriptions for every 100 persons (approximately 3.5 million prescriptions). Since then, opioid prescriptions in the U.S. have declined, with a nearly 5.0 percent decline from 2013 to 2015. Arkansas Prescription monitoring program (AR PMP) at the Arkansas Department of Health tracks prescriptions for opioids.

Methods: Our study assessed prescribing trends of short and long acting opioids and benzodiazepines from 2014 to 2017. Aggregate de-identified data on opioid and benzodiazepine prescriptions were obtained for the period 2014-2017 from the AR PMP. We used linear regression models to assess the trends in opioid and benzodiazepine prescriptions in Arkansas.

Results: Short acting opioids made up 92.9% of all opioid prescriptions in 2014, while it accounted for 92.5% of all opioid prescriptions in 2017. Their trend has been downward but it was not a significant decrease; annual percent change: 97.1% (95% CI 89.2, 103.0). The top 3 opioids prescribed are hydrocodone, tramadol, and oxycodone. During years, 2014 thru 2017, hydrocodone prescriptions declined (trend: linear term = -0.259, se = 0.065, p = 0.0103; quadratic term = 0.044, se = 0.021, p = 0.0844) but this decline was mirrored by increases in prescriptions for tramadol and oxycodone (common trend: linear term = 0.521, se = 0.079, p = 0.0012; quadratic term = -0.114, se = 0.025, p = 0.0063). Benzodiazepine prescriptions were stable (trend = 0.027, se = 0.017, p = 0.159) during this timeframe.

Conclusions: Efforts to curb opioid prescriptions in Arkansas are bearing fruit as evidenced by decrease in short acting opioid prescriptions. However, concerns exist about substitution of opioids such as hydrocodone with tramadol and long acting opioids such as oxycodone. This is especially concerning in our frail elderly who suffer consequences stopping of switching of their pain medications.

C125 Encore Presentation
Normative Data for and Predictors of 5-Year Change in Gait Speed Among U.S. Older Adults in the National Social Life, Health and Aging Study.

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Background.

Gait speed is a marker of frailty and health among older adults, though the expected longitudinal trajectories of gait speed are not well characterized on a national level. Lack of reference data prohibits routine use of this important marker in the clinical setting.

Objective.

The purposes of this study were to provide older adult normative data for 5-year change in gait speed by age and gender, and to identify predictors of improvement and decline in gait speed.

Methods.

We used the 2010-2011 and 2015-2016 waves of data collected from 2,142 older adults in the National Social Life, Health and Aging Project, a longitudinal, nationally-representative study of older U.S. adults. Gait speed (m/s) was calculated for each respondent using the faster of two, 8-foot timed walks performed at a usual pace. Quantile regression controlling for age and gender was used to identify the 5th, 10th, 25th, 50th, 75th, and 95th percentiles of gait speed for each age and gender category in both waves which were plotted using lowess. The difference in gait speed across waves was then calculated. A multinomial regression model identified whether age, gender, or race/ethnicity predicted 5-year change in gait speed categorized as slower, the same, or faster.

Results.

In 2010-11 and 2015-16, the mean gait speed was higher among men (0.58 m/s, 0.54 m/s) than women (0.56 m/s, 0.52 m/s). Gait speed declined with age across percentiles for both genders. The mean 5-year change in gait speed was -0.04 m/s (95% CI: -0.06 - -0.02). While 46% of the sample had slower gait speed 5 years later, 27% had faster gait speed. In a multinomial regression model, no demographic variables predicted faster gait speed 5 years later, age and African-American race predicted slower gait speed.

Conclusions.

This reference data suggests that age and gender-specific gait speed cut-points would help distinguish individuals performing above or below expected for "normal" aging in clinical practice. Furthermore, a substantial percentage of older adults do not demonstrate a decline in gait speed over time and monitoring these trajectories may offer unique information to one's position in the cross-sectional distribution of gait speed.

C126
The "Life" of Chronic Disease: Patterns of Activity Across the Day Among Older U.S. Adults

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Background: Accelerometry permits remote, objective, continuous activity monitoring in the free-living environment and may provide a new, innovative approach for the remote assessment of how older adults function in their day-to-day life. The aim of this study was to determine whether chronic diseases are associated with accelerometry-measured activity patterns across the day in older U.S. adults.

Methods: Using 2010-2011 wrist accelerometry data collected from the National Social Life, Health and Aging Project (n=693), a nationally-representative probability sample of older adults, we used mixed effects linear regression to model the logarithm of hourly counts per minute (CPM) as a function of self-reported chronic diseases (arthritis, cancer, heart failure, heart attack, emphysema or obstructive lung disease, stroke, or diabetes), adjusting for demographic characteristics, frailty, body mass index, cognition, season, day of week and time of day.

Results: The presence of heart failure (β coefficient = -0.07, p value = 0.03) and diabetes (β coefficient = -0.07, p value < 0.001) were associated with lower activity across the day with a similar effect size to a decade of age (β coefficient = -0.06, p value < 0.001). Older age, male gender, higher BMI, and frailty were also associated with lower activity.

Conclusions: Our findings indicate that older adults with heart failure and diabetes are most likely to have low activity indicating accelerometry may be helpful in detecting individuals at risk for having these diseases and/or assessing impact of these diseases remotely.

C127
Association between cannabis laws and opioid prescriptions among privately insured adults in the US

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Objective: To examine the association between opioid prescription patterns in privately insured adults and changes in states cannabis laws among five age groups (18-25, 26-35, 36-45, 46-55 and 56-64 years).

Methods: A cross-sectional analysis (2016) and a longitudinal ecological analysis (2009-2016) of opioid prescriptions in Clinformatics Data Mart (CDM) among all adults aged 18-64 years and five age groups based on cannabis laws strictness.

Results: We found a significant interaction between age and cannabis law on opioid prescription in the cross-sectional analyses. Age-stratified multilevel multivariable analysis showed lower opioid prescription rates in the three younger age groups only in states with medical cannabis laws [adjusted odds ratio (aOR)=0.81, in

18-25 years, aOR=0.84 in 26-35 years, and aOR=0.82 in 36-45 years, P <0.0001 for all]. In the older age cohort of 55-64 years, there was no significant decrease in opioid prescription rate across states. In the longitudinal analysis, there were decreases in opioid prescription rates in the post-law change period among the three younger age groups regardless of whether study states had witnessed a change in cannabis laws

Conclusions: While the opioid prescription rate is lower in younger age groups in states with medical cannabis laws, it is unclear whether changes in cannabis laws have contributed to this as prescription rates have declined similarly in states with and without cannabis laws.

C128

Social Isolation and Incident Disability with Activities of Daily Living (ADL): Clinical Implications

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Background: Disability prevention in older adults is a major clinical and public health priority. Social science advances provides now the foundation for the conceptualization of social isolation as a potentially modifiable risk factor for adverse health outcomes in older adults, including disability. Epidemiologic research seeking to translate social isolation knowledge for disability prevention enhancement is warranted. We sought to identify simple social isolation indicators reflective of increased disability risk, which could contribute towards novel prevention programs in clinical settings.

Methods: Prospective study using data from Medicare beneficiaries (65 years and older) in the National Health and Aging Trends Study. Data included: (i) Disability - need of help from another person for any ADL; and (ii) Dichotomous social isolation indicators (yes/no): (a) visited in-person with friends or family in past month; (b) attended religious services in past month; (c) social participation (clubs, classes, or other) in past month; and (d) had ≥2 persons to talk about important matters. Logistic regression assessed incident ADL disability (from round 1 to 4) as a function of social isolation (all 4 indicators in the model), with adjustment for age, gender, race/ethnicity, education, living arrangement, diseases, depression, and fall history. Analyses focused on those at-risk for disability; i.e., those with dynapenia (low grip strength), a key sarcopenia measure readily obtainable in the clinical setting. Analytic sample = 476.

Results: In final adjusted model, social participation (OR: .61; 95% CI: .38-.97, p=.038) and in-person visit (OR: .52; 95% CI: .30 - .92, p=.023) were strongly and independently associated with lower odds of incident ADL 3 years later. Those who reported both social participation and in-person visit (36.6% of analytic sample) had 1/3 of the odds (OR: 0.34, 95% CI: .17-.72, p=.004) l of incident ADL disability than those who reported none.

Conclusions: Simple indicators of social integration, the flip side of isolation, were meaningfully associated with reduced ADL disability incidence in older adults at-risk. Development of decision-making algorithms considering complementary social isolation screening in older adults at-risk for disability could prove useful to geriatricians and healthcare systems seeking to advance disability prevention in the clinical setting.

C129

Technology use among older adults in Mexico

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Background: A significant increase in technology adoption and use has been observed among older adults. Between 2013 and 2017, a 24% increase in smartphone ownership among older adults in the USA was reported. The same held true for internet use. Hispanics use smartphones more than any other group and is their main way to access health information. Mobile Health (mHealth) use is related to

improvements in health literacy, quality of life and health outcomes in older adults. These benefits also apply to those with cognitive problems. We want to explore technology use and technology adoption among older Hispanics as the initial step towards designing mHealth applications for them. **Methods:** Data is from the Mexican Health and Aging Study (MHAS) a nationally representative longitudinal study of adults in Mexico. We examined technology use in 2012 and predictors of technology adoption between 2012 and 2015 among adults 60 years and older. Percentages describe categorical variables and means with standard deviations describe continuous variables in both waves. We estimated logit models predicting new technology use and sustained technology use between t2012 and 2015. All analyses were conducted using STATA/SE 14.2 for Mac. **Results:** There was a 9.8% increase in technology use between the waves. A total of 70.1% of adults did not use technology between waves, 16.8% used technology in both waves and 13.1% adopted technology between both waves. Sustained and new users were mostly women (58.2% and 58.3%). The percentage of technology users was significantly higher in urban areas than in rural areas, with 98% of sustained users in urban areas and 95.2% of new users in urban areas. Females, younger age, higher education, and higher assets, higher cognitive scores, living alone and higher depressive symptoms were significantly associated with technology adoption between waves (p<0.05). Having diabetes and hypertension also increased the probability of adopting technology. **Conclusions:** Similar to other countries, the use of technology among older adults in Mexico is increasing. Gender and higher socioeconomic status were predictive of sustained and new technology use. Older adults living alone, those with depressive symptoms and those with some chronic conditions can benefit from mHealth interventions. There is a great opportunity to incorporate technology use into healthcare for older Hispanics.

C130

Extended-Spectrum Beta-Lactamase (ESBL) producing enterobacteria in urinary tract infection in Long-Term Care facilities: 12 years follow-up!

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Background: Urinary tract infection (UTI) is the second most common infections in the geriatric population; elderly patients are more prone for infection because of the decrease in their immunity, urine and fecal incontinence, dehydration, impaired cognitive function, frailty, and the presence of many underlying factors like diabetes, kidney disease, and prostate hypertrophy. UTI can present with atypical symptoms causing delay in the diagnosis or on the other side might cause increase antibiotic ordering because of the suspicion of an infection. Most of the UTI infections in geriatric are caused by gram negative bacteria that are susceptible to the most common antibiotics; however, the emergence of Extended-Spectrum Beta-Lactamse producing enterobacteria is a big concern in these facilities and is becoming a challenge to physicians by limiting their therapeutic options.

Methods: We analyzed data collected from 691,298 specimens collected for urine culture from 2006-2017 from residents in Long-Term Care facilities. Cultures were done utilizing MicroScan Walkaway 96 conventional panels. We calculated the prevalence of ESBL in gram negative organism among the population tested. Statistical analysis was done using Analyse-it

Results: more than 50 % of cultures were positive across the years tested, gram negative bacteria accounted for more than 70% of the positive culture across the years tested. Increase ESBL producing bacteria among the gran negative bacteria rose from 6.0 % in 2006 to 16.6% in 2017.

Conclusion: Our results showed a progressive increase in ESBL producing enterobacteria in elderly patients and it supported the notion that Long-Term Care facilities could be a reservoir for these microbes. Patients should be treated based on their clinical evaluation and should

be reexamined and evaluated based on the results of the culture and antibiotic susceptibility. An antibiotic stewardship program should be implemented to identify the risk factors for ESBL and optimize the use of antibiotics to improve patient outcome and prevent further increase in antimicrobial resistant bacteria.

C131

The Burden of Common Health Conditions Across Race and Ethnicity for Aging Adults in the United States

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Background: Race and ethnicity are important factors for health risk, and evaluating disability-adjusted life years (DALYs) for common health conditions may help to inform healthcare providers working with aging adult patients and interventions aiming to improve health in the aging adult population. The purpose of this study was to determine the burden of common health conditions across race and ethnicity for a nationally-representative sample of aging adults in the United States.

Methods: Data from the 1998-2014 waves of the Health and Retirement Study were analyzed. Participants who were aged at least 50 years and identified as Black, Hispanic, or White were included. Self-reported physician diagnosed cancer, chronic obstructive pulmonary disease, congestive heart failure, diabetes, back pain, hypertension, fractured hip, myocardial infarction, rheumatism, and stroke was collected at each wave. DALYs were calculated for each race and ethnicity, and ranked DALYs determined how race and ethnicity was differentially impacted by the burden of each health condition. Sample weights were utilized to make estimates nationally-representative and the results were reported in thousands.

Results: There were 5,510 Black (weighted sample=13,169,445), 3,423 Hispanic (weighted sample=10,045,723), and 21,168 White (weighted sample=91,395,572) aging adults included. DALYs ranged from 1,405-55,633 for Blacks, 931-28,443 for Hispanics, and 15,313-295,625 for Whites. Although the health conditions affected each race and ethnicity differently, hypertension had the largest number of DALYS, while hip fractures had the fewest.

Conclusions: The burden of these health conditions accounted for millions of healthy years of life lost for Black, Hispanic, and White aging adults in the United States. These findings indicate that race and ethnicity may be influential on the health and disease status of aging adults. Trends in DALYs should continue to be monitored in aging adults so that healthcare resources are prioritized to match such trends, and for gauging the effectiveness of interventions that aim to prevent and treat health conditions.

C132

Prevalence and Factors Predicting Aspirin Use for Secondary Prevention in Veteran Affairs (VA) Nursing Home Residents with Limited Life Expectancy on Admission

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Background: Continuation of aspirin for secondary prevention (ASP) at end-of-life is controversial, given increased risks and unclear evidence about continued benefits; yet little is known about patterns of use of ASP in older nursing home (NH) residents. This study sought to describe prevalence and predictors of ASP in Veterans at admission to VA NHs.

Methods: We performed a retrospective cohort study of aspirin use in Veterans with limited life expectancy (LLE) and/or advanced dementia (AD) admitted to a VA NH for ≥7 days in fiscal years 2009-15, who had history of coronary artery disease (CAD) and/or stroke. Using daily medication administration data, we defined ASP as receipt of a preventive dose (75-325 mg in CAD, 50-325 mg in stroke with no CAD) on ≥1 day in the first 7 days of the stay. Resident, caregiver, and facility level characteristics were extracted from admission Minimum Dataset (MDS) assessments, VA Corporate Data Warehouse, and Medicare claims. Multivariable logistic regression was used to determine factors associated with aspirin receipt.

Results: The sample (n=37,172) was 98% male, 78% white, and 64% aged 65-74 years; 48% received aspirin in the first week of the NH stay. The strongest predictor of higher odds of aspirin receipt was being prescribed more medication classes (e.g., aOR=5.81 [95% CI=5.07, 6.66] for >15 vs. ≤5 classes); other predictors of ASP were older age, admission from home/assisted living, other cardiovascular risk factors, and concomitant anti-platelet and antithrombotic therapy. Factors predicting lower odds of ASP included female sex, explicit documentation of <6 months prognosis on the MDS, receipt of hospice/palliative care in the prior year, and cancer.

Conclusion: Just under half of older adults with LLE and/or AD were prescribed ASP at NH admission. Given the controversy of continuing ASP at end-of-life, future studies are needed to examine the effect of ASP deprescribing on outcomes in patients nearing end-of-life.

C133

Ocular exposures in the elderly in the United States: a 5-year study

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Objectives: To study the incidence and characteristics of ocular exposures in the elderly population reported to poison control centers over a five-year period in the United States.

Methods: Records of all ocular exposure calls made to the poison control centers in the United States from 2011 to 2015 were obtained and analyzed.

Results: A total of 25,594 calls were reported in the study period, with the incidence increasing by an average of 4% each year. Most exposures happened at home (n=23,923; 94%), were unintentional (n=10,568; 41%), and primarily due to wrong medication being administered in lieu of eye drops (n=3,653; 14%). Otic preparations were a common cause of such ocular exposure (n=3,706; 15.5%). The most common symptom reported was irritation and redness of the eyes (n=17,058; 67%). The most frequent treatment provided was irrigation and wash of the affected eye (n=21,340; 83%).

Conclusion: There is an increasing incidence of geriatric ocular exposures, and they commonly occur unintentionally at home and due to instillation of the incorrect medication into the eye. Special precautions are warranted for prevention.

Figure 1. Causes of Ocular Exposures
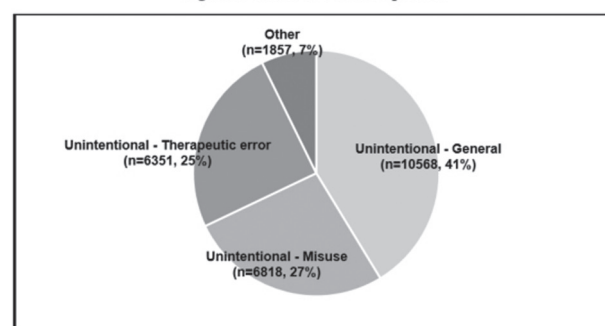
C134

Social isolation and the onset homebound status among older adults

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Background: Social isolation impacts the health and well-being of older adults. Multiple factors influence whether older adults are or become homebound. Social isolation may increase an older adult's risk of becoming homebound but this is unknown.

Methods: We analyzed a nationally-representative sample of community dwelling participants from Rounds 1 -7 of National Health & Aging Trends Study (NHATS). Social isolation was operationalized from four domains: living arrangement (alone/with others), social network, religious attendance and social participation. Homebound persons were identified as those who never or rarely left home in the past month or who only left home with assistance, or had difficulty or needed help leaving their home. A multivariate logistic regression analysis was conducted using baseline measures, in order to assess the odds of being homebound at baseline for those with various levels of social isolation. A multivariate Cox proportional hazard model was used to examine the association between becoming homebound over the course of the 7 rounds of the study and social isolation status at baseline. Both models were weighted and adjusted for age, sex, race, marital status, income, education, ADL difficulty, and comorbidities including dementia, depression, and presence of multiple chronic illnesses.

Results: At study inception, approximately 24% of study participants were socially isolated. In the cross sectional analysis of social isolation and homebound status, socially isolated and severely socially isolated older adults had respectively 1.36 (95% CI 1.11-1.66) and 2.30 (95% CI 1.46-3.64) greater odds of being homebound than socially integrated older adults. Additionally, older adults who were socially isolated at baseline had a 1.17 times (95% CI 1.03-1.34) the risk of becoming homebound compared to not being homebound over 7 years.

Conclusion: Older adults who experience social isolation are more likely to be homebound and more likely to become homebound over time. Our findings underscore the importance of developing health promoting strategies or interventions to address social isolation among community dwelling older adults.

C135

Trajectories of Physical Capacity among Older Adults

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Background: Little is known about longitudinal patterns of physical capacity with aging. Physical capacity refers to one's ability to carry out physically demanding tasks that integrate strength, balance, and aerobic ability. Identifying such patterns could allow for more targeted interventions. Our objective was to identify and describe long-term trajectories of physical capacity in a population-based sample of community-dwelling older adults.

Methods: We analyzed data on 6,783 community-dwelling adults aged ≥65 years who participated in the National Health and Aging Trends Study, which is a nationally representative cohort of Medicare beneficiaries with annual, in-person data collection between 2011-2017. Outcomes were integer variables of physical capacity that included the Short Physical Performance Battery ([SPPB]; range: 0-12, higher is better) and self-report of ability to do 6 pairs of activities, including walking 3 or 6 blocks independently (composite scores range 0-12, higher is better). We used unadjusted group-based trajectory models (GBTM) to identify longitudinal patterns of physical capacity. The goal of GBTM is to describe the course of an outcome for distinct sub-groups over time.

Results: The cohort was 57% female, 68% white, and 58% were ≥75 years. We identified five distinct trajectories of the SBBP over 6 years: group 1 (16.1% of sample; SPPB starting at 10.5 at baseline and ending at 10.2 by year six); group 2 (28.0%; starting at 8.2 and ending at 7.5); group 3 (26%; starting at 5.8 and ending at 4.3); group 4 (14.5%; starting at 3.1 and ending at 1.6); and group 5 (15.3%; starting at 3.9 and ending at 2.4). We identified six distinct trajectories of self-reported physical capacity over 6 years: group 1 (29.4%; starting at 11.8 at baseline and ending at 11.4 by year six); group 2 (14%; starting at 11.1 and ending at 10.7); group 3 (15.3%; starting at 10 and ending at 9); group 4 (20.5%; starting at 8.5 and ending at 5.5); group 5 (14.1%; starting at 4.8 and ending at 2.9); and group 6 (6.8%; starting at 1.5 and ending at 1.1).

Conclusions: Trajectories of physical capacity were relatively stable from baseline, identifying older adults with robust functioning as well as those declining over six years. Those with SPPB scores < 6 appear to experience more decline compared to those starting with higher scores, representing a population to target.

C136

Beliefs about Benefits and Harms of Medications and Supplements for Brain Health

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Background: Medications and supplements are routinely examined for beneficial or harmful effects on brain health. Recent landmark reports of dementia prevention question the utility of several medications and supplements purported to reduce dementia risk. Findings based on observational data assessing medications that increase the risk of dementia are mixed. Little is known about patients' views toward these topics. We sought to assess beliefs about the helpfulness or harmfulness of various medications and supplements on brain health.

Methods: We administered a web-based survey consisting of 7 questions about beliefs toward medications' and supplements' helpfulness or harmfulness for brain health among a convenience sample of 1,661 adults in an integrated health care delivery system in Washington State between February and March 2018. We calculated frequency distributions of the quantitative survey data.

Results: The majority of respondents were female (77%), between the ages of 51-70 (64%), white (89%), and had a Bachelor's degree or higher (68%). Approximately 5% and 17% of respondents reported current use of a prescription medication or supplement/over-the-counter (OTC) medication, respectively, to improve brain health. Among all survey respondents (N=1661), the medication or supplement most frequently reported to be useful to improve brain health was fish oil (43%, very/somewhat useful) followed by vitamin E (24%), statins (19%), ginkgo biloba (18%), and hormones (estrogen and testosterone) (15%). Many respondents reported not knowing, or skipped these items (46-64%). Among all survey respondents (N=1661), over-the-counter sleep aids were more frequently reported to be harmful to brain health (31%, very/somewhat harmful) than proton pump inhibitors (18%). Many respondents reported not knowing, or skipped these items (63-77%).

Conclusions: Patient beliefs toward the helpfulness or harmfulness of various medications and supplements on brain health were in conflict with current evidence. In addition, many respondents reported not having sufficient information to respond to the questions, suggesting opportunities for patient education. Future research should examine how people obtain information on medications and supplements targeting brain health and identify ways to direct them to the most appropriate, evidence-based sources.

C137

Informal caregivers' views on formal caregivers of older adults

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Background: Community-dwelling older adults receive help with personal and health-related care from both informal caregivers (family or friends) and formal (paid) caregivers. Research has examined interactions between older adults and their informal caregivers, but few studies have explored the relationship between informal and formal caregivers. In this qualitative study we aimed to understand the perspectives of informal caregivers about formal caregivers of older adults.

Methods: We recruited participants from the Irving Sherwood Wright Center on Aging, an academic outpatient geriatric medicine practice in New York, N.Y. We conducted semi-structured interviews with informal caregivers of community-dwelling adults at least 65 years old who also had a formal caregiver in the last year. Interviews were audio recorded and professionally transcribed. Using an established conceptual framework, we analyzed data thematically.

Results: We interviewed 10 informal caregivers: 7 women and 3 men. Seven cared for a parent and 3 for a spouse. We identified 5 major themes. 1) Formal caregiving benefits both care recipients and informal caregivers. Care recipients received companionship and ADL help, and informal caregivers received relief from caregiving-related stress. "She [home care worker] keeps my husband safe so I can go about my life." 2) Formal caregiving allows older adults to remain at home. "A nursing home … would break her spirit." 3) Employing a formal caregiver is logistically challenging. Home care could be expensive, fragmented, and hard to find. "It was a real puzzle finding someone." 4) Finding the right fit is important. It took time and training to find aides with the right skills and rapport with care recipients. "We became, over time, like a family." 5) Who's doing what? Informal and formal caregivers negotiated and managed tasks even after the initial training period. One area of overlap was medical appointments. "She has been with us for a long time, so it has … a natural rhythm."

Conclusion: Although hiring and managing formal caregivers could be difficult, informal caregivers found formal caregivers for older adults beneficial. Clinicians should be aware of these tensions when interacting with patients and caregivers, especially around the time of home care initiation.

C138

Attitudes of Homebound Older Adults and their Caregivers around Engaging in Research

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Background: A patient and caregiver-centered research agenda for the field of home-based medical care requires incorporating the voices of homebound older adults and their caregivers. However, this population has had little opportunity to provide input on what research topics are relevant to their lived experience. An initial step in incorporating the views of this population is to understand better their attitudes toward research.

Methods: In the context of a PCORI Engagement Award, we completed qualitative semi-structured interviews with homebound adults and their caregivers to explore their overall perceptions of research. We recruited participants from home-based medical care practices at UCSF and JHU. Homebound participants were 65+; caregivers were unpaid family or friends; all participants consented for themselves. Interview questions addressed opinions on research and engaging as advisors to researchers in home-based medical care. We identified themes using descriptive thematic analysis of transcripts.

Results: Between April and October 2018, we conducted 17 interviews with caregivers and 13 with homebound older adults. 73% were female, 57% non-white, 38% had Medicaid. Most participants expressed the attitude that healthcare research is important – "it's for the good of the next people who are sick"– and serves as an opportunity to learn and share knowledge with others. Some participants felt that because of their older age or chronic conditions, research could not include or impact them: "there's too many issues already with me." Yet, even for those who felt research might not benefit them personally, most still felt research was good if it could help someone else. When given examples of ways to contribute as an advisor to researchers, most reported interest in being involved, with some expressing fears over having the knowledge or skills to contribute ("I'm no expert").

Conclusions: A diverse group of caregivers and homebound older adults reported generally positive attitudes towards research and an openness to engaging in the development of a research agenda for home-based medical care. Incorporating the voice of this usually invisible population will help ensure that patient and caregiver-centered research is promoted and conducted.

C139

Getting Back to Normal: A Grounded Theory Study of Function in Post-Hospitalized Older Adults

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Background: The literature on transitions after hospitalization are based on a medicalized model focusing primarily on medication management and readmission. Little is known about the process older adults engage in to maintain their normal life post health event or how older adults define what the transition is. This grounded theory study aimed to describe how older adults understand and define a transition process, what actions they take based on their understanding, and consequences they experience as they transition.

Methods: Adults aged 65 and older discharged from a large Midwestern teaching hospital (N = 14) were interviewed using in-depth one-on-one interviews. Data were analyzed using open, axial, and selective coding.

Results: All participants described the process of transition as moving from a state of normal function to loss, and then working back to that normal state. A conceptual model was developed, which illustrates the complexity of movement related to how older adults understand and manage the transition. Normal function was described as being able to contribute to and to engage in all aspects (social, productive, physical) of their life. All participants described starting out *being normal* until they experienced a major health event (acute or chronic illness). *Losing normal* involved experiencing a lower level of function both inside and outside the home. Working back to normal was accomplished by two different pathways. Those *working to regain* focused on getting back to the level they were at prior to the major health event. In contrast, *working to maintain* often involved redefining to a *new normal*. The consequences of the two pathways were quite different, with those *working to maintain* describing several negative consequences (e.g., high healthcare utilization and relocation). Multiple conditions impacted whether participants worked to regain or maintain, including support they received from family, friends, and healthcare providers.

Conclusions: This study provides a detailed understanding how older adults transition and the complexity of that transition. Findings provide a foundation for broadening our understanding of function beyond ADLs and reveal a more complex transition process that can span months to years.

C140
Does Deprescribing Improve Quality of Life? A Systematic Review of the Literature

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Background: Deprescribing, the systematic process of identifying and discontinuing medications, is an intervention to reverse the harms of potentially inappropriate or unnecessary medications in older adults. There is mixed evidence to support if a reduction of these medications improves quality of life (QOL).

Methods: The protocol was listed on PROSPERO. Numerous databases were searched from inception until November 2017. Two independent reviewers screened all retrieved articles via Distiller SR, assessed study quality, and extracted data. Eligible studies included those in which older adults had at least 1 medication deprescribed versus usual care. The primary outcome was participant or designated representative self-reported change in QOL. Secondary outcomes included satisfaction with care, emergency department (ED) visits and rehospitalizations. Studies were assessed for bias via the Cochrane risk of bias tool.

Results: Screening of 6,543 articles identified 17 eligible studies (N=1,923 participants). In 12 studies exploring the impact of deprescribing on QOL, most found no difference. Only 1 randomized study found total QOL to be significantly higher for those whose statin was discontinued (N=381; p=.04), and 1 non-randomized study found improved QOL in those who maintained benzodiazepine abstinence at 24 months (N=51; p=.02). Only 1 study found no difference in patient satisfaction (N=381; p=.22). In 4 studies exploring the effect of deprescribing on ED visits and rehospitalizations, only 1 non-randomized study found a reduction of annual referral rates to acute care facilities (N=190; p<.002). Many studies had high risks of performance or detection bias. We found considerable heterogeneity in populations, deprescribed medications, and QOL measures across studies. Most studies utilized a placebo medication instead of reducing number of pills, which may have diluted the effects of deprescribing on burden and QOL.

Conclusion: Based on a limited number of studies with varying methodological rigor, our results suggest deprescribing does not appear to improve or decrease QOL. Additional randomized, controlled studies are needed to definitively determine the effect of deprescribing on QOL.

C141 Encore Presentation
In-Home Technology Training to Reduce Social Isolation Among Older Adults: Preliminary Findings from the Tech Allies Program

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Background

Technology has potential to increase social connectedness among older adults, but 1/3 do not use the internet[1]. We formed a community partnership to provide tablets, discounted broadband, and 1:1 training to isolated older adults.

Methods

Tech Allies was a partnership between Little Brothers Friends of the Elderly (LBFE, volunteer organization providing home visits for older adults), Community Tech Network (digital literacy training organization), and UCSF. Older adults were randomized into an immediate training group and a 2-month waitlist control group. LBFE volunteers visited participants weekly and provided 8 in-person lessons on iPad use. Surveys assessed loneliness and self-reported tech use/skills at baseline and follow-up.

A subgroup also completed in-home interviews discussing motivations for internet use and perceptions about technology and health.

Results

42 participants were randomized into immediate training and 37 into a waitlist. The sample was 51% female, mean age 76, 75% income <$20K, and 44% nonwhite. Of the 27 participants with complete data in Nov 2018, 81% reported loneliness at baseline and 74% at follow-up (p=0.5). Among the training group (n=20), 30% reported no technology use at baseline and 0% at 2-months (p=0.03).

The qualitative interviews showed isolation was a key driver of program participation, with high self-awareness about how technology may impact isolation. Participants also expressed unmet needs regarding technology and health such as, "Sometimes I can't even make it [to the doctor]…I only have a caretaker…I don't even have a relative."

Conclusions

Though participation in Tech Allies did not result in change in loneliness, it did result in an increase in technology use. Embedding training within existing community-based programs holds promise as a potentially sustainable mechanism to provide digital literacy training to older adults.

References

1. Anderson M, Perrin A. Tech Adoption Climbs Among Older Adults. Pew Research Center: Internet, Science & Tech; 2017. http://www.pewinternet.org/2017/05/17/tech-adoption-climbs-among-older-adults/.

C142
'I Can Make a Difference:' What Nursing Assistants Enjoy about Working with Older Adults

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Background: In the United States, Nursing Assistants (NAs) are critical in providing direct care to nursing home residents.[1] However, employee turnover among NAs is high, estimated at nearly 75% annually.[2] High turnover may increase the workload for remaining NAs and interrupt quality of care for residents. This qualitative study aimed to identify factors contributing to job satisfaction among NAs working with older adults in nursing homes.

Methods: Five focus groups were conducted with a total of 38 NAs, who had at least one year of experience as a NA working with older adults. All focus groups were audio recorded and transcribed verbatim. The data were analyzed using the directed content analysis approach.

Results: Data analyses revealed several key individual and interpersonal themes indicating what NAs enjoy about working with older adults: 1) Relationships with residents, 2) Desire to serve others, and 3) Pride in work. NAs emphasized how much they enjoy bonding with residents and hearing their stories. They also noted they enjoyed making a difference by caring for others and taking pride in improving residents' quality of life.

Conclusions: Several studies indicated that job satisfaction among NAs was related to wages, benefits, and job security.[3,4] Instead, NAs in this qualitative study emphasized the individual and interpersonal factors that make their work enjoyable. These findings suggest that job satisfaction among NAs is also influenced by factors beyond pay and benefits. Further research is needed to clarify the impact of these factors on NA turnover.

References:

Brown M, Redfern R, Bressler K, Swicegood T, Molnar M. Effects of an advanced nursing assistant education program on job satisfaction, turnover rate, and clinical outcomes. *J Gerontolog Nurs*. 2013;39(10):34-43

Donoghue C. Nursing home staff turnover and retention: an analysis of national level data. *J Appl Gerontol*. 2010;29(1):89-106.

Decker F, Harris-Kojetin L, Bercovitz A. Intrinsic job satisfaction, overall satisfaction, and intention to leave the job among nursing assistants in nursing homes. *Gerontologist*. 2009;49(5):596-610.

Wiener J, Squillace M, Anderson W, Khatutsky G. Why Do They Stay? Job Tenure Among Certified Nursing Assistants in Nursing Homes. *Gerontologist*. 2009;49(2):198-210.

C143

Four-Item Survey in English and Spanish Measures Advance Care Planning Engagement and Detects Change in Response to an Intervention

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Background: Brief, validated surveys that measure advance care planning (ACP) are needed for research and clinical programs. The validated 82-item ACP Engagement Survey measures a broad range of ACP behaviors (e.g., readiness, discussions, documentation), but it is time-consuming. The goal of this study was to determine whether a 4-item version of the Survey in English and Spanish could detect similar change in response to ACP interventions using randomized trial data.

Methods: We used longitudinal data of 986 English- and Spanish-speaking older primary care patients, aged ≥ 55 years with ≥ 2 chronic conditions from a San Francisco public hospital. Patients were enrolled in a trial comparing an ACP website (PREPAREforYourCare.org) vs an easy-to-read advance directive. All survey items were measured on a 5-point Likert scale. To validate the 4-item survey, we compared its ability to detect change in ACP engagement with the 82-item version. We also calculated effect sizes from baseline to 12 months and intraclass correlation coefficients (ICC) of the mean change in scores between the 82 and 4-item surveys using mixed-effects models, controlling for health literacy, baseline ACP, clustering by physician, and stratifying by language.

Results: The mean (SD) age of 986 participants was 63.3 years ($\pm$ 6.4), 40% had limited health literacy, and 45% were Spanish-speaking. The average 5-point survey scores increased more in the PREPARE vs. AD arm for both the 82 and 4-item surveys, all p<0.001, and in English and Spanish. The effect size estimates at 12 months were 0.82 for the 82-item and 0.65 for the 4-item surveys; however, mean change (SD) in 5-point scores from baseline to 12 months was 0.66 ($\pm$0.9) for the 82-item and 0.70 ($\pm$1.2) for the 4-item survey. The ICC of the mean change scores of the 4 vs 82-item survey was 0.83 (95% CI: 0.81, 0.85), p < 0.001). Results were similar by study arm and by language.

Conclusion: Using randomized trial data, a 4-item version of the ACP Engagement Survey detected similar change across a broad range of ACP behaviors for English- and Spanish-speaking older adults compared to an 82-item version. The 4-item survey can efficiently and effectively measure broad ACP behaviors in research and clinical settings.

C144 Encore Presentation

What Is the Feasibility and Preliminary Efficacy of Mindfulness-Based Stress Reduction to Treat Symptoms of Urinary Incontinence in Older Adult Women?

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Background: Urge urinary incontinence has proven difficult to treat in an older adult women, as both behavioral and pharmacological therapies have serious drawbacks in this population. Innovative treatments need to be explored in rigorous scientific studies, yet older adult women are often marginalized in this level of research.

Methods: This combined feasibility study and randomized controlled trial sought to examine six feasibility determinants and five preliminary efficacy outcomes of treating urge urinary incontinence in older adult women (N=25; average age=74 years) utilizing an 8 week mindfulness-based stress reduction intervention in comparison with the health enhancement program (HEP), which is an active comparison modality specifically validated to be used alongside mindfulness-based stress reduction in scientific research.

Results: The six feasibility determinants, measured as percentages, included three research determinants: recruitment (59%; 100% consent rate), retention (73%), and treatment delivery (93%) and three intervention determinants: acceptability (100%), tolerability (96%), and treatment adherence (attendance 96%; homework 89%). All six feasibility determinants were successfully met. In addition, five preliminary efficacy outcomes were examined: symptom severity (MBSR p=.009; HEP p=.004), symptom bother (MBSR p=.000; HEP p=.007), perceived stress (MBSR p=.038; HEP p=.113), perceived self-efficacy (MBSR p=.013; HEP p=.222), and rate and trajectory of change (between conditions; p<.05 favoring MBSR).

Conclusion: Study feasibility findings suggest that this population has a high level of engagement even when examining a sensitive condition. Preliminary short term efficacy findings are positive. Future research points to larger scale trials with a more diverse population, as well as an exploration of a combined MBSR and HEP intervention for even more valuable results. Six month follow up data will also be referenced in the presentation.

C145

EFFECT OF STRESS-BUSTING PROGRAM IN QUALITY OF LIFE, STRESS, CELLULAR AGING AND IMMUNITY IN ADRD CAREGIVERS

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Background: Validated support programs for Spanish speaking family caregivers are scarce. The evidence-based Stress-Busting Program for Family Caregivers™ (SBP) was translated to Spanish and culturally adapted. The goal of the study was validating the Spanish-SBP by comparing quality of life measures (depression, perceived stress, and screen for caregiver burden [SCB]), CRP, telomere length, and salivary flow rate, pH and IgA in Hispanic and Non-Hispanic Alzheimer's disease and related dementias (ADRD) caregivers.

Methods: Saliva and blood samples and quality of life data (CES-D, PSS, and SCB) were obtained at weeks 1 and 9. The program was delivered in 90-minute weekly sessions in the language of their choice to 3 groups: Spanish /Hispanic (SH), English/ Hispanics (EH), and English/Non-Hispanics (EN) family caregivers.

Results: Sample sizes were n=8, 14, and 14 for EH, SH, and EN respectively. The SH had a lower average age (54 ± 7 years, average ± SD) compared to the EH (65± 14 years) and EN (69± 9 years). At baseline, the psychometric variables were not statistically different, and most of the biomarkers had non-significant differences between groups. The post-treatment psychometric outcomes in the 3 groups were statistically significant for improvement in the SCB subjective and SCB total, and highly significant in the SH and EN groups with improvements of -12 to -14 for both groups (p<0.001 for both). The SH and EN groups showed significant improvements in CESD score of -7.3 (p=0.01) and -12.4 (p=0.001), respectively. With the exception of flowrate in the SH group (Flowrate +0.16, 95%CI 0.1 to 0.31, p = 0.04), none of the biomarkers showed statistically significant changes post-treatment. Salivary flow rate improved for SH more than for EH (0.51±0.13, p=0.003) and EN (0.41±0.14, p=0.01).

Conclusions: The translated and culturally adapted Spanish Stress-Busting Program for Family Caregivers is as effective as the English program. Additional research with larger sample sizes is needed to determine differences in the effect of the program between Spanish and English speaking Hispanics.

C146
Impact of delirium nurse education measured by CAM (Confusion Assessment Method) performance

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Background:

Delirium is a common, life-threatening problem in older adults and a common postoperative complication in the elderly. Failure to diagnose and manage delirium can lead to costly, life-threatening complications, and increased risk of death. Delirium prevention and interventions can yield marked clinical improvement in patients but require clinician knowledge of delirium risks, prevention and management to benefit.

Method:

The Cedars-Sinai Geriatric Fracture Program (GFP) was introduced in July 2018 as a quality improvement pilot to provide standardized treatment for geriatric fracture patients. A GFP goal is to reduce perioperative delirium. Development of a multi-faceted education program to improve clinician delirium knowledge was introduced early in the program. Documentation of the Confusion Assessment Method (CAM) instrument is used to measure screening adherence.

Nurses caring for GFP patients received lectures, case studies, instructional videos, in-services and bedside teaching by the GFP nurse practitioner. Delirium management of GFP patients is supported by the Cedars-Sinai Epic EHR. High-risk delirium patients are documented in EHR charge nurse notes, the CAM is located in a nursing flowsheet, and a note template is available for nurses to document their delirium findings, prevention measures, and interventions.

The chi-square test was used to compare the difference in proportions of CAM completion by nurses for one month prior to implementation of the delirium education program (Jun 2018) to completion during the 3 months following training (July – September 2018).

Results:

The CAM completion rate by nurses increased from 37.7% prior to delirium training to 56.5% during the first 3 months of the pilot program, a statistically significant difference ($p = 0.018$).

Conclusion:

Early assessment of the Cedars-Sinai GFP pilot shows the potential positive impact that comprehensive delirium training and support can have on delirium screening performed by nurses, which is a prerequisite for assessing change in perioperative delirium. Future analysis will evaluate how delirium screening correlates with the utilization of the newly introduced delirium protocol and nursing care plans and incidence of delirium in post-operative GFP patients.

C147
Independent Learning Experience on Care Transitions

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Background:

In academic settings, residents are responsible for the discharge summary and transition of patients from hospital to skilled nursing facility (SNF); however, they have little knowledge of how care is provided in a SNF. Published curricula demonstrate improvement in resident knowledge, yet the methods are resource intensive for faculty. To teach internal medicine (IM) residents about SNF care and key components of care transitions from hospital to SNF, we developed a self-guided experience with structured debriefing within a resident rotation.

Methods:

Our institution's Geriatric Medicine Rotation is a month-long requirement for IM PGY1's. We added an independent learning activity on care transitions from hospital to SNF. Learners use an assessment tool to evaluate the discharge summary and medication reconciliation quality. They also assess barriers to safe transition through guided questions with SNF staff. At the end of the rotation, learners debrief their findings as a group with a faculty facilitator, identifying potential errors/barriers in the hospital to SNF transition. Learners complete end of activity and end of rotation evaluations.

Results:

Between 7/1/15 and 6/30/17, 80 interns completed the activity. The most common problems with the discharge summary were lack of information on: functional goals of the SNF stay (71.7%), follow-up testing needed (50.3%), reasons for changes to home medications (45.8%), and follow-up appointments (39.8%). The most common problem with medication reconciliation was prescribing of medications needing monitoring but for which no instructions were provided in the discharge summary (22.3% of patients). The learning experience was rated highly overall (mean 4.2/5.0). Most learners agreed they had a better understanding of what to include in the discharge summary (4.6/5.0) and potential errors and barriers to care transition from hospital to SNF (4.6/5.0). In the final evaluation, 21% of interns mentioned "care transition" or "discharge summary" in response to "What did you learn from the geriatrics rotation that you will apply to your future medical career?"

Conclusions:

A guided hospital to SNF care transitions learning experience for residents is feasible with minimal burden to geriatrics faculty. This experience could also be implemented in non-IM specialties.

C148
Incorporating a MoCA SP encounter into fellowship training: results from the NJ Geriatric Fellowship Consortium

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Background:

The PDs from all geriatric medicine & geriatric psychiatry fellowships (n=6) within NJ formed a consortium to enrich their fellows training experience through collaboration. The 4 hour in person workshop style sessions are hosted monthly in rotation at each site & include patient simulation.

Competent administration of a standard cognitive assessment is a core element of a well-trained geriatric fellow. During the initial consortium session, the instructional guide for administering the MoCA was presented and nuances reviewed. The fellows practiced administering the MoCA with the faculty presenter and received immediate feedback. During a subsequent consortium event, geriatric fellows administered a MoCA to an SP during a video-taped encounter.

The aim of the study was to evaluate geriatric fellow competency with administration of the MoCA using an SP.

Methods:

The participants are the geriatric fellows (n=10) enrolled in a NJ geriatric medicine or psychiatry fellowship during 2017 & 2018. Fellow performance was rigorously assessed for strict adherence to the validated instructional guide on the 14 tasks for MoCA administration. The geriatric fellow & the respective PD received formative feedback specific for that fellow's performance on this SP encounter.

Results:

The overall mean performance of geriatric fellows across the 2 years assessed was 8.90 [SD=2.03] with a range of scores from 6 to 12 [14 as the max score]. The performance of geriatric fellows improved from 2017 to 2018 with a mean of 8.40 [SD 2.30] & 9.4 [SD 1.82], respectively.

The MoCA task items that had the best fellow performance: vigilance (100%), digit span (90%), serial sevens (90%), & cube drawing (90%). The MoCA task items that were the most difficult for fellows to administer: orientation (0%), delayed recall (20%), & verbal fluency (30%).

Conclusion:

This SP exercise has been accepted by the PDs & fellows and there has been improvement in fellow administration of the MoCA year to year. The identification of the areas of strength & opportunities for improvement has led to educational program modification and important formative feedback.

C149

With HER-Women's Health Education for Internal Medicine Residents. Using the Jigsaw Teaching Method for an Innovative Geriatric Women's Health Curriculum

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Recent studies surveying Internal Medicine Residency Directors identified women's health to be an essential education topic, but there is limited data about structured geriatrics women's health curricula. Our program completed a needs assessment in Fall 2017 revealing that <10% of residents were satisfied with existing curricula and the majority were not confident in managing several geriatric core women's health topics.

Our study aims to assess a longitudinal women's health curriculum including interactive workshops using the "jigsaw" teaching method (a cooperative learning strategy where peers are responsible for delivering specific content in teams) and a women's preventive health clinic (WPHC) to improve residents' knowledge, confidence, and skills proficiency in addressing core women's health topics. We delivered a 2-hour workshop over 5 ambulatory blocks. Workshops focused on the following geriatric areas: diagnosis/management of menopause, osteoporosis, urinary incontinence, and abnormal uterine bleeding. Participants completed a pre-test and post-test with knowledge and confidence questions about the targeted topics. Residents completed a follow-up survey in June 2018.

Seventy-four residents (88.1%) participated with all residents completing the pre-test and 62 residents (73.8%) completing the post-test. Most residents were PGY1 (38.7%), from allopathic medical schools (83.61%), and had previous women's health training during medical school (75.8%). At post-test, more residents reported being "somewhat confident" or "confident" in women's health counseling (37.8% vs 49.8%, p<0.0001) and mean knowledge scores increased from 51.3% to 69.2% (p<0.0001). Majority residents (94.6%) were overall "satisfied" or "very satisfied" with the workshop. 1 year post results showed less improvement in knowledge scores and thus there was some lack of retention.

Our results suggest that using the "jigsaw" method may be an effective technique to increase Internal Medicine resident knowledge and confidence in geriatric's women's health. We plan to continue to develop and assess this innovative 3-year curriculum with implementation of the WPHC in the 2018-2019 academic year. We hope that this curriculum will serve as a model for programs with academic half-days and X+Y block scheduling.

C150

Impact of a Transitions of Care Workshop on knowledge and attitudes of medical students and residents over 3 academic years

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Care Transitions are complicated and ineffective transitions result in poor patient outcomes and readmissions. Education around transitions of care (TOC) is a priority for trainees recognized by the AAMC and ACGME. Interventions improving patient safety/outcomes at system levels are demonstrated in the literature, but limited data exist on best practices to educate providers. Published teaching methods vary and learner surveys show preference for combined modality approach. We developed a TOC workshop for 4th year medical students and PGY-1 Internal Medicine residents. We evaluated the effectiveness of this workshop on trainees' knowledge and attitudes.

We created an interactive case based workshop on TOC delivered to trainees over three academic years as a small group session with didactic and case based problem solving focused on a geriatric discharge case. The curricular objectives included: defining care transitions, identifying patients at high risk for transitions using risk tools, identifying consequences of ineffective transitions, and identifying importance of safe transitions including discharge planning.

41 medical students and 56 interns participated; pre and post workshop questionnaires were administered including confidence and knowledge questions. 2/3rds of learners had not received prior training; post- workshop, 90% of learners wanted further instruction. Post intervention findings included: higher percentage of above average knowledge about TOC (43.16% vs 1.05%) and higher percentages of confident and very confident responses in recognizing areas of concern regarding safe transitions (40.63 vs 3.13%), effective communication (84.54% vs 38.95%), identifying high risk patients (94.79% vs 42.71%), formulating management plans to minimize risk (84.54% vs. 25%), and performing proper medication reconciliation (89.58% vs 51.58%). Correct knowledge questions increased from 50% to 90% including identifying common causes for adverse events (93.8% vs 76.04%) and correctly identifying tools evaluating discharge risk (92.55% vs 23.96%).

TOC education is vital for trainees. A curriculum targeted to 4th year medical students and Internal Medicine PGY-1s showed significant improvements in knowledge and confidence. Next step is to expand to an ongoing workshop series including hands-on component.

C151

Incorporating Team-Based Learning for Transitions in Care into Interprofessional Geriatric Education Program

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Background: "Transitions of care" is a cross-cutting and relevant topic for health care trainees no matter what discipline they may choose to pursue. If these processed are not executed well, these care transitions can potentially lead to adverse events, higher hospital readmission rates and costs for both patients and the health care system. These transitions occur from and to virtually every type of health care setting, but can be especially challenging when patients leave the hospital to receive care in another setting or at home.

Methods: This session will describe an innovative team-based learning method integrated into a high-demand academic geriatric departments interprofessional education program. Team-based learning sessions that involve interprofessional self-learning strategies with other health disciplines (nursing, pharmacy, nursing, and physician assistants), individual readiness assessments and case-based scenarios that are used to create an environment where students actively engage in group interprofessional discussions to gain knowledge, effectively communicate with other health disciplines and develop critical-thinking skills related to transitions in care. Application exercises are designed to reflect real-world cases. Individual preparatory activities engage learners in anticipatory problem solving. The fundamental components of this learning method will be illustrated. This session will also discuss the hurdles to implementation and the multi-step quality improvement processes utilized by the team to overcome barriers.

Results: Student feedback evaluations (n=226) reflected increased understanding of post-acute care treatment options for patients and ability to more effectively communicate these options to their patients. In addition, student feedback indicated that it helped

them develop a post-acute care treatment plan for patients and their families in a way they thought was effective.

Conclusions: Incorporating a novel, team-based learning activity for transitions of care for interprofessional geriatric trainees improved their critical thinking and communication skills to effect safe transitions of care in which they play a role.

C152
Self perception of geriatric education and self-identified geriatric educational needs – A survey of VA health professionals

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Background: Caring for older adults requires specialized geriatric skills and knowledge. Most healthcare professionals lack geriatric specific training, potentially negatively affecting the quality of care received by the 47 million adults nation-wide who are over the age of 65.

Methods: Voluntary, online survey of healthcare professionals at the Veterans Administration Boston Healthcare System. Questions were multiple choice with free-text comments. The survey was anonymous and part of a larger quality improvement project and thus IRB exempt. Thematic analysis was used to analyze free text answers. Responses were evaluated separately by each author; disagreements were merged.

Results: 232 responses (23% response rate). 12 disciplines (20% Physicians, 20% Nurses; 60% other: Occupational Therapy, Pharmacy, Psychology, Social Work, Nursing Assistant, and more). Most worked in primary care or general inpatient. Medical specialties, mental health, surgery, neurology and other fields were also represented. 75% reported caring for adults 65 years and up at least half the time.

57% reported no geriatric training. Of those reporting training (97), most (47) cited brief trainings such as continuing medical education (CME), in-services and online trainings. A minority reported professional specialty tracts (18) (Geriatrics fellowship or discipline equivalent), and certifications (14). Of the 52 topics volunteered, most trainings addressed dementia (17), and end of life issues (7).

The majority (61%) of respondents were not interested in geriatric training. Of the 90 who reported interest, most requested any additional geriatric training – without specifics (41), followed by training on resources (19) and dementia (13). When a format was volunteered, most suggested in-person (8), skills-focused (5) or CME trainings (5).

Conclusions: Most healthcare professionals who frequently work with older adults have no specific geriatric training. Of those with training, most were brief trainings on dementia. A minority of healthcare professionals were interested in more training. Moving forwards, offering in-person, CME courses on care for older adults might be more enticing to our professionals if focused on resources and dementia while folding in general care principals.

C153
Generating Change Through Leadership Training In Geriatric Health Settings

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Background: With a robust geriatric population, there is an urgent need to advance innovative healthcare initiatives to meet the complex needs of older adults. As part of a HRSA Geriatric Workforce Enhancement Program, the University of North Texas Health Science Center and Texas Christian University collaborated to design a Geriatric Practice Leadership Institute (GPLI) ten-month training program that would develop transformational leaders within organizations and improve quality, interprofessional care for geriatric patients.

Methods: Applying a Rapid Cycle Quality Improvement Approach, faculty developed curricula for five one-day sessions held September-December 2017. Content focused on five domains: 1) Population Health Science, 2) Aging Network and Healthcare Delivery for Older Adults, 3) Leading Organizational Change, 4) Leading Self, and 5) Leading Teams. The institute required teams to develop and implement a geriatrics-related quality improvement project in their area of practice and received support from a coach. Evaluation surveys were completed by participants after each session, at graduation, and 6 months later.

Results: Six teams of 25 healthcare professionals participated in the institute. Surveys showed 96% of respondents agreed the sessions were helpful for personal mindfulness of leadership attributes and skills. Qualitative responses indicated the trainees intended to modify their professional practice as a leader or team member, and improve development, implementation and evaluation of their project. 95% of participants would recommend the training. Surveys completed at graduation indicate the leadership skills gained during the program substantively benefit the team's organizations and their roles. The 6-month follow up survey indicated 4 of 7 teams sustained project implementation within their organizations and continue to collect data. Barriers to continuation include time restraints and abated commitment from key members.

Conclusion: Enhancing health professionals' leadership skills can foster development of interventions that improve geriatrics care in health systems. Interprofessional teamwork in conjunction with leadership training can produce rapid change in health practices. This model can lead to sustainable change, providing continuous data collection for future use.

C154
Geriatrics Scholarly Concentration Programs Among U.S. Medical Schools

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Background: Many US medical schools offer elective, longitudinal scholarly concentration programs (SCPs) that provide students with the opportunity to formally concentrate their studies in a specific content area. These programs may include extra didactics, faculty mentorship, clinical experience, and/or research opportunities outside of the standard curriculum. Some institutions have established SCPs in geriatrics (GSCPs), but the number and scope of these programs have not previously been described. The objective of this study was to describe the structure, resources, and outcomes of GSCPs among US medical schools. **Methods:** A systematic web search and forum postings were used to identify all US medical schools with existing GSCPs. Directors of these programs were sent email requests to complete an online survey that assessed each program's goals, duration, requirements, funding sources, number of participants, and student outcomes. **Results:** We identified 10 US medical schools with GSCPs. At the time of abstract submission, 6 of these programs have completed the survey. The number of current medical student participants ranged from 2 to 28, with a mean cohort size of 23. All programs included the following components: formal mentoring, extra clinical exposure to geriatric medicine, and research. Half required students to complete an independent research project, although none required presentation at an academic conference. GSCPs reported several challenges, including low student interest, lack of availability of faculty mentors, and budget constraints. Among the programs who monitor student satisfaction (n=3), reported student satisfaction is high. No programs reported future specialty choices of participants. **Conclusions:** Among US medical schools, there are very few GSCPs, although existing programs report high student satisfaction. Development of GSCPs may help compensate for limited exposure to geriatrics in the required medical school curriculum for some students. GSCPs may also increase medical student interest in geriatrics, but further research

is needed to determine if these programs are associated with student selection of geriatrics as a specialty or greater competence in geriatrics regardless of their specialty selection.

C155

Quality Improvement for Quality Improvement Education in Geriatrics

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BACKGROUND The ACGME requires fellow education in interprofessional quality improvement (QI) activities. Most evaluations of QI curriculum assess fellows' QI skills during fellowship, but little is known about how fellows engage in QI after fellowship. In order to improve relevance and utility of a new QI curriculum for a Geriatrics Fellowship, we extended a formative evaluation of the QI curriculum beyond graduation.

METHODS In July of 2017, a new QI curriculum created by a Postdoctoral Fellow in Geriatrics Quality Improvement required three Geriatric fellows to participate in monthly interactive sessions about the Model for Improvement, to identify a healthcare problem they feel passionate about, and to address it through mentored projects which were presented at the Geriatric Grand Round Series. Upon graduation, fellows provided anonymous feedback via survey and participated in a focus group on curricular strengths and weaknesses. Five months after graduation, the Postdoctoral Fellow conducted semi-structured interviews with each fellow about QI engagement in their workplace and how fellowship could have better prepared them with QI skills.

RESULTS Upon graduation, survey responses revealed that 100% of fellows felt "very confident" in QI skills and "Yes, Definitely" were more likely to pursue QI in their future practice. The focus group showed a curricular strength of self-efficacy from creation of their own QI project, and a weakness of project dissipation when they moved to their next rotation. Five months after graduation, fellows were employed in a variety of settings, including Post-Acute Care and Primary Care. They reported QI engagement ranging from volunteer committee membership to protected time for physicians selected to be a champion for a quality measure. However, they also reported minimal flexibility to initiate their own QI projects outside of predetermined organizational priorities, and that more experience with interprofessional panel management would have been useful.

CONCLUSIONS Self-inspired QI projects had been rewarding during fellowship, but experience in panel management to achieve pre-determined quality measures may have been more practical for early post fellowship practice. Iterative development of QI education through longitudinal feedback of graduated Geriatrics fellows should be considered as relevant QI competencies evolve in our changing healthcare system.

C156

Benefits of Online Nurse Education: A Call for Behavior Change

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Background

Engaging the nurse workforce in continuing education is challenging given the high demands of the job and workforce shortages. Online learning conveniently allows reach of staff across shifts and units. This approach is often criticized as having limited impact on behavior change. We describe a NCF-GWEP HRSA funded nurse education program focused on improved care of common conditions seen in older adult residential communities.

Methods

We used a 3 step process. 1) Needs assessment to identify nursing staff educational needs. Topics included Influenza Prevention, Pain

Management, Heart Health, and Determining Cause and Effective Treatment for Responsive Behaviors in Persons with Dementia. 2) An Interprofessional team of faculty (Public Health, Nursing, Medicine) developed modules for each topic in collaboration with representatives of the residential communities' nursing staff and administration. 3) Online modules had a staggered release date, with each module made available for one month using an existing online educational platform. Module completion was required by all nursing staff (RN, LPN, CNA). Each module included case based scenarios, application of communication tools to incorporate and connect new knowledge gained, demonstrative videos, and embedded review questions. Learners completed a quantitative and qualitative evaluation survey embedded within the module primarily focused on usability and satisfaction. Subsequently, all staff were asked to complete an evaluation survey targeting changes in behavior.

Results

By December 2018: 368 staff (75 RNs, 56 LPNs, 237 CNAs) completed 5 learning modules.

The majority of responders agreed or strongly agreed that the modules were relevant to their work. 90% of responders reported that the modules changed what they do at work, and 88.3% of responders believed that the modules changed what their coworkers do at work. All but one question related to self-perception and intention for specific practice changes based on module content had >95% answer strongly agree / agree. The exception, with 87.5% of responders answering strongly agree / agree, was likelihood of receiving an influenza vaccine.

Conclusions

This online educational activity is worthwhile for nursing staff of senior residential communities to learn about healthcare topics and stimulates intentions for behavior change.

C157

Geriatric Selective in Transitions of Care

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Background: Care Transitions are complicated and ineffective transitions result in poor patient outcomes and readmissions, especially in elderly patients. Education around care transitions has been recognized as a priority by both the AAMC and ACGME.

Methods: To enhance training in care transitions we developed a 4 week interprofessional clinical selective for senior medical students. This rotation focuses on identification of potential hazards of hospitalization for older adult patients and developing prevention strategies. Students rotate through a different care settings following patients as they transition from hospital to subacute rehab to home. Students participate in interprofessional rounds and function as working members of the BOOST (Better Outcomes for Older adults through Safe Transitions) team, focusing on medication reconciliation and enhanced discharge planning. They are taught to utilize specific risk assessment tools to identify risk for poor transitions and to understand the consequences of ineffective transitions. They work collaboratively on interprofessional health care teams and involving the care of the older adult. Clinical knowledge is enhanced through reading assignments and the electronic cases.

Results: Pilot data from the first cohort of eight students demonstrated improvements in knowledge, confidence and attitudes about care transitions as indicated by performance on pre and post testing utilizing multiple choice questions, attitude and confidence surveys.

Conclusions: Education on care transitions is important for trainees and required to ensure safe patient care. Geriatric patients are more vulnerable and prone to complicated transitions which can result in adverse outcomes. We have demonstrated in this pilot project that an advanced clinical rotation results in improvements in knowledge, attitudes and confidence regarding managing complex care transitions. This rotation was of interest to students pursuing careers in medicine

and surgery. This rotation is highly generalizable and could be implemented in a variety of health professional training institutions, and may be a way to deliver enhanced geriatric training to future surgeons. Next steps will include obtaining data from subsequent cohorts and exploring the possibility of enrolling other health care professional students in the selective.

C158

A Novel Pilot Curriculum in Interprofessional Collaboration for Geriatric Fellows and Advanced Practice Providers

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Background: Interprofessional Collaboration (IPC) is a hallmark of geriatric practice, but a nationally accepted, standardized IPC curriculum in geriatrics education does not exist. This gap may be an influencer in the variations in the quality of geriatric care, as well as the long-term professional satisfaction of geriatricians and advanced practice providers (APPs). To begin to fill this gap, a novel pilot curriculum in IPC was developed and implemented for geriatric fellows and APP teams working in long-term care and evaluated to identify content areas for future refinements.

Methods: A 2 hour, 2 session seminar on IPC was developed for three geriatrics fellows and three APPs who work in dyad teams in the nursing home. Seminar participation focused on components of successful communication and understanding experiences. Participants provided feedback on the usefulness of seminar content. Validated instruments, such as the Attitudes Toward Health Care Teams (ATHCT) survey, were utilized to assess skills, knowledge and confidence in IPC practice pre and post seminar.

Results: Total scores on the surveys prior to the seminar suggested fairly high confidence among participants about IPC. Nevertheless, participants consistently valued learning about other professionals' educational backgrounds, scope of practice, past IPC experiences, and the six IPC core competencies. Based on the ATHCT, fewer participants endorsed physician centrality-related items following the seminar compared to before (e.g., primary purpose of team is to help achieve physician's goals, pre: 66%, post: 33%). After the seminar 40% of participants compared to 16% before, strongly agreed that they were able to engage in team-based problem solving, utilize IPC strategies, and understand responsibilities and expertise of all team members.

Conclusions: Prior to the seminar, participants felt confident in their overall capacity to engage in IPC, but our initial data suggest important changes in participants' perceptions of the team's purpose, knowledge about others' background and expertise, and communication abilities. These preliminary findings are useful in guiding curriculum refinement and longer-term observational assessment of the behavioral function of the IP teams. This pilot suggests that an IPC seminar within geriatric fellowship training has the potential for positive change in perceptions and interprofessional working relationships.

C159

CERA Survey: Geriatrics education in Family Medicine clerkships

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As the population of older adults increases, so does the need to train physicians to care for them. Unfortunately, medical student interest in geriatrics lags behind this population swell. The 2018 CERA survey provides a "first glimpse" as to how family medicine (FM) clerkships incorporate geriatric content into didactic / clinical teaching.

Our data was collected by the CAFM Educational Research Alliance (CERA) survey. The project was approved by the American Academy of Family Physician's Institutional Review Board. Surveys were sent nationally to clerkship directors (CD), with 67% of polled schools responding. Descriptive statistics were computed for data sets.

The average number of geriatric-focused lectures provided to students during FM clerkships ran 2.18 hours, with an average of two board-certified geriatricians providing teaching. A little less than 25% of CDs felt that their clerkships prepared students adequately for their internship year in providing care to geriatric patients. In building geriatric content, ~3% of respondents used AAMC minimum geriatric competencies, 38% used STFM National Medicine Clerkship Curriculum, and 12% were unsure if any guidelines had been incorporated. The single largest barrier in implementing geriatric curriculum was prioritization of other topics (48%), with limited access to geriatric clinical sites (13.2%), and insufficient expertise/lack of geriatricians coming in third (9.9%). CDs identified polypharmacy, functional status, and dementia as the three most important topics in a geriatric curriculum. Delirium, falls, frailty, and prognostication were identified as least important. Clerkships provided the most exposure to geriatric medicine through inpatient (hospital) service (29.8%) and the least through assisted living environments (2.1%).

A review of the literature provides sparse data surrounding the breadth and depth of geriatric education in medical schools across the country. The 2018 CERA Family Medicine clerkship survey highlights opportunities for expanded understanding of how geriatrics content is taught and may provide a roadmap for increasing exposure, interest, and competency in the field.

C160 Resident Presentation

Implementation of a Geriatric Curriculum for Surgical Residents at a Geriatric Surgery Center of Excellence

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Background: In 2018, nearly 2,500 patients over the age of 65 underwent surgery at the Johns Hopkins Bayview Medical Center, one of the pilot sites for developing national standards of care for geriatric surgical patients. Even at a center of excellence, many surgical residents have limited or no training in the care of the older surgical patient. To address this need, we developed a longitudinal curriculum to educate on the geriatric concepts key to surgical care.

Methods: In collaboration between Surgery, General Internal Medicine, and Geriatric Medicine, experts in geriatrics were recruited to educate on topics pertinent to the geriatric surgical patient including: Introduction to Aging and Impact on Health Care, Recognizing UTI and When to Treat, ED Assessment for the Geri-Surg Patient, Preoperative Assessment, and Advance Care Planning. Beginning in July 2018, a monthly "Geriatric Lecture Series" was incorporated during previously scheduled didactic time to encourage attendance. Each participant was given a Pre/Post self-assessment form. A 4-point Likert scale was used (1-no knowledge, 2-little knowledge, 3-knowledgeable, 4-very knowledgeable). Program evaluations of objectives ranged from 1-4 (1-strongly disagree, 2-disagree, 3-agree, 4 strongly agree).

Results: To date, there has been a positive increase in knowledge according to the self -assessment scale: Introduction to Aging (2.1 to 3.7), UTI (2.0 to 3.4), ED Assessment (2.5 to 3.7), Preop Assessment (2.5 to 3.8), and Advance Care Planning (2.6 to 3.5). The summary of the program's evaluations reflected positive feedback: Introduction to Aging (4.0), UTI (3.8), ED Assessment (3.9), Preop Assessment (3.7), and Advance Care Planning (3.7). Conclusions: A geriatric curriculum is one step toward meeting the educational needs of surgical residents to improve care of older surgical patients. Surgical Residents' knowledge self-assessment indicate improved knowledge and high ratings of the educational content. Future steps include assessment of attitudes and behaviors. Options to formalize and standardize this education within the surgery residency will be explored.

C161

Helping Ophthalmology Residents See Context Appropriate Care: Description Of An Action Project From The Chief Resident Emersion Training Program In the Care of Older Adults

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Background: The Chief Resident Immersion Training Program In the Care of Older Adults (CRIT) which was started at Boston Medical Center (BMC) and now nationally replicated at other institutions was designed to teach nongeriatricians skills and knowledge that they can use when caring for older adults in whatever specialty they are in. During this program Chief Residents (CRs) are asked to design an action project related both to geriatrics and quality improvement that they implement over the year they are CRs.

Methods: The chief resident in ophthalmology who attended the 2018 BMC CRIT created an action project focused on making house calls to see patients with ophthalmologic diagnoses to get a better sense of context appropriate care as well as to perform an in home medication reconciliation with eye specific medications. An Ophthalmology resident joined an attending geriatrician once a month on house calls. On average the attending and the resident made four house calls in a day. Residents completed semi-structured qualitative interviews with guided questions. Interviews were analyzed for common themes. This study was approved by the Institutional Review Board.

Results: The most common themes that emerged included 1) context appropriate care (community, neighborhood, distance from BMC and history of the area), 2) how patient's mobility and housing affects care (specifically ability to obtain and use medications and get to appointments and 3) a focus on goal concordant care (patients want to come to clinic once a year but ophthalmology office scheduling visits every 3 months).

Conclusion: Bringing Ophthalmology residents into the home to see patients helped residents focus on context appropriate care, mobility related barriers to using, understanding and obtaining eye specific medications and overall goal-concordant care. Our findings suggest that geriatric home visits for are a valuable learning tool for ophthalmology CRs and should be expanded to include CRs in other specialties.

C162

Using Standardized Patients to Teach Medication Management in Older Adults Among Third Year Medical Students

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Background:

Acknowledging the importance of obtaining an accurate drug history, there has been a drive to include more formal education for medical students on medication reconciliation. Medication reconciliation includes obtaining information regarding medication indication, accuracy, adherence, adverse drug events (ADE), and being able to develop a prescription plan. In this study, we assess the effectiveness of our medication management curriculum and medical students' competency in medication reconciliation by using standardized patients.

Methods:

The six week Ambulatory Care – Geriatrics clerkship rotation for third year medical students includes a didactic on medication reconciliation, a 30-minute case-based workshop involving post-discharge medication reconciliation, and various opportunities to perform medication reconciliation under supervision in both clinic and inpatient settings. Beginning in 2016-17 academic year, we are using a 15-minute standardized patient (SP) encounter to assess our students' ability to diagnose ADE by reconciling medications and identifying potential medication discrepancies. We utilized the checklist completed by the SP after the encounter, students' self-assessed comfort in medication reconciliation and students' written assessment and plan to determine medical students level of competency in medication management.

Results:

Preliminary review of 40 students who completed the clerkship during academic year 2016-17, showed that at least 70% of students were able to obtain patient's understanding of medication indication, adherence, and formulate a prescription plan based on the patient's symptoms. Less than 60% of students asked if patient's were accurately taking their medications as prescribed. Only 58% of students were able to determine that the clinical case could be due to adverse side effect from prescription medications and communicated this to the standardized patient. On self-assessment, most students agreed that they felt adequately skilled to perform medication reconciliation.

Conclusions:

Third year medical students' self-assessment of their medication reconciliation and management skills did not align with SP assessment of students' ability to verify medication compliance among patients and to communicate the possibility of ADE. We expect to complete analysis of the full cohort shortly. These findings will inform future iterations of the curriculum.

C163

Inter-Professional learning and home visit experiences of trainees during Geriatric Rotation at Riverside University Health System

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Background: A Geriatrics rotation at Riverside University Health Systems (RUHS) is a one-month rotation for current trainees. Because of the inter-professional environment of the rotation, pre-clinic and pre-home visit team huddles were introduced to provide a collaborative treatment plan for Geriatric patients. Due to a paucity of information available regarding the efficacy of huddles and home visit experiences in a Geriatrics setting, this current study is being proposed to evaluate the inter-professional learning and home visit experiences of trainees during their one-month Geriatrics rotation at RUHS.

Methods: Retrospective secondary analysis of non-randomized, cross-sectional data collected as part of rotation evaluations. Following completion of the inter-professional program (Geriatrics rotation), 40 trainees completed anonymous evaluations that were analyzed.

Results: Trainees on average were able to participate in 4.025 pre-clinic huddles and 1.375 Geriatric home visits during rotation. 70% and 60% of trainees had never participated in a pre-clinic huddles and Geriatric home visits prior, respectively. 83.8% of trainees felt that the inter-professional pre-clinic huddle experience demonstrated collaborative practice among professionals involved in patient care. 78.4% of trainees always felt that the inter-professional pre-clinic huddle experience improved their understanding of the different roles and responsibilities of professionals outside of their discipline. Before participating in a Geriatric home visit, 43.6% of trainees strongly agreed that collaborative relationships among professionals are important in providing patient-centered care. After participating, this increased to 87.5%.

Conclusions: Overall, collaborative teaching in the form of pre-clinic huddles and home visits lead to an improvement in trainee inter-professional experience during their Geriatric rotation at RUHS. Particularly an improvement was noted through feedback provided by trainees in the form of evaluations. The pre-clinic experience provided trainees with an exposure to understanding roles and responsibilities of members of a team, an opportunity to interact with different professionals, and allowed for demonstration of collaborative patient care practice. An increase in level of confidence was noted after participating in a geriatric home visit.

C164

Reasons Geriatrics Fellows Choose Geriatrics as a Career and Implications for Workforce Recruitment

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Background: Although the population of older adults is rising rapidly, the number of physicians seeking specialty training in geriatrics is decreasing. This study of fellows in geriatrics training programs across the United States explored motivating factors that led fellows to pursue geriatrics as a career in order to inform the recruiting of more trainees to the field.

Methods: 10-15 fellows were sought for interviews, until saturation was reached. 30-minute semi-structured telephone interviews were conducted by the primary investigator with fifteen geriatrics fellows from academic medical centers across the United States, 14 of whom were at Claude D. Pepper Older Americans Independence Centers. This qualitative study involved interviews that were transcribed and descriptively coded by two independent reviewers. A thematic analysis of the codes was summarized.

Results: Fifteen geriatrics fellows in seven different states participated in the study, and they revealed that mentorship and early clinical exposure to geriatrics were some of the most influential factors affecting career choice. Having positive attitudes and close relationships with older adults prior to medical school are other critical factors in influencing trainees to pursue careers in geriatrics.

Conclusion: The results of this study have the potential for a large impact, helping to inform best practices in encouraging trainees to enter the field, and enhancing medical student and resident exposure to geriatrics and mentorship from geriatricians. As the number of older individuals rises, we need innovative ways to draw medical students and residents to geriatrics. This study demonstrates the need for geriatricians to serve not only as mentors to trainees but also as proactive ambassadors to the field.

C165

INTEREST IN GERIATRICS AMONG FAMILY MEDICINE RESIDENTS

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Background

Inadequate training may help explain why not enough family medicine residents pursue geriatrics. The purpose of this study was to get some insight into the reasons that our residents were not keen on specializing in taking care of the elderly population.

Methods

This was a mixed-methods study of 51 Family Medicine residents at John Peter Smith Hospital, Fort Worth, Texas, who completed an anonymous survey regarding their perception of geriatrics training and careers. The survey instrument was 9 printed questions that was distributed to residents during their regular lectures. Qualitative data were analyzed for common themes. Quantitative data were analyzed with descriptive statistics.

Results

Respondents were made up of 22 first year residents, 16 second year and 13 third year residents. Regarding geriatric training received during Medical School, 30 responders received some form of exposure, ranging from outpatient and nursing home rotations to lectures only. Quite a few listed geriatrics as a non-required elective. Only 23 had a required geriatrics rotation/lecture series and 5 confirmed 4 week outpatient rotations.

After medical school, about 8% were interested in additional geriatric training, similar to the number of candidates who completed a 4 week rotation.

Following, general training in the care of the elderly, about 28.5 % were moderately interested in additional geriatric training. Approximately 6% were interested in a geriatrics fellowship.

Advantages to additional geriatrics training included provision of quality care, comfort with managing complex diagnoses, good patient relationships and lifestyle. Some perceived negatives were: the time required for additional training, polypharmacy and complexity of medical problems.

Interest in a formal geriatrics fellowship included additional skills and knowledge gained and career opportunities. Decreased interest included additional training time and financial implications, loss of skill sets in practice (non-geriatric care such as caring for children), and other conflicting interests.

Conclusion

More exposure to geriatrics education in family medicine residents was associated with increased interest in caring for geriatric patients upon graduation. Personal, financial, and job satisfaction features of geriatrics both attracted and discouraged residents from considering it as a career.

C166

Developing a Skilled Nursing Facility Curriculum for Geriatric Medicine Fellows

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Background: We are developing a year-long curriculum for geriatrics fellows to adequately prepare them for a career in a Skilled Nursing Facility (SNF) by the end of their 1-year fellowship.

Methods: Beginning July 2018, we developed and implemented a year-long SNF curriculum based on core competencies (as defined by The Society for Post-Acute and Long-Term Care Medicine) and common issues encountered in a SNF setting (as determined by an expert panel of 4 geriatricians on our faculty). We did a needs assessment through a standardized survey sent out to all graduates of the Stanford Geriatrics Fellowship program in the past 5 years. The survey assessed their subjective comfort with skills and knowledge necessary to practice in a Skilled Nursing Facility. Fellows rated their comfort level on a variety of topics, and responded to an open-ended question asking them to identify specific areas for improvement.

Results: We had a total survey response rate of 73.3% (11/15). Only 45% of fellows felt very prepared to begin a career in a SNF setting at the end of their fellowship. When asked about their comfort levels with certain SNF related topics, we identified several deficiencies. Based on survey responses, only

- 27% of respondents were very familiar with federal and state regulations regarding practice in a SNF setting
- 18% of respondents were very familiar with medical director responsibilities
- None of the respondents were very comfortable managing spinal cord injuries
- 9% of respondents were very comfortable managing wounds

On content analysis of our open-ended survey question requesting past fellows to identify specific areas of improvement, many felt that they would have benefited from having more responsibility, didactics, and mentorship in a SNF setting, and more training on SNF regulations.

Conclusions: Working in SNF is a common career path for geriatrics fellows; however less than half of past graduates felt very prepared to begin a career in a SNF setting at the end of their fellowship. We have incorporated changes to rectify the deficiencies described above into our curriculum including dedicated sessions of didactics developed to address these topics. We plan to continue to collect data from current and future fellows as they graduate from our fellowship to further improve our curriculum.

C167

Virtual reality in GeriatricTraining

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Background

Patients with dementia also have associated co-morbidities such as agnosia, apraxia, and loss of executive functioning, balance issues, and vision / hearing loss. There is an urgent need for more trained personnel to care for patients with dementia and their caregivers. Virtual reality (VR) is a unique, innovative technology that helps learners recognize challenges that dementia patients face daily.

Methods

The learning experience with VR involves an active learner participation of senior medical students in several VR encounter scenarios using a VR headset, headphones, specialized computer and a hand-tracking device to immerse users in live-action story from the perspective of the 74-year-old man, to experience how the patients with dementia function using a VR reality simulator. It walks the student from early to more advanced forms of dementia. The VR enabled 3D views for simulated encounters, along with working with patients have tremendous potential in education with the capability of increasing the depth of interactive learning, training experience, clinical skills, better grasp of medical problem and overall a better understanding of disease states.

Results

Initial qualitative quality initiative from senior medical student class evoked multiple responses, empathy and emotions. They were able to empathize and better understand the frustrations from the patient perspective. They felt that this novel technology, provides a very unique method of learning and enormously enhances their ability to better understand the medical condition experience, from a patient perspective.

The student comments included (a) I would not get any other way (b) It was an enlightening experience (c) the exercise with VR was very useful and should be used more in medicine (d) it made me feel what the patient was feeling and touched me deeply (e) Made me very emotional and in future will always remind me how the patient felt (f) Made me confused, angry, out of control of my life, (g) felt frustrated, felt was treated like a child. One of the most unique experiences during medical school (g) made me angry (h) helped me with empathy.

Conclusion

Education with VR use in geriatrics has the capability of enhancing depth of interactive learning and training experience, thereby improving clinical skills training, empathy training and help better understand needs of patients and caregivers.

C168

Putting It Together: A Guide to an Inpatient Geriatric Medicine Curriculum

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Background:

With the limited number of geriatricians in the US, the majority of medical care for our growing elderly population is delivered by primary-care trained physicians. Although geriatrics competencies exist for both medical students and residents in internal medicine and family practice, curriculum vary across teaching sites. Few programs combine the curriculum for medical students and residents, and none look specifically at an inpatient curriculum.

Objective:

This project was to create a standard 4-week curriculum in inpatient geriatric medicine for medical students and internal medicine residents at Summa Health.

Methods:

A faculty survey was completed to identify problems with teaching on the inpatient service. Survey results led to the development of 8 learning objectives, a standard reading list of articles and case presentations, and a checklist of teaching points developed for faculty. A 4-week calendar was used to address the same topics with all learners.

The Google Classroom platform was used to allow access to articles and case presentations. Each week, 2 of the 8 objectives were discussed with learners in a small group with a faculty member.

A knowledge test was designed to reflect the learning objectives. Test scores were used to evaluate both learner knowledge and whether the curriculum correlated to the learning objectives.

Verbal feedback was collected to assess faculty satisfaction with the new curriculum.

Results:

The knowledge test was given at the beginning and end of the rotation. From July until November 2018, 10 students and residents completed the rotation. Average post-test scores improved by 8%. PGYIII post-test scores had the most significant improvement, with an average of 15.5%.

Prior to implementation of the curriculum, a knowledge test was used to assess general principles in geriatrics. In comparison, the average post-test score for all learners improved by 35.9%.

Qualitative feedback from faculty was positive, and included approval of the curriculum organization, an updated test, and a way for learners to access reading material electronically.

Conclusions:

Initial results for the curriculum are promising. Creating learning objectives and a reading list improved knowledge retention and guided faculty to use specific objectives to teach clinical content. Objectively, test scores improved with an assessment that tested knowledge of learning objectives. The curriculum also improved faculty satisfaction with teaching on the inpatient consult service.

C169

Increasing Health Profession Students' Interprofessional Competencies: The Interprofessional Dedicated Education Unit (IPDEU)

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Background: Many health professionals function in interprofessional (IP) teams to deliver care for older adults despite lack of formal training in IP practice. Interprofessional education (IPE) is required for all health profession students, but the best educational model is unknown. We designed and evaluated an Interprofessional Dedicated Education Unit (IPDEU) acute care IPE experience for health profession students.

Method: We designated a neurotrauma unit (older population with complex needs) the IPDEU at our large academic medical center. After training unit nurse, occupational therapy (OT), physical therapy (PT), and speech therapy (ST) providers as IPE instructors, we paired University of Pittsburgh students from different health professions: 3 audiology, 13 nursing, 8 OT, 9 PT, 8 PA, and 9 ST students. Each pair spent 2 half-days on the IPDEU (1 with a nurse IPE instructor & 1 with a therapy IPE instructor), followed by a debriefing. Students actively observed their IPE instructors during patient care activities, explicitly focusing on IP practice aspects. Students self-rated their IP competencies with the Interprofessional Collaborative Competency Attainment Scale (ICCAS) before/after the IPDEU experience. Pre/Post composite ICCAS scores were analyzed by independent t-tests. Pre/Post individual item Likert responses were dichotomized and analyzed by χ^2.

Results: 27 students (54%) reported prior formal IPE. Composite ICCAS scores improved post-IPDEU experience (65.3 vs 81.5, $p<0.0001$). Pre-IPDEU, few students rated individual competencies

highly (<70% students rated themselves Very Good or Excellent). Post-IPDEU, all competency ratings improved significantly with *p* values ranging 0.02 to <0.0001. Greatest improvement was seen related to IP team utilization, communication, roles, and providing constructive team feedback. Sample size limited subset analyses.

Conclusions: Despite most students reporting prior IPE exposure, few IP competencies were rated highly at baseline. All competency ratings improved significantly post-IPDEU, suggesting the experience improved confidence in knowledge, skills, or both. Next steps will assess long-term competency retention and differences between professions and prior levels of clinical experience.

C170
Training Health Professionals to be Instructors of Interprofessional Practice: A Novel Approach

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Background: Interprofessional (IP) collaborative practice is essential for older adults with complex medical problems and improves health outcomes. Interprofessional education (IPE) is required for students across the health professions, but many preceptors remain untrained in IP practice and instruction. After formal needs assessment, we designed an integrated IP practice + IPE instructor skills training.

Method: Ten health professionals (5 nurse, 2 physical therapy, 2 occupational therapy, 1 speech therapy) at a major academic medical center neurotrauma unit--designated the Interprofessional Dedicated Education Unit (IPDEU)--were trained as IPE instructors in Jul-Aug 2018. Training focused on 1) IP practice skills (3 hour web module + simulated IP colleague) & 2) IP instructor skills (3 hour web module + simulated IPE student). We measured pre-post change in IP practice and instructor knowledge (multiple-choice test), IP attitudes [Interprofessional Collaborative Competency Attainment Scale (ICCAS) & Assessment for Collaborative Environments (ACE15)], and IP practice/instructor skills (simulation skill checklists). Composite scores for each measure were analyzed using paired t-tests.

Results: Nine participants had complete data. ICCAS & ACE15 scores increased after training (diff 7.8, *p*=0.011; 12.2, *p*=0.049, respectively). Both IP practice and IP instructor skills increased after training, with a greater increase in instructor skills (diff 1.86, *p*=0.0626; 2.99, *p*=0.026, respectively). Knowledge test scores were unchanged.

Conclusion: Almost all measures improved, particularly IP instructor skills, suggesting IPE-specific teaching is a new skill that improves with training. Self-rated competencies (ICCAS) were higher than was reflected in baseline skill use, indicating a disconnect between confidence and competence. This preliminary study highlights the need for and potential impact of formal training for instructors facilitating IPE for health profession students.

C171
Integrating Geriatrics into Internal Medicine Core Curriculum: Aging Theme

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Background
In 2014, our internal medicine (IM) residency program moved to a "6+2" block schedule and theme-based ambulatory curriculum. Geriatrics/Aging was designated a longitudinal theme to span all three years. We created an aging curriculum for IM residents that increased exposure to geriatric competencies and enhanced training in the care of older adults.

Methods
We integrated an aging theme into the IM categorical and primary care outpatient curricula. In each year of training, we co-taught several didactics with other specialists to promote collaboration and sharpen the relevance of each topic. Those topics included PGY1 (categorical and primary care): Geriatric Assessment 1 (fall) & 2 (spring) and capstone of spring Renal block (co-taught with renal), Hypertension guidelines for Older Adults (incorporating multi-morbidity). We reinforced that knowledge in the (mandatory) PGY2 ACE unit rotation and PGY3 geriatric community-based, service-learning experience. PGY2/3 (categorical) topics included: Geriatric Polypharmacy (co-taught with pharmacist), Hot Topics in Dementia, Shared Decision Making in Cancer Screening for Older Adults (co-taught with oncology) and Healthy Aging. Each talk was given 4 times to reach all learners. Additionally, the primary care residents had 5 geriatrics didactics per year, as above, and toured local senior sites.

Before and after implementing the curriculum, we compared annual ACGME evaluation responses regarding the adequacy of geriatric training. We also evaluated resident performance on geriatric questions on the annual in-training exam.

Results
The ACGME evaluations showed a significant increase in residents who assessed themselves as possessing adequate experience in geriatrics (71% prior to implementation in 2013-14 year versus 87.5% in the 2016-17 academic year). On the in-training exam in 2014, residents mean percent correct scores in geriatric medicine was 70% compared to 77% correct in 2017. We also observed more residents choosing longitudinal rotations in geriatrics and geriatrics fellowships.

Conclusions
An Aging curriculum is now standard in our IM curriculum. Given that other internal medicine programs have similar block schedules, this curriculum could be replicated and adapted. We will continue expanding the aging theme and evaluating the IM residents' care of older adults.

C172
Caregiver burden: do family caregiver workshops make a difference?

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Background: Over 34 million Americans provide unpaid care to an adult age 50 or older annually. No caregiver is immune to the possibility of experiencing burden. Caregiver burden can take a multidimensional toll on impacted individuals, with potential adverse effects in emotional, social, physical, financial, and spiritual well-being. When the burdens of family caregiving are lessened, both the caregiver and the family member in need of care can see benefit from the change. One goal of the Arkansas Geriatric Workforce Enhancement Program (AGEC) (a HRSA Workforce Enhancement supported grant) is to educate family caregivers about dementia and the best practices involved in the care of their loved ones. The main program through which this goal is reached is a half-day Family Caregiver Dementia Workshop, a free program offered across the state of Arkansas that offers education and resources to family caregivers. This study's objective was to determine if Family Caregiver Workshops impact participants' perceived caregiver burden. **Methods:** The AGEC and partnering staff conducted half day dementia family caregiving workshops throughout Arkansas. Before each workshop, the study was explained, an information sheet was distributed and those who chose to participate completed the Zarit Burden Interview. These participants were then called on the phone 30-45 days after the class and completed the same interview on the phone with the research assistant. Pre and post interviews were analyzed using descriptive statistics, paired t-test,

and Pearson's product-moment correlation. **Results**: Attending the Family caregiver workshops significantly improved the knowledge level (p=0.000) and confidence levels (p=0.001) of the participants. Caregivers show a lesser degree of strain (p=0.01) around their relatives post-workshop, improvements in control of life (p=0.00) since their relative's illness and they are more certain (p=0.001) about what to do in caregiving situations.

C173

Did you take your medications today? Teaching empathy and the challenge of medication adherence using a fun activity

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Background: 39% of elderly patients 65 years and older take 5-7 prescription medications daily. Medication adherence is not easy given the complexity of most medication regimens and the specific way some medications need to be taken. Introducing this awareness during preclinical years provides students an opportunity to gain empathy for patient and an appreciation for the value of clearly written and delivered medication instructions and an accurately performed medication reconciliation. Clinical rotations are shorter than in previous decades and given the current structure of busy clinical services, these communication techniques should be emphasized early if they are to become habit forming.

Methods: At the end of a session on Medication Adherence, second year medical students in our On Doctoring course were each handed a bag of "pills" (various colored Skittles® or M&M® candies to simulate medications for hypertension, seizure disorder, osteoporosis and heartburn). Half the students received oral instructions and the other half were given written instructions. Students were given a 3 day supply of "pills" and were told to take them exactly as directed. They were then asked to write a short reflection on their experience.

Results: Students who received verbal instructions unanimously agreed that they had a hard time remembering how to take their various "pills". All agreed that they had difficulty complying with some of the instructions, for example – waiting 30 minutes before eating or not drinking alcohol. Students noted that the exercise was worthwhile and that it led them to realize that they needed to optimize medication adherence in their future patients using available strategies such as medication reconciliation and the after-visit summary and employ techniques such as the "teach back" method in a patient centered way.

Conclusion: Simulating the experience of adhering to a difficult medication regimen using a simple fun exercise is an effective way of introducing awareness and empathy in medical students. They were able to articulate that clear written instructions are critical, the teach back method and the use of pillboxes can be used successfully and that medication reconciliation done well is an effective way to ensure patients are taking medications appropriately.

C174

Elder Abuse Training Utlizing Simulation in an Undergraduate Nursing Program

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Background: Elder abuse (EA) is the intent to or failure to act by a person of relational trust leading to harm in older adults. Several types exist yet this phenomenon remains highly under recognized. Each year, approximately 1 to 2 million older adults experience abuse. With insufficient numbers of trained geriatric health care professionals, all health care professionals need to be cognizant of the signs and symptoms of EA, adequate assessment and effective interventions. The purpose of this intervention was to teach nursing students how to identify risk factors, assess for and report EA.

Methods: A 1 ½ hour class lecture was provided on different aspects of EA with a major focus on self-neglect (SN), the most common type of EA, followed by a simulation lab focusing on SN utilizing a standardized patient. The simulation lab was set up to mimic the hospital setting at the Cizik School of Nursing in Houston, Texas. There were 4 pairs of standardized patients (one who role played as the patient and one who role played as the neighbor where the neighbor facilitated the patient's hospital admission) each in different lab rooms. Nurse faculty facilitated and supervised the lab in each room. Afterwards, debriefing occurred followed by student evaluations.

Results: Three paired sample t-test were conducted to compare pre and post-test results for knowledge, skills, and attitudes. Results revealed a significant difference in pre-test knowledge (M = 4.71, SD = 1.12) and post-test knowledge (M = 6.02, SD = 1.14), t(114)= -10.34, p < .01 as well as pre-test skills (M = 15.49, SD = 3.54) and post-test skills (M = 18.10, SD = 2.95), t(114) = -6.44, p < .01. There were no significant differences in attitude.

Conclusions: Due to the complexity of EA cases and the lack of empirically tested medical interventions, an interprofessional approach is warranted. This necessitates members from nursing, medicine, social work, and other healthcare professionals working together to develop short and long-term plans of care that are driven by the least restrictive alternative philosophy. Simulation lab is a valuable hands-on experience in a controlled environment where students can fine tune their skills and optimize patient outcomes. We plan to train other healthcare professionals to provide an interprofessional approach to EA.

C175

A mastery learning based approach to teaching about falls and gait assessment

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Background: Mastery learning is a specific form of competency-based achievement in which learning time varies but outcomes are uniform. After completing deliberate practice and receiving individualized feedback, trainees must meet or exceed a predetermined minimum passing standard (MPS) before moving on. The objective of this study was to assess the feasibility of applying mastery learning to geriatrics education formedical students in the area of falls and gait assessment.

Methods: Third and fourth year medical students on the Primary Care Clerkship received an interactive didactic session on falls in older adults and gait assessment using the Timed Up and Go (TUG). Students were then observed completing the TUG with 3 patients at their clinical sites. Students later took an objective structured clinical examination (OSCE) that included a case of a patient who complained of unsteadiness and had fallen. Students took a history and performed a physical exam including a gait assessment with a standardized patient. Afterwards, students completed a write-up and were asked to document at least 3 contributing causes and 3 interventions to prevent future falls. The standardized patient encounters were videotaped and scored along with the write-up using an 18 item checklist. The MPS for the checklist was determined by a multidisciplinary panel of 10 clinical experts using the Angoff standard setting method. Students also completed an evaluation of the didactic session.

Results: 87 medical students completed the Primary Care Clerkship between August 2017 and April 2018. The average score on the OSCE was 81.4. 60.9% of students met the MPS of 82. Students rated the didactic session a mean of 4.7 on a Likert scale (1=strongly disagree, 3=neutral, 5=strongly agree) and reported that they found the session engaging and useful for future training and clinical practice.

Conclusion: Only 61% of clerkship students met the MPS on a fall and gait assessment case even after receiving an interactive didactic session on falls and having the opportunity for deliberate practice of the TUG. A significant portion of students would have benefited from more time for additional skills practice in falls and gait assessment as

would be possible with a mastery learning approach. Further research into applying mastery learning to geriatrics education is needed to ensure all trainees achieve competence in important geriatric skills.

C176

VA PUR - VA Pressure Ulcer/injury Resource : A Department of Veterans Affairs Mobile App for Veterans and Caregivers

S. S. Battar,[1,2] c. clores,[1] A. T. Mancino.[3] *1. Geriatrics, Central Arkansas Veterans HCS, Little Rock, AR; 2. Geriatrics, University of Arkansas Medical School, Little Rock, AR; 3. Surgery, Central Arkansas Veterans Healthcare System, Little Rock, AR.*

In December 2017, VA developed and released an innovative mobile app for patient and caregiver use to prevent and treat pressure ulcers/injuries - the VA PUR. 4 major features on the home screen: HOME, LEARN, TOOLS, GET HELP provide links to tools which direct users in better managing their health. VA PUR is unique in the mobile health(mHealth) market and is the only VA developed app for pressure ulcer management. Veterans and caregivers can create journal entries to track pressure ulcers/injuries, set up regular reminders to move, eat, take medications etc. VA PUR is a valuable education tool which can be used at home and other practice settings. VA PUR is available VA PUR is available on the Apple App Store and Google Play Store. To learn more about VA PUR, access training materials at https://mobile.va.gov/app/va-pressure-ulcer-resource. President of National Pressure Ulcer Advisory Panel (NPUAP) said "The VA PUR is a wonderful innovation that will have a profound effect on our shared goal of improving patient outcomes in pressure injury prevention and treatment." Chair of NPUAP commented:"This is a wonderful example of translational research at its finest. The VA has accurately and artfully translated best evidence in pressure injury care and made it readily accessible to Veterans and caregivers". Our Veterans are excited and enjoy using VA PUR. We foster Peer Support groups to promote its use in patients with spinal cord injuries, tech savvy and naive persons as well. One of our Veterans realized he gained weight during inpatient stay, and took charge of his life with help from VA PUR.

The VA PUR allows users to:

-View resources and tips to prevent pressure ulcers/injuries

-Learn about ways to manage pain and cope with stress

- Set reminders to move, eat and take medications

- Create journal entries to track pressure ulcer/injury

- View videos to learn about safely transferring and repositioning while in bed or chair

- Learn about making home a safer place

- Get immediate help and locate nearby medical facilities - https://mobile.va.gov/app/va-pressure-ulcer-resource

Assistance: Online technical support 24/7 Telephone technical support: 844-4VA-MOBILE (7am – 7pm CT) (844-482-6624)

C177

Teach smarter, not harder: integrating adult learning theory (ALT) into a Geriatric fellowship didactic curriculum

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Background: Geriatric Medicine fellows are expected to master a staggering amount of material within a 1-year ACGME accredited fellowship, including proficiency in caring for complex older adults across a continuum of sites while simultaneously developing skills in biomedical and psychosocial aspects of care. Carving out protected educational time from clinical training is challenging; it is imperative that educators make the most of that time.

ALT describes principles that facilitate adult learning (Knowles, 1980); 1) involve the learner 2) make learning relevant 3) make learning practical and 4) integrate new learning with prior knowledge.

We used principles of ALT to restructure the Harvard Multicampus Geriatric fellowship weekly half-day didactic curriculum.

Methods: First, we identified content gaps and redundancies by mapping existing topics onto the 76 AGS/ADGAP Geriatric fellowship curricular milestones (Parks *et al*, JAGS 2014). Second, we organized didactics into systems-based modules. Third, we identified opportunities for integrating principles of ALT (table). Fourth, we systematized soliciting learner feedback.

Results: Following the curricular redesign, we removed 14 didactics, added 13, and rescheduled 24. Reasons for rescheduling were to move foundational topics earlier in the year (n=7), complex topics later (n=3), and create systems-based modules (n=14). On a 5-point Likert scale survey, 3 out of 6 fellows indicated that they strongly agreed they were satisfied with the didactics compared to 1 out of 6 fellows from the previous year, prior to the redesign. Moreover, fellows were more likely to agree that the didactics were relevant, practical, interactive, and integrated new learning with prior knowledge.

Conclusions: Systematic incorporation of ALT in a Geriatrics fellowship curriculum is feasible and may correlate with increased learner satisfaction. Although few changes were made to content, we implemented significant changes to structure and timing of content delivery.

Principle of ALT	Examples of implementation
Involve the learner	Expanded number of fellow-led didactics Dedicated Peer Teaching curriculum with trainees from other specialties Medical Education curriculum focused on interactive teaching techniques Systematized collecting and reviewing learner feedback
Make learning relevant	Didactic topics aligned with AGS/ADGAP milestones Schedule reviewed for both gaps and areas of redundancy Fellows surveyed in advance of Peer Teaching talks to identify topics of interest
Make learning practical	Introduced 3 skills-based workshops on performing a functional assessment, managing polypharmacy, and wound care
Integrate new learning with prior knowledge	Academic year begins with a Core Topics module Physiology of Aging" lecture series designed to integrate new understanding of aging with knowledge of normal adult physiology

C178

Promoting Geriatrics education across medical specialties with a peer teaching exchange: a needs assessment and pilot

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Background: Geriatricians frequently consult with physicians from other specialties who in turn commonly care for older adults. However, required Geriatrics education is limited outside of IM and FM residencies. To meet this educational need we piloted a peer teaching exchange between a Geriatrics fellowship and non-IM or FM training programs. Social and cognitive congruence between teacher and learner makes peer teaching uniquely suited to fostering collaborative learning.

Methods: We began with a needs assessment asking specialty trainees to identify topics of relevance from a list of core Geriatrics topics. Two talks were then scheduled per program, one led by a Geriatrics fellow for specialty trainees and one led by a specialty trainee for Geriatrics fellows, for trainees to teach each other fundamental principles of their specialties. Talks for specialty trainees were individualized based on the needs assessment.

Results: Dermatology, PMR and Anesthesiology residencies participated in the pilot. 41 specialty trainees completed the needs assessment. Trainees indicated greatest interest in learning about prognostication (94%), polypharmacy (79%), and frailty (69%). Interests varied widely by specialty (figure). After a pilot talk led by a Geriatrics fellow for Dermatology residents, 100% of the residents (n=8) indicated that the talk was helpful.

Conclusions: Specialty trainees demonstrated robust interest in learning about Geriatrics although topics perceived as relevant varied by specialty. Our peer teaching exchange shows promise as

an educational modality to educate specialty trainees in core Geriatric principles and to promote interdisciplinary knowledge and collaboration.

Geriatric Topics of Interest by Specialty
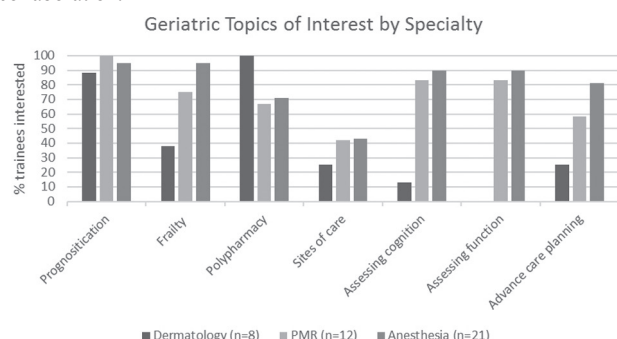
C179

Cultivating a Culture of Caring for Older Adults within a Large Health Care System in Orange County

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Background:

By 2040, almost 1 in 4 people in Orange County (OC), CA will be 65 or older. In 2015, there were 41 board-certified Geriatricians in OC. The estimated number of Geriatricians needed to care for the current older adult population is 177[1,2]. With the lack of Geriatricians needed to serve this rapidly growing population, the burden of their care falls on primary care providers.

As the only university in OC with strong medical and nursing geriatric medicine teaching and clinical programs, the University of California, Irvine (UCI) through funding from the HRSA GWEP responded by developing a comprehensive intervention to build a more responsive, agile workforce by integrating geriatric skills, knowledge and health delivery processes into major primary care sites.

Methods:

UCI exported models of care from its Senior Health Center, a premier primary care and consultative clinic for older adults, to AltaMed- the nation's largest FQHC. AltaMed provides care for underserved communities in Los Angeles and Orange County. At AltaMed's 43 clinic sites, elder care represents at least one-third of services.

UCI developed and presented 16 hours of geriatric focused training in areas such as, cognitive and mood disorders, blood pressure management in the aging patient, polypharmacy, the annual wellness visit and gait impairment. Each 2-day training session was followed by a 6-month mentorship program which strengthened the integration of geriatric-focused clinical care to busy primary care patient visits. Trainings and mentorships were offered several times between May 2016 and March 2018 with 39 providers trained, representing 30 clinics.

Results:

At 6-month intervals ICD-10 codes were evaluated. Quality of care delivered by providers who went through the training program was superior in the following domains compared to their untrained counterparts: advanced directive care (92.7% vs 90.1%), dementia care (3.5% vs 2.4%), fall history (2.3% vs 1.5%), immunizations (49.3% vs 45.7%), and mammograms (12.6% vs 10.1%), all statistically significant with $p < 0.05$.

Conclusions:

Quality of care and documentation of patient complexity improved for those providers who participated in the training intervention as evaluated by ICD-10 coding.

References:

Orange County Healthy Aging Initiative, 2016[1]
Orange County Older Adult Profile, 2016[2]

C180

Integration of Geriatric Nursing Education at a Comprehensive Cancer Center

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Background

Cancer is a disease of the aging and oncology nurses are faced with the challenge of caring for a growing number of older cancer patients. However, there are insufficient healthcare professionals trained in geriatrics to meet this need. We offered a Geriatric Nursing Education course at a Comprehensive Cancer Center with the objective of increasing knowledge among oncology nurses.

Methods

An interprofessional team provided a full day course to oncology nurses at a Comprehensive Cancer Center on topics pertinent to the needs of older adults including: health promotion, treatment modalities and physiological changes in older adults, Comprehensive Geriatric Assessment, geriatric syndromes, late effects of surviving cancer treatment, medication management, depression and distress, exercises for older adults, nutrition, cognitive impairment, functional and cognitive rehabilitation, and advanced care planning. Immediate pre and post surveys were conducted to assess for knowledge change and a 2 month follow up survey was conducted to assess implementation of recommended clinical practice changes.

Results

A total of 43 nurses attended the course on June 2018. Mean age was 40.16 years old (SD=11.73), 91% females, 67% White followed by 9% African Americans. The primary language was English (86%). Analyses indicated statistically significant improvement on the *Knowledge dimension* [t(42) = -9.09, p < .001] on the pre and post comparison of data and a statistically significant difference on the *Behavior Change dimension* [t(42) = 14.05, p < .001] on the comparison between the post assessment and 2 month follow up. Of the 63% of nurses who answered the survey on follow-up, 74%, 22% and 4% respectively reported that the information learnt was extremely, somewhat, a little applicable to their current role, 96% reported that they would likely or extremely likely recommend the course to their colleagues and 63% reported that they often or always seek out resources related to caring for geriatric patients.

Conclusion

Our educational course on the care of older cancer patients was very well received and successful in increasing knowledge among oncology nurses. Addressing the need for geriatric trained professionals through providing relevant education contributes to the increased understanding of care needs specific to older adults and may lead to improved outcomes.

C181

Educational Needs in a Homeless/Low Income Geriatric Population

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Background: One of the core concepts of the geriatric-friendly health system is that care must align 'what matters most' to patients. Patient goals, and the means to achieve them, can vary significantly based on social determinants of health.

Purpose: To describe self-reported health education goals in a sample of homeless/low income older adults.

Methods: To improve a general geriatric educational offering for community-dwelling older adults, we asked attendees at 2 free dinners

in the community to provide qualitative input on educational topics that would help them better achieve their health outcome goals.

Results: Of the approximately 200 attendees, 70 offered suggestions. Rather than simply providing didactic content, they expressed a need for in-person interaction with a nurse, social worker, pharmacist and/or physician. Topics of interest included education on disease processes, community resources, help with the VA, insurance options, transportation, and personal care options. Help with low cholesterol and/or diabetic diets was requested. Monitoring of blood pressure, blood sugar and weight were suggested.

Discussion: A general education offering on geriatric topics meant for the non-homeless population was not meeting the needs of homeless/extremely low income older adults attending free dinners. As a result of this quality improvement process, we have modified our educational offering to include a nurse and social worker presence, and alternating physician and pharmacist presence. We now supply 'Street Cards' for local community resources and low cholesterol/diabetic recipes. We continue with blood pressure checks and will be adding vision, depression, and fall risk screenings. We are exploring addition of a counselor for substance abuse issues. Through these changes we expect to better address what matters most to the homeless/extremely low income older adult population.

C182

Improving Trainees' Knowledge Regarding Prescribing and Monitoring Controlled Substances in Older Adults

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Background: Public health departments have guidelines to regulate controlled substances. Many older adults take controlled substances for chronic medical problems. Data shows that a lack of provider education regarding regulations as well as a lack of awareness regarding available interventions to help monitor controlled substances lead to unsafe prescribing of such medications. In addition, the ACGME has set milestones for chronic pain management and opiate prescribing for Geriatrics trainees. This study aims to assess the effectiveness of an interdisciplinary workshop activity to improve trainees' knowledge regarding prescribing and monitoring controlled substances in older adults.

Methods: The study took place at an urban safety-net academic hospital. The subjects were 6 medical and dental trainees in Geriatrics. The study was comprised of an anonymous pre-intervention survey, an interactive workshop, and an anonymous post-intervention survey. The interactive workshop focused on milestones set by the ACGME regarding opiates and management of chronic pain.

Results: The survey response and workshop participation rates were 100%. 67% of the study participants reported awareness of the state regulations for prescribing and monitoring controlled substances, but the average correct response rate to specific questions about the content of these regulations was only 17%. The post-workshop average correct response rate increased to 75%. Prior to the intervention, only 43% of the trainees felt comfortable managing chronic non-malignant pain in older adults. This improved to 76% after the workshop. Finally, the ability to correctly interpret a urine toxicology report improved by 81% after the workshop. Overall, 83% of the participants thought the workshop was very helpful in learning how to prescribe and monitor opiates in their geriatric patients. The percentage of trainees who thought that misuse and diversion of controlled substances in older adults was at least a moderate problem doubled after the intervention.

Conclusions: This study highlights that an interactive, interdisciplinary workshop can increase awareness of chronic pain management and appropriate prescribing and monitoring of controlled substances among Geriatrics trainees. Such an intervention can be incorporated by geriatric medicine fellowship programs across the country to help meet milestones set by ACGME regarding this important subject.

C183

Cognition and Capacity to Consent for Elective Surgery

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Background: Older adults have high rates of undiagnosed cognitive impairment, yet often cognitive assessment is not included in evaluations for elective surgery. This presents challenges when considering how best to consent for surgery. This is a pilot study to examine the prevalence of cognitive impairment, incapacity, and their relationship, in older adults presenting for elective surgery.

Methods: Perioperative Optimization of Senior Health (POSH) is an integrated care model between surgery, anesthesia, and geriatrics. Patients presenting for POSH pre-op assessment were eligible for inclusion. Participants underwent cognitive testing with the MOCA and Independent Living Scale (ILS), which assesses executive function and judgement. Capacity to consent for upcoming surgery was assessed using the MacArthur Competence Assessment Tool for Treatment (MacCAT-T). The MacCAT-T evaluates ability to understand, appreciate, reason, and express a choice, generating a score of 0-20. There is no absolute cutoff for capacity, but performance informs clinician judgement.

Results: Patients enrolled thus far (N=9) had capacity across a wide range of cognitive performances. MacCAT-T scores correlated strongly with MOCA scores (r = 0.82) but poorly with ILS (r=0.02). Administration of the MOCA and ILS were feasible during the preop visit. See table for results.

Conclusion: Cognitive performance was highly related to performance on the MacCAT-T. Brief cognitive screening instruments may be considered before consenting for elective surgery. Further work will be done to identify possible cut scores for these instruments to understand when a more thorough capacity assessment is indicated.

Age, Mean (SD)	76 (5.1)
Female Gender, %	77.8%
Years of Education, Mean (SD)	13.1 (1.6)
Surgical Specialty, %	
General	11.1%
Hepatopancreaticobiliary	44.4%
Gynecologic	22.2%
Breast	22.2%
Capacity, %	100%
MOCA, Total Score, Mean (Range)	24 (18-29)
ILS, Total Score, Mean (Range)	37 (31-39)

C184

Smoking and Ocular Morbidities in Older Adult Veterans

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Background: Smoking is associated with diseases of nearly every organ system including the eyes. Prior studies report associations between smoking with age-related macular degeneration (AMD), blindness, cataracts, and diabetic retinopathy (DR) leading to decreased quality of life. Older Veterans have a high prevalence of smoking, yet few research studies have examined the association between smoking and ocular morbidities in this population. The purpose of this pilot study was to investigate this issue.

Methods: Veterans aged 50-89 years under the care of the Ophthalmology Service at one Veterans Health Administration facility from October 1, 2015 to September 30, 2016 were included in this cross-sectional retrospective study. Variables examined were AMD, blindness, cataracts, DR, and current smoking status. Descriptive

statistics were used to summarize subjects' characteristics. The associations between smoking and the four ophthalmic disorders without and with adjustment for age were investigated using chi-square tests and Cochran-Mantel-Haenszel tests.

Results: The number of patients seen by the Ophthalmology Service over the one-year timeframe was 7105. The majority were male (94%) with a mean age of 70.3 ± 8.8 years. There was an association found between smoking and cataracts with 68.5% and 63.4% of smokers and non-smokers with a cataract diagnosis (p=0.001). After adjusting for age, the odds of cataracts for smokers were 16% higher than those of non-smokers (OR, 1.16; 95% CI, 1.01-1.32; p=0.033). No association was observed between smoking and AMD, blindness, and DR.

Conclusions: Although previous research found an association between smoking and a higher risk for AMD, blindness, cataracts, and DR, this study only demonstrated an association between smoking and cataracts. More research on comorbidities and referral bias is needed on Veteran's smoking and ocular health. Eye care professionals need to discuss associations between smoking and ocular health with Veterans and offer cessation advice.

C185
Pharmacist Interventions Involving Patient Outreach: Early Findings of Patient Outcomes in Older Adults

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With an aging population, primary care will be challenged with addressing the medical needs of older adults with multiple chronic conditions. Deploying pharmacists in primary care offices can reduce the burden of managing the needs of older adults and mitigate the negative outcomes related medication non-adherence and polypharmacy. The purpose of this study was to investigate the impact of pharmacist interventions on older adult patients in primary care. A one-group pretest-post test design was implemented to compare health care utilization before and after initial patient outreach performed by the clinical pharmacist. Primary outcomes included measurement of emergency department (ED) visits and hospital admissions in older adult patients who were engaged at least 6 months in home visit program. Secondary outcomes included measurement of costs avoided by pharmacist interventions. Estimates of cost avoidance are based on previous studies and inflation adjustments. Pharmacists performed more than 150 home visits and 180 telephone outreaches in 51 older adult patients. In patients with pharmacist-led home visits, the total number of ED visits 6 months prior to the initial pharmacist outreach was 69. Six months after the initial outreach was performed by the pharmacist, the total number of ED visits decreased to 48. The total number of hospital admissions prior to pharmacist outreach was 25. This number decreased to 16 hospital admissions after pharmacist outreach. Pharmacist interventions associated with cost avoidance included comprehensive medication review, preventing or managing adverse drug events, medication discontinuation, and adjusting dosage or frequency of medication administration. Total cost avoidance from pharmacist interventions is estimated to be $249,229 annually. Clinical pharmacists have a unique role in improving outcomes of older adult patients by performing comprehensive medication management in primary care. Early investigations of this study indicate that pharmacist interventions performed during home visits, along with the care coordination of the nurse care manager and community health worker, may be associated with fewer ED visits and hospital admissions, and increased cost avoidance.

C186
Pre-Hospital Frailty and Cognitive Motor Interference(CMI) in Adults with Acute Respiratory Failure

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Background: Cognitive Motor Interference (CMI), the hallmark of which is the decrement in motor speed when a motor task is performed simultaneously with a cognitive task as compared to when the task is completed alone, has been investigated as a sensitive approach to identify potential adverse outcomes in older adults but has not been previously explored in survivors of acute respiratory failure (ARF). We aimed to compare CMI in ARF patients by pre-hospital frailty.

Methods: In a prospective observational pilot study, pre-hospital frailty was quantified by research investigators using the Clinical Frailty Scale (CFS). CMI was attempted q 5 days in patients with ARF by asking them to perform a modified finger tapping test (FTT) with and without a cognitive challenge (serial subtraction by two (S2)]. CMI was calculated as [(single task finger speed – dual task speed)/ single task speed x 100]. To estimate the association between frailty and CMI, we used general estimating equation modeling to account for the intra-subject correlation.

Results: In 48 eligible participants who had at least 1 attempt at CMI assessments (mean (standard deviation) (SD) age 63.9 (14.8)]: 13 (27.1%) was classified as fit; 10 (20.8%) as vulnerable and 25 (52.1%) as frail using the CFS. We obtained at least 1 (average 1.2 and range 1-2) CMI measurement using FTT in 32/48 (66.6%) (total n= 39 CMI measurements). In those patients who completed CMI, Frailty defined by CFS>4 was associated with higher CMI (mean (standard deviation (SD) 66.3 (33.7) versus 40.5 (31.5) in frail versus not frail, p=0.0332) although other baseline correlates of higher CMI included older age and female gender (70.2 (23.2) versus 36.7 (36.7), p=0.004).

Conclusions: In this small population of ARF patients, CMI assessment was feasible using a modified FTT and although CMI appeared to be higher in patients with pre-hospital frailty, accurate estimate of association between frailty and CMI in ARF will require a large enough sample size to allow for age and gender adjustment.

C187
Development of a patient decision aid for the management of superficial basal cell carcinoma (BCC) in adults with a limited life expectancy

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Background:

Basal cell carcinoma (BCC) is a slow-growing, rarely lethal skin cancer that predominantly affects people 65 years or older. A range of treatment options exist for BCC, but there is little evidence available to guide patients and providers in selecting the best treatment option for an individual patient. This is particularly critical for adults with limited life expectancy, who may face more challenges from certain treatment options than from the BCC itself. This study outlines the development of a decision aid (DA) that can be used by patients, caregivers, and providers to assist in shared decision-making for patients with low risk BCC who have a limited life expectancy.

Methods:

Using the International Patient Decision Aids Standards (IPDAS) Collaboration framework, we used feedback from focus groups and semi-structured interviews with patients and providers to develop an initial prototype of the DA. We subsequently conducted cognitive interviews with additional patients and providers to test

the comprehensibility and usability of the prototype and iteratively updated the prototype to arrive at our final product.

Results:

We created eighteen different iterations using feedback from 24 patients and 34 providers, including general dermatologists (n=21) and geriatricians (n=13). The key issues identified included: 1) Addressing fear of cancer; 2) Communicating risk and uncertainty; 3) Values clarification; and 4) Time lag to benefit.

Conclusions:

Our DA has been specifically adapted and designed to support patients with a limited life expectancy in making decisions about their low risk BCC together with their doctors.

C188

Measuring Resilience in Older Dialysis Patients: A Pilot Study

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Background

Dialysis is a physiological stressor requiring resilience in older adults. To develop interventions targeting resilience in older dialysis patients, our objective was to test feasibility of measuring day-to-day (i.e., time to recovery after a dialysis session and physical activity) and long-term resilience (i.e., maintenance or improvement in functional measures over time).

Methods

We conducted a 6-month study at dialysis units near Duke University. We included ambulatory adults aged ≥55 years receiving hemodialysis for ≥4 weeks who did not have advanced dementia, hospice care, or long-term care residence. The study protocol included the following: physical activity monitoring via actigraphy for 14 days; recovery time as measured by "How long does it take you to recover after a dialysis session?"; and Katz and Lawton activities of daily living (ADLs), short physical performance battery (SPPB) and grip strength measured at baseline, 3, and 6 months. The main outcomes were feasibility and acceptability. We examined each measure for ceiling effects, inter-individual variability, and sensitivity to change. We explored association between recovery time and SPPB adjusting for age, gender, race, visit, and random intercepts (to account for within-subject correlation).

Results

Of 61 approached, 37 subjects agreed to participate, of which 11 died or withdrew before 6 months. Of 35 hemodialysis who completed baseline SPPB, grip strength, and ADLs, mean (SD) age was 70.1 (5.0), 54% (n=19) were male, and 77% (n=27) were black. Thirty-two completed actigraphy [mean (SD) 12.8 (5.7) days] and recovery time [median (IQR) 2 (0.3, 12) hours]. Of 23 with complete ADL follow-up data, ceiling effects for Katz and Lawton scores were present in 91% (n=21) and 43% (n=10), respectively. Baseline median (IQR) SPPB was 6 (4,9) (score range 0-12), and 19 of 23 maintained or improved SPPB by 6 months. Baseline median (IQR) grip strength was 55 (42, 70) kilograms, and 18 of 23 maintained or improved grip strength by 6 months. After adjustment, those in the highest tertile of recovery time (i.e., longer recovery) had lower SPPB [difference (95% CI), -3.67 (-6.71, -0.64)] compared with those in the lowest tertile.

Conclusion

In this cohort of older dialysis patients, recovery time, SPPB, and grip strength are feasible and appropriate for measuring resilience. Given its association with function, recovery time may be a novel marker of resilience.

C189

Laboratory Integrated Point-Of-Care Testing in Long-Term Care Facility.

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Background: It has been shown that more than 60% of all critical decisions involve laboratory tests which put the laboratory into pressure to provide the necessary service to effectively treat the residents in Long-Term Care Facilities and avoid unnecessary transferring the patient to the hospital. Point-Of- Care Testing (POCT), which is defined as medical testing at or near the site of patient care with the goal of providing the highest quality of care with faster turn-around time, can offer the LTCF with such service.

Methods: A program was developed to provide administrative functions, validation, ordering, result correlation in real time and EMR integration. 126 patients residing in Long-Term Care facilities were tested using iSTAT Point-of-Care (Abbott Diagnostics, Abbott Park, Illinois) analyzer due to symptoms that required emergency testing. The analytes tested were: ionized calcium, creatinine, BUN, CO_2, glucose, chloride, potassium, sodium, hemoglobin and hematocrit Results were separated into normal, abnormal, and critical. Statistical analysis was done using Analyse-it.

Results: the age of the patients ranged from 54-99 years old, 53 samples were from women and 73 were from men. 4 patients (3.2%) had normal results for all analytes tested (one patient had glucose 116 because the patient was not fasting); 49 patients (38.9%) had at least one critical result. Hemoglobin was the most critical test followed by potassium and chloride. To our knowledge, none of the patient needed to be transferred to the hospital.

Conclusion: POCT provided the facilities with the tool that allowed the physician to intervene faster and prevent unnecessary hospital visit, and gives a new approach to the traditional laboratory service model at time where acuity levels on the rise and reimbursements falling. In addition, the integration into the main laboratory system will guarantee the correct use of POCT in nursing homes by organize periodic training, refresher courses, manual protocol and implement quality controls, validation the kits used, and the ability to correlate the results with the main laboratory.

C190

Comparison of urine culture susceptibility in geriatric emergency department patients to reported institutional antibiogram organisms

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Study Objectives: A urinary tract infection is a common diagnosis in the emergency department (ED) in patients ≥ 65 years old. The purpose of this study is to evaluate urine culture results in geriatric ED (GED) patients age ≥ 65 years old and compare resulted organism sensitivities to the quarterly-reported institutional antibiogram.

Methods: This is a retrospective study conducted at urban tertiary care ED between April 1, 2018 to June 30, 2018. Inclusion criteria included all patients age 65 years or older who had a positive urine culture result from their ED visit. Charts were reviewed for final urine culture results. Organisms with 10 or less strains reported or colony counts of <10,000 colonies/mL were excluded. These results were compared to the published institutional antibiogram. If an organism or antibiotic was not reported on the quarterly antibiogram, it was excluded. The minimal inhibitory concentration (MIC) from the institutional antibiogram was used to determine susceptibility criteria.

Results: A total of 202 urine cultures were reviewed during the study period. Four bacterium (Escherichia coli, Klebsiella pneumonaie, Pseudomonas aeruginosa and Enterococcus faecalis) met inclusion criteria. Escherichia coli was the most frequently bacterium

cultured with 119 strains. Sensitivity to ciprofloxacin, trimethoprim/sulfamethoxazole and cefazolin were less in the GED group (59%, 69% & 75%) than the reported institutional antibiogram (74%, 72% & 99%).

Conclusion: GED patients with a positive Escherichia coli urine culture result tended to have a lower susceptibility to antibiotics commonly used to treat UTI's than reported in the institution's antibiogram. An ongoing GED-specific urinary antibiogram should be developed to further guide empiric treatment selection for this common condition.

C191
Impact of Geriatrics-Urology Comanagement Program on Patient Outcomes

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Background: Cystectomies and nephrectomies are complicated urological procedures with significant morbidity and mortality. Prolonged hospital length of stays (LOS), and high rates of postoperative complications, death, and readmissions occur. We used the successful fracture comanagement model and created a Geriatrics-Urology comanagement program whereby geriatricians co-manage medical problems. This preliminary study is a retrospective analysis investigating impact of geriatric urology co-management on patient outcomes.

Methods: We compared intervention group (IG) of urology patients aged ≥65 who underwent nephrectomies, nephroureterectomies and cystectomies and received geriatric comanagement between January 2017 - March 2018 to a historical control group (CG) who received usual care from January 2016-December 2016. Demographic and outcome measures were obtained from electronic medical records. Using SAS© software, chi-square and Student's t-tests were performed for analyses.

Results: 42 patients were in IG and 78 in CG. Number of patients by procedure were as follows (CG versus IG): Cystectomy (26 and 11), nephrectomy (44 and 23) and nephroureterectomy (8 and 8). On average, patients in CG were slightly older (73.2 vs 72.3 years old, p-value= 0.36), healthier (mean Charlson comorbidity index, of 0.6 vs 0.8, p-value= 0.27) and fewer males (61.9% vs 64.1%, p-value=0.81). On average, geriatric consults happened within 1.4 days (range1 to 4 days). Majority of consults (81%) were within 1 day. There were more cases of hyponatremia during hospital stay in CG (10.4%), when compared with 0% in IG (p-value=0.032). Average LOS was decreased by 0.5 days representing a 9.2% absolute decrease in IG compared to CG, (4.9 vs 5.4days; p-value= 0.43). By procedure LOS varied significantly in CG vs IG: cystectomy (7.7 vs 5.8 days), nephrectomy (4.0 vs 3.6 days) and nephroureterectomy (5.8 vs 7.3 days). None were statistically significant due to low numbers. Mortality at 30 days was 0 for both groups. Readmission at 30 days was higher for the IG at 16.7% vs 10.2% (p=0.31).

Conclusion: Implementing a geriatrics urology comanagement program can potentially result in clinically important reductions in LOS. These are preliminary results and given low volumes, we expect to be able to document better results with time. Comanagement can potentially be an effective model for improving outcomes in these high-risk patients.

C192
"It's do or die": Older patient experience of initial diagnosis of acute myeloid leukemia (AML)

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Background:
Over 60% of AML cases occur in adults age ≥60. Guidelines recommend treatment for many older patients but <40% receive any leukemia-directed therapy. We are in the process of developing a treatment decision-making tool for older adults with AML guided by geriatric assessment. To better inform how patients decide on treatment, we sought to describe patients' emotional responses to diagnosis and considerations for choosing treatment.

Methods:
We conducted semi-structured interviews with 10 older patients age ≥60 with AML who were recruited from an academic cancer center using purposive sampling based on treatment received. Questions were focused on the initial diagnosis experience and physician communication. Interviews were audio-recorded, transcribed, and analyzed using Atlas.ti. A grounded theory approach was used with open and axial coding. Two coders independently coded the initial transcripts and achieved consensus through an iterative process. A codebook was developed and two coders applied the coding scheme to the remaining transcripts.

Results:
Median age was 71 years (range 64-80), 6 were male and all were Caucasian. At the time of interview, all patients were receiving treament for AML. Five themes emerged relating to the experience of initial diagnosis: 1) emotional distress, the diagnosis was "shocking," "devastating," and "overwhelming;" 2) wanting treatment to live longer, "The only option I had was going through this. It's do or die;" 3) consideration of older age, comorbidities, and quality of life; 4) importance of caregiver support and; 5) inadequacy of information. Most patients felt informed but stated that only one treatment option was offered. Improvement suggestions were: provide better basic information on AML and explain treatment details including timelines, side effects, need for further therapy, and chance of relapse.

Conclusion:
In our study, older adults who chose treatment prioritized longevity even after considering age, comorbidities, and quality of life. A decision-making tool may be helpful in improving information sharing between patients, caregivers and physicians in order to ensure more informed treatment decision-making.

C193
The relationship between physical frailty and etiology of liver disease in patients with end-stage liver disease

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Background: Cirrhosis results in chronic under-nutrition and muscle wasting that manifests as physical frailty, which is strongly predictive of death. Cirrhosis may result from various etiologies such as alcohol (ALD), non-alcoholic fatty liver (NAFL), chronic hepatitis C (HCV), or autoimmune/cholestatic diseases (AI/CD) which may independently be associated with frailty. We aimed to characterize the relationship between frailty, cirrhosis etiology, and waitlist mortality in patients with cirrhosis.

Methods: Incuded were adult patients with cirrhosis listed for liver transplantation at one center who underwent outpatient physical frailty testing using the Liver Frailty Index (LFI) [grip strength, chair stands, balance; "frailty"=LFI ≥4.5]. Competing risk regression

assessed associations between cirrhosis etiology, frailty, and waitlist mortality (death/delisting for sickness) with liver transplantation as the competing risk.

Results: Included were 860 patients with cirrhosis: 42% female, 55% non-Hispanic White, median [interquartile range (IQR)] age 58 (50-63), median MELD score 16 (13-19). Etiology of cirrhosis: 26% ALD, 17% NAFL, 31% HCV, 15% AI/CD, and 10% other. Rates of frailty differed significantly by etiology: 24% in those with ALD, 15% in HCV, 29% in NAFL, 13% in AI/CD, and 21% in other. At a median f/u of 10 months, 182 (21%) died/were delisted for sickness. In multivariable analysis, after adjustment for MELD, age, Hispanic race, mild/moderate ascites, frailty (sHR 2.2, 95% CI 1.6-3.1) was strongly associated with waitlist mortality but etiology of liver disease was not (p>0.05 for each etiology category). There was no significant interaction between frailty and cirrhosis etiology (p=0.32 for the interaction term).

Conclusion: Frailty, as measured by the Liver Frailty Index, is strongly associated with waitlist mortality, regardless of cirrhosis etiology in patients awaiting liver transplantation. While rates of frailty were significantly higher in those with ALD and NAFL, neither the etiology of cirrhosis nor the interaction between cirrhosis etiology and frailty were significantly associated with mortality. We advocate for the incorporation of the objective Liver Frailty Index in the routine assessment of patients with cirrhosis to provide more accurate prognostication of mortality risk.

C194

Diagnosis and Treatment of Caregiver Burden: A quality improvement project

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Background: Diagnosis and treatment of caregiver burden is a recognized clinical care responsibility in a variety of settings. However, a survey of internal medicine residents and faculty at Hennepin County Medical Center revealed that only 9% routinely ask patients if they are caregivers. We designed and implemented a quality improvement project to systematically identify caregivers, screen for caregiver burden, and link caregivers with support services.

Methods: All patients presenting to a geriatric medicine clinic on the campus of a continuing care retirement community (CCRC) and a community-based general medicine clinic from 7/2016-10/2017 were screened by a medical assistance (MA) for caregiver status during the rooming process. Caregiver status was recorded in the electronic health record (EHR). Caregivers were assessed for burden using a modified, 4-question Zarit Burden Score and self-reported global assessment of health. MAs entered caregiver burden results into a data collection website through a link in the EHR. When the physician and patient agreed that referral to community-based resources for caregivers would be helpful, a community health worker or nurse completed the referral process.

Results: Our initial goal was to screen 300 patients. Ultimately, 1843 unique patients were screened during 3883 encounters. Of these, 130 patients (7.1%) indicated they were caregivers. The average age of caregivers in the general medicine clinic was 57 and 82 in the geriatrics clinic. Burden data was collected on 55% of identified caregivers. 39% were caring for a spouse, 44% for a parent. 76% reported caring for a person with memory problems. Mean burden score for all caregivers was 5.4/16 (suggesting mild/moderate burden). Those caring for a patient with dementia had higher burden score (5.9) than those caring for patients without dementia (2.9). 32% of identified caregivers agreed to referral for caregiver support services, 87% of whom were caring for persons with dementia.

Conclusion: Screening for caregiver status, documenting caregiver status in the EHR, and identifying caregiver burden during the rooming process was feasible in two different primary care settings. Over 30% of caregivers were referred to community-based services

improving the quality of care we provided. The screen was particularly effective at identifying and referring caregivers of persons with dementia to services.

C195

Low Bladder Diary Utilization Rates in Older Incontinent Patients

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BACKGROUND

Urinary incontinence (UI) in older patients is highly prevalent and significantly impacts function and quality of life. Based on a Cochrane review, the 2017 ICI recommends a 3-day bladder diary (BD) as part of the initial evaluation of UI and the responsiveness to therapy. BD can also provide insights into bladder behavior and may in some cases be therapeutic. The aim of this study was to analyze the rate of current use of BD by physicians in three different outpatient clinics.

METHODS

This was a retrospective, observational chart review of patients with UI treated in geriatric, urology and internal medicine (IM) clinics in an academic health center. 500 patients treated during the period from June 2015 to June 2017 were screened and 100 patients were included in the study. Charts were selected according to predefined sequential order. Out of 100 charts reviewed–29 were geriatric, 66 urology, and 5 IM patients. Data on patient characteristics, type of UI, duration of symptoms, physician's request for the BD, documentation of the BD data if it was available, any treatment for UI, medications, symptom impovement were collected.

RESULTS

BD was requested by the physician in only 38% of patients, out of which only 21% completed a BD. Data analysis showed significant improvement (81%) in symptoms in patients who had completed a BD compared to 19% improvement in symptoms in patients without BD data. Urology clinic had somewhat higher utilization rates as compared to geriatric and IM clinic.

CONCLUSION

Data from this chart review showed that there is low rate of utilization of bladder diary by physicians managing UI in older patients. Patients who were offered and completed a BD had higher rates of symptom improvement. BD remains an important, yet underutilized medical tool in the management of UI. In addition to low use by providers, patient compliance is an issue since patients may have difficulty completing the diary in a reliable, meaningful or timely fashion. There are many barriers to BD use by the physicians. Some of them include brief clinic visits and limitations in the methods of receiving the data from the patients.

This retrospective chart review of older patients with UI demonstrated low BD use, but significant improvement in patient's symptoms when BD was prescribed by the provider and completed by the patient.

C196

Enhancing the Detection of Delirium by Nurses in Acute Care

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Background: Delirium is an acute brain failure commonly experienced by hospitalized patients with serious consequences when it is not recognized and treated. Delirium is often under-recognized and subsequently treated inappropriately. Nurses, in particular, have difficulty recognizing and communicating delirium symptoms. Little is known about why difficulties occur or what can be done improve delirium detection. The study is aimed at increasing our understanding of how experienced nurses use clinical reasoning to detect, diagnose, and respond to delirium symptoms and identify opportunities for improvement.

Methods: This qualitative study was conducted with a purposeful sample of staff nurses (N=39, Age range 18-65, 59% <40 yrs, 97% female, 94% Caucasian with 11% Hispanic) who care for patients at risk for delirium on medical (42%), surgical (31%), and intensive care (28%) units. Nurses were BSN -prepared or higher (81%), certified (28%), and manage delirium more than 1-2 times per week (84%). Most received bdelirium education in nursing school (80%) and beyond (orientation, residency, and in-services) with access to geriatric resources.

Results: Nurses demonstrated a range of knowledge and clinical reasoning skills for recognizing, identifying/diagnosing, and responding to delirium symptoms with variation by unit type. Clinical reasoning is influenced by many conditions including knowledge, assessment skills (subjective vs. objective), patient characteristics (age, dementia or substance-abuse history), confidence, communication (e.g. patient-nurse, nurse-provider, nurse-family, etc.), time, and clinical consequences.

Conclusion: Nurses have knowledge and skills for recognizing and responding to patient symptoms but encounter barriers in naming, communicating, and documenting their findings. Insights from this study will be used to inform structured interventions including educational and electronic health record solutions to strengthen nurse-led clinical reasoning.

C197

Improving Accuracy In Identifying Delirium: CAM We Do Better?

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Background: Delirium is an important complication affecting hospitalized older adults, but is not always recognized in the hospital. The Confusion Assessment Method (CAM) is a validated tool used to detect delirium. Our goal was to assess the accuracy of the CAM on one nursing unit, and to assess nurse confidence in identifying delirium and using the CAM.

Methods: At our institution, nurses assess for delirium using the validated short version of the Confusion Assessment Method (CAM). To assess CAM accuracy, we evaluated CAM scores on all patients on one medical nursing unit over two days. CAM results were recorded by the bedside nurse in the electronic medical record as part of usual care. Two trained graduate nurses served as independent reviewers, blinded to the CAM score done by the bedside nurses. The reviewers separately interviewed all patients on the unit, and administered a CAM (used as the gold standard). We calculated sensitivity and specificity, as well as accuracy- defined as the proportion of true positives and true negatives. To assess nurse confidence in identifying delirium and using the CAM, we designed a survey given to all nurses on the unit. The survey consisted of five statements rated on a 5-item scale (strongly agree, agree, uncertain, disagree, strongly disagree). Sample statements included "I am confident in identifying hypoactive delirium."

Results: On the days CAM accuracy was assessed, 48 patients were on the unit; 40 could be interviewed and were included for analysis. Mean age was 64, and 63% were male. Total number of delirious patients was 4. CAM sensitivity was 0%; beside nurses did not identify any of those patients as CAM positive. Overall CAM accuracy was 90%. We had 48 nurses answer the delirium survey. Response rate was 100%. Nurses were most confident about their ability the use the CAM, with 94%(45/48) choosing agree or strongly agree, and least confident about identifying hypoactive delirium, with only 54% (26/48) choosing agree or strongly agree.

Conclusions: Beside nurses felt confident using the short version of the CAM, but had less confidence in identifying delirium subtypes, specifically hypoactive delirium. CAM accuracy was good overall, but CAM sensitivity was low. Targeted Quality improvement including an educational intervention on signs and symptoms of delirium and nuances of the CAM may increase nurse confidence and improve sensitivity and accuracy of the CAM at our institution.

C198

Home-based team transitional telecare to optimize mobility and physical activity in recently hospitalized older Veterans: initial program experience.

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Background: Many older Veterans undergo decline in their physical function before and during an acute hospitalization. Yet, there are gaps in usual care optimization of post-discharge mobility and physical activity (PA). We developed a Link Team to assist caregivers and health providers with the complex medical and social challenges of the post-hospitalized Veteran discharged to home, beyond the usual care provided, leveraging state of the art telehealth and wearable sensor technology (ActivPal) to improve mobility and physical activity.

Methods: Of the 87 Veterans assessed to have rehabilitation goals by inpatient physical therapists and who had an available caregiver, 46 consented to participate (mean age 75 years) and be followed by the Link Team (physician, social worker, pharmacist, PA trainer) for up to 6 months. Enrollees included those with cognitive impairment (MOCA<26).

Results: Fifteen disenrolled shortly after discharge (2/3 changed their minds). Of the remaining 31 participants, 13 were rehospitalized (8 more than once) at some point during the 6-month study period; 10 of the 13 reenrolled. Baseline mean Short Physical Performance Battery score = 3.4, and mean # steps/day = 2158, with no differences based on presence of cognitive impairment (68% had MOCA<26). Medication discrepancies (range 1-14 meds) were identified in 22/31 (71%). Social work needs were identified in 20/31 (65%); interventions included caregiver support, education, and connecting to resources. Over 70% of the Veterans and their caregivers utilized a VA-supplied tablet or their own device to complete baseline assessment, with the remainder having difficulty with the multi-step device instructions. Of the 19 enrollees who actively worked with the PA trainer, only 9 had a post-discharge episode of home-based or outpatient physical therapy.

Summary and Conclusions: We recruited a mobility- and cognitively-impaired sedentary cohort of Veterans discharged from the hospital with physical therapy goals. Using the Link Team model, meaningful assessment, including medication reconciliation and social work support, is feasible via a telehealth interface. Finally, despite

physical therapy goals identified on discharge, there was a gap in use of therapy in the community, which might be filled by use of a PA trainer model.

C199

Predicting mortality and disability: A comparison between the Frailty Index and general prognostic indices

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Background: A deficit-accumulation frailty index (FI) is known to strongly predict mortality and disability in older adults. It is not known how the ability of the FI to predict survival compares to other prognostic indices used in this population.

Methods: We used baseline assessments from the population-based National Health in Aging Trends Study (NHATS) to calculate three indices: the FI, the Schonberg Index, and Lee Index. FI was based on 41 items in a comprehensive geriatric assessment. We estimated 5-year restricted mean survival time for 5 risk categories of each index, and 1-year incidence of new activity of daily living (ADL) disability. C-statistics of each model were compared after adjusting for age and sex. Separate models were examined in subgroups with baseline mobility or cognitive impairment.

Results: Among 6071 subjects (Age > 75 years, 40.0%; female, 55.9%; no baseline ADL disability, 93.2%) in whom three indices were calculated, increasing risk categories were associated with shorter 5-year mean survival time (58.7-59.3 months for <10 percentile vs 43.0-46.3 months for ≥90 percentile) (Table). The c-statistics for predicting 5-year survival for the three indices were: FI, 0.76; Schonberg, 0.78, and Lee index, 0.76. The c-statistics for the mobility or cognitive impairment subgroups were lower for all indices (Table). Among the 4962 subjects with ADL data at 1 year, 9.2% had a new ADL disability. The c-statistic for the FI (0.79) in predicting new ADL disability was higher compared to the Schonberg (0.72) and Lee (0.72) indices. This observation was consistent in the cognitive or mobility impairment subgroups.

Conclusion: An FI based on comprehensive geriatric assessment predicts mortality as well as existing prognostic indices, and offers better prediction for ADL disability.

Table: Comparing performance of risk indices at prediction of 5 year survival and 1 year disability

Population	5-year Mortality (C-statistic)	5 year Restricted Mean Survival Time (months)					1-year ADL Disability (C-statistic)
		<10 percentile	10-24 percentile	25-74 percentile	75-89 percentile	≥90 percentile	
Total	n=6071						n=4962
FI	0.76	58.7	58.3	56.7	53.5	46.3	0.79
Schonberg Index	0.78	59.3	59.1	57.2	52.1	43.1	0.72
Lee Index	0.76	59.3	58.2	56.9	51.3	43.0	0.72
Cognitive impairment	n=1236						n=954
FI	0.73	60.0	58.3	54.2	50.4	42.9	0.79
Schonberg Index	0.73	59.7	58.9	55.1	48.8	40.0	0.72
Lee Index	0.72	59.3	54.6	54.6	48.4	40.6	0.74
Mobility Impairment	n=2157						n=1727
FI	0.70	60.0	60.0	54.7	52.6	45.9	0.70
Schonberg Index	0.72	58.0	57.8	55.6	50.4	41.0	0.62
Lee Index	0.71	58.4	58.1	55.0	49.9	41.5	0.64

Abbreviations: ADL, Activity of Daily Living; FI, Frailty Index.

C200

Management and Outcomes of Hospitalized Older Adults with Alzheimer's Disease and Related Dementias (ADRD

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Background: The number of individuals with Alzheimer's disease and related dementias (ADRD) in the U.S is projected to reach 16 million by 2050. Currently, they account for 3.2 million hospital admissions per year and over 75% of hospitalized persons with ADRD display Behavioral and Psychological Symptoms of Dementia (BPSD). The study aimed to evaluate management practices BPSD as well as patient outcomes in hospitalized older patients with ADRD.

Methods: A retrospective chart review across 7 hospitals within a large health system compared patients 65 and older with a previous ADRD diagnosis vs a random sampling of age matched patients with no previous ADRD diagnosis. Primary outcomes included: restraints, psychoactive medications, 1:1 observation. Secondary measures included: length of stay (LOS), in-hospital mortality, and 30-day readmission. Competing risks analysis (i.e., subdistribution hazards model) was used to account for risk of death when estimating incidence of being discharged alive. Chi-square test was used for association between ADRD status and 30-day readmission.

Results: The ADRD group (n=6195) had a median age of 84.6 (female 63%, white 65%), while the non-ADRD group (n=7660) had a median age of 77.0 (female 54%, white 62%). Patients with ADRD were more likely to receive psychoactive medications (13% vs. 1.7%), restraints (6.6% vs. 2.5%), and 1:1 observations (14% vs. 3%). With regard to secondary outcomes, patients with ADRD as compared to those without ADRD were found to have: a longer LOS (5 days vs 4 days; sub-distribution hazard ratio was 1.23, p<0.0001), higher incidence of in-hospital mortality (estimated cumulative incidence of being discharged alive at 5 days after admission was 51.5% [95% CI: 50.6, 52.3] vs. 58.9% [95% CI: 58.0, 59.8]), and 3% increased risk of 30-day readmissions (95% CI: 2, 4.5, p<0.0001).

Conclusions: Hospitalization in older persons with ADRD is associated with increased LOS, in-hospital mortality, and 30-day readmission. In addition, hospitalized older adults with ADRD who display behavioral symptoms are commonly treated with psychoactive medications, restraints, and 1:1 observation. Initiatives to raise awareness and improve the management of hospitalized older adults with ADRD are urgently needed.

C201

Physician Perspectives and Practice Management of Blood Pressure Control in Older Patients with Hypertension

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Background

American College of Cardiology (ACC), American Heart Association (AHA), American College of Physicians (ACP) and American Academy of Family Physicians (AAFP) differ in recommendations for hypertension management. This study examined physician practices for controlling hypertension in geriatric patients.

Methods

An anonymous online survey of physicians in hospitals, outpatient settings, and nursing facilities across a large health system. Chi-square was used for demographic data and 2-sample t-test for continuous measures.

Results

Of 86 respondents, 33% family medicine, 28% internal medicine, 20% nephrologists/cardiologists and 11% geriatricians, the majority (44%) were 1-5 years post-training, 18% were residents or fellows and 38% had >5 years post-training. Practice locations were hospital (46%), outpatient (39%), private practice (9%) and long term care (5%).

Half (55%) of respondents indicated they were responsible for managing the BP of >40% of their patients. For older adults, 44% indicated that their BP goal was <140/80, while 35% had a goal of <150/80.

When responding to clinical vignettes, the majority (63%) chose "lifestyle modification" for a 74 yo man presenting with a BP of 145/94, pulse of 78 and BMI of 28; 66% chose "continue current management" for a 73 yo man with a BP of 145/74 pulse of 66 and BMI of 18. Finally, 47% chose <130/80, and 32% chose <140/80 as an acceptable BP for a 69 yo woman with a BP of 101/63 pulse of 80, respiration of 14 and BMI of 28.5.

The goal for BP control <140/80 was selected by 85% of cardiologists/nephrologists, 66% of internal medicine and 45% of family medicine physicians (p=.36). There were also no significant practice differences between physicians in training (64%), physicians post-training 1-5 years (62%) and physicians with >5 years of post-training experience (67%, p=.77).

Finally, 53% of outpatient physicians had a BP goal <140/80 for older patients compared to 70% of inpatient physicians (p=.001).

Regarding guidelines that impacted decisions, the majority (46%) elected JNC 8, coupled with professional experience, with 24% selecting ACC/AHA and professional experience, and 18% only JNC 8.

Conclusions

In view of the inconsistency among national recommendations for treatment of hypertension, and the difference in individual physician practices, further research needs to guide decision making in optimizing management of BP in older adults.

C202

Presentation of Pneumonia in Hospitalized Older Adults and Associated In-hospital Mortality

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Background

Pneumonia (PNA) is the fourth most common diagnosis for hospital admissions in the United States. Although the Infectious Diseases Society of America (IDSA) defines PNA as requiring specific clinical features (cough, fever, sputum production and pleuritic chest pain) along with radiographic imaging confirmation, older adults can present with non-specific symptoms. Furthermore, in a landmark publication of community acquired PNA in the elderly, the combination of cough, fever and dyspnea was only present in 31% of patients. The purpose of this study was to explore the clinical presentation of PNA in hospitalized older adults to determine whether the presence of specific symptoms is associated with increased in-hospital mortality.

Methods

Data were collected at two large tertiary medical centers of patients ≥65 years, admitted to a medicine service who had chest x-ray (CXR) and a CT chest within 48 hours of admission, as well as a documented discharge diagnosis of PNA. Vital signs and presenting complaints were manually extracted from the ED, as well as the initial history and physical examination documents.

We defined specific symptoms of PNA as fever, cough, chest pain and dyspnea. Chi-square was performed on categorical variables and t-test for continuous variables.

Results

Of the 433 patients, 54% were female, average age was 81 and 63% were white. With regard to the four specific symptoms of PNA studied, 13% had none, 30% had one, 36% had two, 19% had three and 2% had four. The word "pneumonia" was not mentioned on 43% of the CXR reports.

Vital signs (median) were: systolic BP 127 (range: 70-233); diastolic BP 68 (range: 35-165); pulse 87 (range: 39-150); respiratory rate 19 (range: 12-55); temperature 98.5 (range: 95-105); oxygen saturation 97 (range: 70-100). Median white blood cell (WBC) count was 11.2 (range: 0.1-136).

When comparing in-hospital mortality (11%) vs discharged alive, there was no significant association with presenting symptoms but there was an association with ICU LOS (1 days vs 0 days respectively, p<.001), systolic blood pressure (BP) (111 vs 129, p=.01), pulse (94 vs 87, p=.01), and WBC count (12.5 vs 11.0, p=.02).

Conclusions

Older adults admitted with PNA do not consistently present with specific symptoms, abnormal vital signs, and a positive CXR. Further research is needed to determine more reliable criteria for the diagnosis of PNA in older adults.

C203

New Advance Care Planning Reimbursement – Who's using it and for whom?

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Background: The Centers for Medicare and Medicaid Services introduced new reimbursement for advance care planning (ACP) in January 2016. This study aims to describe patient and practitioner characteristics related to use of the new billing codes, including advance directives in the electronic health record (EHR), practitioner documentation of ACP in the visit, and ACP billing in the context of Annual Wellness Visits.

Methods: Retrospective, cross-sectional analysis of the billing code 99497 from January 1, 2016 thru August 31, 2018 in outpatient visits in a large healthcare system. We describe patient-level and practitioner-level characteristics. We reviewed clinical documentation elements from a sample of patient visits from high- and low-utilizing practitioners. We identified Annual Wellness Visits as a subset of outpatient visits.

Results: Seventy-six practitioners used the ACP billing code in 3421 outpatient visits for 2884 patients. Patients were mean age 73 (range 20 - 104 years), 57% female, and 2% rural residing. 35% of patients had an advance directive in the EHR. The mean number of ACP billing visits per practitioner was 45 (range 1 – 704). Visits occurred in primary care (family medicine, internal medicine, geriatric medicine) and two subspecialty clinics (neurology, cardiology). ACP was billed multiple times for 150 patients (5.2%), with a range of two to four visits. The mean time between unique visits was 330 days. The most commonly documented topics were code status, POLST/MOST form, and surrogate decision maker. 28% of ACP documents in the EHR were completed within seven days of the ACP billing visit. With respect to the Annual Wellness Visit, 16 practitioners (21%) billed for ACP during an Annual Wellness Visit in 1475 visits for 1245 patients. Among these patients, 21% had an advance directive on file. The mean number of billing encounters per practitioner using the Annual Wellness Visit was 92 (range 1 – 590).

Conclusions: Practitioners using the ACP code were mostly in primary care settings, among older adults, and occasionally multiple times. ACP visits may be associated with increasing ACP documents in the EHR. Some practitioners have integrated use of ACP billing in Annual Wellness Visits. Further study should determine whether ACP billing influences future care.

C204

Impact of availability, affordability, and counseling on acceptance of new inactivated shingles vaccine for Medicare recipients

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Background: High rates of vaccine acceptance are essential to protecting public health. This study both estimates the impact of manufacturer promotional campaigns directed toward older adults with Medicare coverage regarding knowledge of shingles risk and interest in the new inactivated shingles vaccine and estimates the impact on vaccine acceptance due to manufacturer delay in availability and Part D copays in the same population.

Method: Pharmacists surveyed call-in clients during Medicare Open Enrollment and in person during voluntary community drug and health education programs. Shingles immunization status was determined and influencing factors were identified. Education was provided regarding shingles infection, post-herpetic neuralgia, cost, and availability of a new vaccine in late Fall of 2017. Follow-up calls

were made 2-4 months after the first encounter to determine changes to vaccination status and barriers encountered. Second follow-up calls were made (2-3 months after first follow-up) to those who sought the new vaccine but were unable to receive it due to cost or availability.

Results: 271 patients aged 50 or over were surveyed beginning in fall 2017, 2-3 months after manufacturer promotions began. At initial contact, 93% of patients were unaware of the new shingles vaccine and 86% stated they would not ask for the new vaccine instead of the existing vaccine, indicating a lack of awareness of the benefits of the new vaccine. Post-counseling, 21% of patients had received the new shingles vaccine. Another 20% sought the vaccine but were told it was unavailable; only 3% of these patients returned to the pharmacy to receive the vaccine. An additional 36% sought the vaccine but were deterred by high Medicare Part D copays. Only 2% of these patients returned in the next 2-3 months to receive the vaccine. 95% of the patients who received their vaccine stated that the provider counseling was the primary reason for seeking the vaccine; only 2% cited the influence of manufacturer advertising.

Conclusions: An inability to receive a vaccine due to cost or availability within a short window of time (2-3 months) following counseling greatly decreases the likelihood a patient will return to seek the vaccine. Provider counseling is a more effective means of encouraging vaccination than manufacturer advertising in this population.

C205
Access and use of Programs of All-Inclusive Care for the Elderly (PACE) for racial/ethnic minority older adults
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Background: In the recent past, substantial efforts were made to guarantee older adults living with chronic conditions have equitable access to home and community-based services outside of institutionalized care while still meeting their care needs. Programs of All-Inclusive Care for the Elderly (PACE), a community-centered, interprofessional model of long-term services and supports for nursing home-eligible older adults, has been found to be an effective care model to keep older adults in the community, improve care quality, and delay institutional admissions. Limited evidence exists, however, on minority (Black and Hispanic) older adults' perceptions regarding access to PACE and use of PACE services. Addressing these gaps in knowledge is foundational to the design of interventions aimed at improving this population's full access to and optimal use of high quality PACE services along with the modification of PACE to reach a larger share of the high needs older adult population.

Methods: A qualitative descriptive design triangulating focus groups with PACE enrollees and key informant interviews with family caregivers and individuals from the PACE marketing team was employed to understand access and use of PACE services for minority older adults. Interview guides specific to the participants' role were informed by Andersen's Behavioral Model of Health Services Use, literature review, and field experts.

Results: We interviewed a total of 32 PACE enrollees (4 focus groups), six marketing team members, and four caregivers from three PACE sites in Philadelphia. Through these interviews, we learned what most attracted participants and their caregivers to PACE which included: transportation, appointment scheduling, access to medications without co-payments, opportunities for socialization, and overall coordination of interdisciplinary care. Barriers to accessing and using PACE included poor dissemination of information about PACE services, limited availability of diverse activities, decreased emphasis on cultural and disability sensitivity among staff, and inadequate staff training in communication and respect.

Conclusion: Our study adds context around barriers to accessing an innovative model of health delivery for high needs vulnerable older adults. Study findings can help nurse leaders and other key stakeholders to continue to evolve the PACE model to meet the needs of a rapidly-growing minority population requiring these services.

C206 Encore Presentation
Impact of Nurse Delegation Regulations on Community Living of Disabled People
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Background:

Personal care aides (PCAs) who help disabled people in their homes can be employed by an agency or directly by the client. State nurse practice acts determine who can perform health maintenance tasks such as managing catheters, tube feeding, and medication management. Agencies tend to interpret regulations conservatively, but directly-employed assistants may perform any mutually agreed-upon tasks. Limitations in the scope of practice for agency workers could mean that some community-dwelling disabled people might not receive the care they need, be placed on restrictive schedules, or be forced into institutional care. This study examines how state laws and agency policies affect the practice of PCAs.

Methods:

We conducted a literature review to learn how state regulations serve as barriers or facilitators to community living. We then identified four states with varying regulations for case studies. Within each state, we interviewed 2-5 home care agency directors and 5-10 PCAs, focusing on their understanding of regulations, what PCAs are allowed to do, and how interviewees would address specific scenarios related to care of disabled people.

Results:

States' provisions for home care services vary widely. The states selected for case studies were Massachusetts (restrictive), Montana (was restrictive but loosened recently), Oregon (permissive), and Texas (permissive). The interviews revealed that: many home care agencies allow PCAs to perform fewer tasks than state law allows, agencies are slow to change internal policies when a state modifies regulations, restrictive regulations are perceived as increasing the cost of operating a home care agency, agency directors are concerned about whether PCAs have the skills needed to assume more complex tasks, some PCAs are willing to perform more tasks with training, and some PCAs can describe specific instances in which clients have moved to institutional care because of restrictive state scope of practice laws.

Conclusions:

State laws and agency policies can prevent disabled people from living at home. Clients in restrictive states are at greater risk for institutionalization, especially when there are shortages of licensed/certified professionals to provide services that PCAs are not permitted to provide.

C207 Encore Presentation
Strengthening the Nursing Workforce to Care for People With Serious Illness: Recommendations from a National Summit
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Background:

As the older population of the United States continues to grow, there is an urgent need to improve care for individuals living in the community with chronic and serious illness. Numerous analyses and health care leaders have identified the lack of an adequately-prepared workforce as a barrier to the delivery of high-quality serious illness care in the community.

Methods:

To identify solutions to this challenge, an invitational summit was held in May 2018, bringing together 40 leaders from professional organizations, education, government, industry, and research, and representing nursing, geriatrics, direct-care workers, occupational health, pharmacy, social work, and palliative care, as well as family caregivers. The summit was framed by seven discussion papers, which are now forthcoming in a special issue of the Journal of the American

Geriatrics Society (to be published around the time of the Annual Meeting). Summit participants engaged in an intensive process to develop and prioritize recommendations for the next 2-3 years.

Results:

The consensus-based recommendations include specific steps for geriatrics leaders, including curriculum reforms to increase skills in the care of older and seriously ill populations, expanding experiential learning opportunities for students to increase interest in careers in geriatric and palliative care, developing and improving curriculum in inter-professional and cultural competency skills, preparing clinicians to support incorporation of home care aides and family caregivers as health care team members, development of skills to support shared decision-making with patients, and requiring specific skills related to serious illness care in licensing, accreditation, and continuing education regulations.

Conclusions:

Together, these recommendations put forward a charge to geriatrics leaders to act to ensure a workforce that will optimize support for those with serious illness living in the community. The special issue of JAGS will include a detailed paper on these recommendations to support their timely implementation.

C208
National Survey Findings of Medicare Beneficiary Perspectives of the Medicare Part D Medication Therapy Management Standardized Format

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Background

Concerns have been raised regarding the Medication Therapy Management (MTM) written summary Standardized Format (SF) length, mailing costs, static nature of the document, and lack of integration into beneficiaries' electronic health records. Limited research exists on beneficiaries' opinion and perceptions of the SF. The objective of this study is to evaluate beneficiaries' perspective regarding the SF utility in order to inform potential modifications for optimal use.

Methods

An online survey was distributed through Medicare Part D plans to beneficiaries who had received a CMR in the past year. Descriptive statistics are reported for demographic information, health status, the perceived value and helpfulness of the SF and its three components [(cover letter (CL), Medication Action Plan (MAP), Personal Medication List (PML)], updates to the SF, alternate formatting, and integration of the SF into health records.

Results

A total of 9975 surveys were sent electronically by four different Medicare Part D plans to beneficiaries who had received a CMR in the past year. Of the 434 unduplicated survey respondents, 58.5% were 65-84 years, 60% identified themselves as white, and 49.1% had at least a college education. Beneficiaries' rated how well the SF helped improve different aspects of their medication management with 40.8-44.9% choosing very good to excellent. Helpful sections of the MAP included "What we talked about" and "What I need to do", and for the PML, medication name, strength, dosage form and, how and why I use the medication. Less helpful were the fill-in sections of the MAP, with 48.6% reporting that they did not write in any information. A wallet card version of the PML, if available, would be used by 54.6% of participants. About 30% of beneficiaries shared the SF with their doctor and 26% gave copies of their medication summary to their relatives.

Conclusions

Fewer than half of the Medicare beneficiary respondents perceived the SF as very good or excellent with helping to manage their medications. This national survey provides Medicare beneficiary focused evidence that more work is needed to improve the usability as well as the portability of the SF. This can be achieved by allowing flexibility in the design of the SF while requiring essential elements.

C209
State Variability in the Prevalence of Dementia in Assisted Living and Residents' Outcomes

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Introduction: Assisted living (AL) has rapidly emerged as a preferred substitute to nursing homes (NHs) for many older and disabled adults who require long-term care. Currently, there are approximately 36,000 ALs providing homes to over 800,000 Americans, approximately 40% of whom have a diagnosis of Alzheimer's disease and related dementias (ADRD). States vary greatly in the regulation specific to dementia care and oversight of ALs. Therefore, the objectives of this paper are to 1) describe the variability in the prevalence of ADRD among AL residents and in their health outcomes and 2) discuss the state regulations that may be contributing to the variability among states.

Methods: Using a new methodology, we identified a national cohort of 493,867 Medicare fee-for-service beneficiaries in AL in 2014, including 178,787 with diagnoses of ADRD. With Medicare claims and the Minimum Data Set, we identified AL residents' hospitalizations, ED visits, NH admissions, and places of death in 2014. We present rates of utilization by state, adjusting for age, sex, race, and dual-eligibility status.

Results: States varied in their unadjusted percent of residents with ADRD from 25% in MN to 48% in WV. In 2014, 40% of AL residents with an ADRD diagnosis were hospitalized during the year. This varied by state: the adjusted proportion of residents who were hospitalized ranged from 30% in UT to 47% in FL. Forty-two percent of residents with ADRD used an ED in 2014, ranging from 36% in NJ to 56% in NC. Thirty-six percent of AL residents with ADRD were admitted to a NH, ranging from 22% in NC to 42% in OH. Of AL decedents with an ADRD diagnosis, 42% aged in place (died in AL, not a hospital or NH). The adjusted proportion of residents who were able to age in place until death ranged from 72% in NC to 15% in ND.

Discussion: This is the first paper to examine the state variability in the rates of ADRD among AL residents and their outcomes. We found large variation among states that could be explained by market characteristics, regulations, and/or enforcement of regulations pertaining to the care of residents with ADRD. These findings have implications for states as they regulate this vulnerable population of AL residents and for healthcare professionals whose patients reside in these settings.

C210 Encore Presentation
Palliative Care Outcomes of Minority Patients Receiving Home Based Primary and Palliative Care

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Background: Data suggests that minority patients utilize healthcare resources at higher rates than non-minorities and have preferences for more aggressive care at end of life. There is a paucity of information on effects of home-based primary and palliative care (HBPC) on symptom management, advance care planning and healthcare utilization among minority patients with serious illness.

Methods: We performed a retrospective chart review on decedents from 2012 comparing palliative care outcomes of non-minority vs. minority patients (black and Hispanic) with serious illness receiving care from the Mount Sinai Visiting Doctors Program (MSVD),

an HBPC model. We performed bivariate and multivariate analyses comparing differences in outcomes.

Results: We identified 189 patients. Six patients (3.17%) died in nursing homes and were excluded because we could not access their care patterns. Of those included in our analysis, 95 (52%) were non-minorities, 42 (33%) black and 46 (25%) Hispanic. Minority patients were younger (p=0.003), insured by Medicaid (<0.001), had higher rates of home nursing services (p<0.001), had poorer performance status on the Karnofsky scale (p=0.007), were less likely to have MD visits in the last month of life (p=0.04) and were more likely to die in the hospital (p<0.001). There were no statistically significant differences in rates of DNR (p=0.31), rate of health care proxies (p=0.77), use of opioids for symptom management (p=0.28) or rates of hospice enrollment (p=0.41).

Conclusions: There were no differences detected in advance care planning, symptom management, DNR orders and enrollment in hospice among minorities receiving HBPC. However, even with the support offered by HBPC, minorities still had higher rates of healthcare utilization. Future efforts should focus on minority patients' preferences and the role of HBPC to decrease hospitalizations among minority patients with limited prognosis.

C211
Prognostic Awareness and Goals of Care Discussions Among Patients with Advanced HF

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Background: Patients with advanced heart failure (HF) are often unaware of their prognosis and often don't discuss the care they would want at the end of life. Little is known about the characteristics associated with prognostic awareness (PA) and goals of care discussions (GOCD) in these patients.

Methods: We used baseline data from a multisite trial of a clinician-centered communication intervention among patients with advanced HF and an ICD with a high risk of 1-year mortality defined by a multiple validated models. Using bivariate and multivariate logistic regression, we compared patient characteristics of those with and without PA, and among those with PA, we compared those who did and did not report a GOCD with their physician.

Results: Of 377 patients, mean age of 62 years, 70% were Female, 41% were non-white, 27% had a documented advance directive and 78% had PA. Of those with PA, 26% had a GOCD. In bivariate analysis, younger age (mean age of 61 vs. 68 years, p-value < .005), ≥2 HF admissions in the last year (51% vs. 33%, p-value = .005) and ICD deactivation discussion (19% vs. 5%, p-value = .002) were associated with PA; worse functional status and symptom severity were not associated with PA. In multivariate analysis, age was a negative predictor of PA (AOR=0.95, 95% CI, 0.92-0.97). Among those with PA, number of comorbidities (AOR=1.2, 95% CI, 1-1.4), a documented advance directive (AOR=1.9, 95% CI, 1.1-3.4) and symptom severity (AOR=1.6, 95% CI, 1.1-2.4) were positive predictors of GOCD in multivariate analysis.

Conclusions: In a sample of patients with advanced HF at high risk for death, only 1/4 had a documented advance directive and ¼ lacked prognostic awareness. Illness severity markers (i.e. worse functional status, increased symptom burden) did not predict PA. Older adults were less likely to have PA. Of those with PA, only ¼ had a GOCD, and a GOCD was more likely in those who were more ill (i.e. more severe symptoms and comorbidities). A tailored GOCD model may increase the frequency and quality of GOCD in this population.

C212 Encore Presentation
Medicare Observation Status: Implications for Michigan Medicine Geriatric Patients

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Background:
Centers for Medicare and Medicaid Services (CMS) define "Observation Status" for patients with specific services requiring length of stays lasting no longer than 48 hours. Evidence shows, however, that "Observation Status " stays can often last longer than 48 hours and therefore are associated with high out-of-pocket costs for patients and pose barriers to discharge (Sheehy, 2013). Advocates for Observation Status highlight the cost savings for hospitals, while critics cite the prohibitive out–of–pocket costs for patients (Adrion, 2017).

Methods:
In order to gain insight into how this policy impacts older adults, geriatric social workers with the Michigan Medicine Geriatric Inpatient Consultation Team used chart reviews to collect information from 50 geriatric patients who were categorized under "Observation Status" at least once during their hospitalization. Information such as admitting diagnosis, treatment recommendations, disposition, and outcomes following discharge was collected. Additional information such as LACE score, the use of a sitter or video monitor, and whether or not a dementia or delirium was diagnosed during the hospital stay was collected.

Results: Of the 50 charts that were reviewed, we were surprised to learn that 22 of the 50 patients had a diagnosis of dementia or MCI. The most common visit diagnosis was for falls yet the average length of stay was 7.4 nights in contrast to the perception that observation patients should be discharged within 48 hours.

Conclusions:
University of Michigan's Institute for Healthcare Policy and Innovation recently published research citing the cost savings of Observation Status (Adrion, 2017). However, the information from our current project highlights unconsidered burdens for older adults including longer lengths of stay, especially for those with cognitive issues. As pointed out in several research articles, patients under Observation Status do not qualify for subacute rehabilitation under traditional Medicare policy and consequently are at a higher risk for readmission to the hospital (Mason, 2014). Our initial findings, based on longer than usual lengths of stay and high readmission rates for older adults with altered mental status and/or a dementia diagnosis indicate the need for further work in this area.

C213
Clinical Outcomes of an Interprofessional Geriatric and Palliative Care Intervention on an Acute Medical Service

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Background: A 1-year interprofessional intervention to improve Geriatric and Palliative Care Consultation (GPCC) on a large university hospitalist service reduced time to geriatric (3.6 days) and palliative consultation (5 days in non-cancer patients).

Design: Difference-in-differences (DID), which measures the difference in improvement over time between intervention and control team patients attributable to the intervention.

Setting: 1000-bed U.S. Academic Medical Center, 2013-14

Participants: 13,941 total patients age 18-104 years admitted to a general medicine hospitalist service (1483 on intervention teams, 5413 on concurrent control teams, remainder on historic and control teams). 40% of the sample was age 65+ years.

Intervention: On 2 of 11 hospitalist teams, a geriatrician and palliative care social worker attended multidisciplinary discharge

rounds twice weekly, to recommend inpatient geriatric or palliative care consultation and post-discharge consultation and transitional care.

Measurements: Primary outcomes were length of stay (in days, adjusted for hospital diagnosis group and log-transformed) and 30-day readmissions (yes/no). Secondary outcomes were inpatient utilization of hospital care (total Relative Value Units [RVUs] for all procedures and physician services, range 5-1501) and 1-year readmissions (yes/no). We calculated the DID in the total sample and an age 65+ subsample, with adjustment for propensity for ordering GPCC (average DID across deciles of propensity score). The propensity score model included the date and factors from our prior work including age, comorbidity burden, recent hospitalization.

Results: The intervention saved 328 days of hospital care (269 days in the older subsample) due to decreased adjusted LOS, adjusting for propensity to order GPCC. We saved 51 one-year readmissions in the age 65+ subsample, but not for the total sample, and not for the other outcomes (30-day readmissions or total RVUs).

Conclusion: An interprofessional intervention to increase GPCC highlights the role of comprehensive geriatric assessment and post-hospital transitional care in reducing readmissions especially in geriatric patients.

C214
Design and implementation of care management program in Beijing (China) CCRC

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Background

Taikang Yan Garden is a continuing care retirement community (CCRC) in Beijing. Like CCRC in the US, a primary goal is to help residents maintain independence and remain living in the independent living section and avoid need for transition to nursing home section. We designed a care management program for residents at increased risk for transition which was then implemented among a small group of residents as a pilot project.

Methods

Criteria for inclusion in the pilot phase of this care management program (CMP) were residents must be living in the independent living (apartment) section and have one or more of these indicators of risk related to impairments of 1) physical/function, 2) cognition, 3) psychosocial domains, as well as 4) indicators of medical complexity. The program design and team structure, care and duties were adapted from the PACE model and were vetted and approved by the care management planning workgroup at Taikang in July 2018. This newly formed "care management team" was tasked to enhance care and coordination for residents of independent living section who are at greatest risk of transition to higher level of care. Service included weekly team meetings and care planning, including referral to rehabilitation and psychology as appropriate. There was no cost to the residents for the services of this pilot project and there was no external funding.

Results

After 3 months, 16 of 17 (94%) residents who were approached for enrollment had agreed to participate. Participants were 56% female, mean age 82.4 years. Prevalence of certain conditions were: dementia (38%), prior history falls (44%) and prior weight loss (25%). Preliminary outcomes (after 3 months of CMP) included: 3 hospitalizations (different individuals), 1 death and no permanent transitions to NH. Satisfaction was high, with 87% stating that they would pay for continued use of this service.

Conclusion

This care management program (CMP) is a simple care coordination model with a small but essential core team providing the majority of service. It has been successfully implemented at one senior residential community (CCRC model) in China where a primary care coordination role had previously been absent.

C215
Hospital readmissions after stroke and gastrostomy tube placement among patients with dementia

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Background: Gastrostomy tube (G-tube) placement is used to provide a route for feeding for patients with dysphagia. Stroke is one of the most common conditions that require this procedure; yet, G-tube placement after stroke is highly associated with readmission to the hospital within 30 days. However, whether G-tube placement is beneficial for patients with dementia is controversial. The impact of dementia among patients who underwent G-tube placement after a stroke on hospital readmission has not been studied.

Methods: The aim of the study is to identify the pattern of readmission among patients with dementia who were admitted for stroke and underwent G-tube placement. We conducted an observational study using National Readmission Database from Healthcare Cost and Utilization Project from 2013 to 2014. Patients who were older than 65 years and admitted with a stroke were included.

Results: Among total 717,162 patients, 140,323 (19.57%) patients had underlying dementia. Patients with dementia underwent G-tube placement (3.29%) more than those without dementia (2.90%). Among 717,162 patients, 10.38% patients (74,425) were readmitted at least once. Acute cerebrovascular disease was the most common diagnosis on readmission, (27.06% in dementia group, and 34.36% in non-dementia group), and septicemia was the second most common (22.41% and 16.51%, respectively) in both groups. Aspiration pneumonitis was the third most common in both group (7.82% and 4.61%, respectively) and the percentage was significantly higher in dementia group. Complication from a previous procedure, device or medical care was the fourth most common, and the percentage in dementia group was higher without statistical significance (5.07% and 4.41%, respectively). From the multivariate logistic regression adjusting covariates (age, sex, disposition, insurance, and comorbidities), dementia was significantly associated with all-cause readmission (odds ratio (OR) 1.18) and readmission with aspiration pneumonitis (OR 1.57).

Conclusion: Dementia is highly related to all-cause readmission among patients who underwent G-tube placement after stroke. Among other readmission causes, patients with dementia had a higher risk for aspiration pneumonitis than those without dementia.

C216
Burdens of Multiple Chronic Conditions among Nursing Home Residents with Obesity

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Background: The prevalence of obesity (BMI≥30) in nursing home (NH) residents increased from less than 15% in 2002 to 29% in 2015. Although studies have examined relationship between obesity and various medical and functional conditions, multimorbidity burdens, i.e., 2 or more co-current conditions, of obesity among nursing home residents have not be evaluated. The current study aims to characterize the multimorbidity burdens of obesity, and the impact of the number and types of co-morbid conditions on hospitalizations, among nursing home residents with obesity.

Methods: This study is a secondary data analysis, employing national data on NH residents (MDS) and Medicare inpatient data (MedPAR) 2014-2015. The study sample comprised of long-term residents. Obesity was further categorized into: Class I (30<BMI≤35), Class II (35<BMI≤40), and Class III (BMI≥40). We categorize multiple chronic conditions (MCCs) into three groups: all conditions, metabolic-related conditions (MCs), and non-metabolic-related conditions (NMCs). Hospitalization is measured as the all-cause hospitalization, and potentially avoidable hospitalization (PAH). Unadjusted estimation, and multiple regressions adjusted for age, sex, race/ethnicity were used in the study.

Results: There were 462,044 NH residents with obesity in 2014, and 30% had at least 1 hospitalization in one year follow up. The number of MCCs was 6 in general, 4 in MCs, and 8 in NMCs. Residents with Class III obesity had highest number (12) of NMCs. An increase of 1 physical or mental conditions was associated with increased risks for hospitalization (HR: 1.22; 95% CI: 1.19-1.24), and PAH (HR: 1.39; 95% CI: 1.37-1.46) after adjusted for age, sex and race/ethnicity. In contrast, an increase of 1 metabolic-related conditions was not associated with increased risks for hospitalization.

Conclusions: Metabolis conditions are the most common type of comorbid conditions among residents with obesity, however other physical and mental conditions are more strongly associated with hospitalization. This underscores the impact of non-metabolic conditions on outcomes in obesity in NH residents.

C217

Site of Death and Hospice Use at Death Among Veterans Dying in VA's Home Based Primary Care

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Background:

Home Based Primary Care (HBPC) is provided across the VA by ~400 teams that provide interdisciplinary team-managed primary care at home to frail and complex Veterans aiming to maintain them at home till death. We compared distribution site and hospice use at death among Veterans dying in HBPC, Veterans discharged from HBPC and a sample of Medicare decedents in fiscal year FY2016. Among Veterans who died in HBPC we examined whether personal or team characteristics reflected disparities in site or hospice use at death.

Methods:

We used VHA, Medicare and Medicaid utilization and enrollment data and nursing home (NH) resident assessments to create Residential History Files which track the location, payer and type of utilization daily and identify location (home, NH, hospital) and hospice use at death.

Results:

In FY2016, 10,162 Veterans who received care from HBPC teams died. Among the 2,424 who died within 21 days of transition from HBPC 72.8% died at home, 22.4% in hospitals and 4.8% in NHs. Among 7,657 Veterans discharged from HBPC 48.3% died at home, 24.9% in NHs and 26.8% in hospitals. Among Medicare beneficiaries 53% died at home, 19.7% in NHs and 27.3% in hospitals. Among home deaths, 54.3% Veterans who died in HBPC, 53.5% Veterans discharged from HBPC and 49.1% Medicare beneficiaries died with hospice.

Among Veterans dying in HBPC, Veterans who were living alone or had no caregiver were less likely to die at home and Veterans in sites that provided less personal care services (PCS) were more likely to die in hospital. Non-white Veterans with high service connected disabilities living in rural areas and Veterans who lived alone were less likely to die with hospice. Veterans in sites in highest and lowest quartiles of PCS were less likely to die with hospice.

Conclusions:

When HBPC programs are able to provide care till death, Veterans were much more likely to die at home. However, 75% of Veterans cared by HBPC were discharged and were consequently as likely to die at home as the general population. Questions arise as to why Veterans are discharged from HBPC? What happens to HBPC Veterans who live alone at time of death? and why are Veterans in HBPC sites that provide less PCS less likely to die at home?

C218

Home Visit Care Transitions Following Nursing Home Stay: a Cohort Study

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Background: The Mayo Clinic Care transition program (MCCT), which provides home-based care to high risk elders, has been highly effective in preventing readmissions and emergency department (ED) visits following acute hospital stay. The effectiveness of these programs following a post-hospitalization short-term skilled nursing facility (SNF) stay has not been previously evaluated.

Methods: We conducted a retrospective cohort study of elderly (age ≥60 years) patients dismissed from a SNF following an acute hospitalization. Participants were either in the group receiving MCCT or a group that did not receive MCCT. All patients received primary care within the health system. The primary outcome was a composite of all-cause ED care or hospitalization within 30 days of SNF discharge. Both outcomes were determined using both billing and record abstraction. Risk of experiencing outcomes of interest was assessed using conditional logistic regression with adjustment for age, sex, race, a validated hospital readmission tool, and a previously validated mortality prediction tool.

Results: The study population was comprised of 120 MCCT enrollees and 149 controls; median age was 85 years (IQR, 79-91), 98% White, and 62% female. The crude rates of 30-day ED care/readmissions were 13.3% among MCCT enrollees and 10.7% among controls (p=0.51). After adjustment, MCCT enrollment was not successful in preventing ED visits and hospitalizations (OR 1.3; 95% CI 0.6-2.8)

Conclusion: Despite demonstrated efficacy of the MCCT in reducing hospital readmission and ED care among elderly community-dwelling adults, it did not reduce readmissions/ED visits among patients recently discharged from a SNF although the event rate was lower than expected in both groups. Further research is needed to assess for potential benefits beyond the 30-day period and in different populations.

C219

Monitoring Pneumococcal Vaccination Rates in a Geriatric Clinic Undergoing Electronic Medical Record Transition

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Introduction

With the passage of the American Recovery and Reinvestment Act of 2009, most providers have successfully implemented an Electronic Medical Record (EMR) system into their daily practices; however, as more intuitive systems emerge, providers face a new obstacle of converting from one EMR to another.[1] Pneumococcal vaccination (PCV13) rate is a meaningful use metric used by CMS to monitor the quality of care provided to patients. This Fellow-led Quality Improvement (QI) project at Beth Israel Senior Health, a geriatric ambulatory clinic, aimed to monitor PCV13 vaccination transfer errors associated with an EMR conversion.

Methods

We performed a retrospective chart review of 185 patients to compare vaccination rates of PCV13 as documented in the former EMR versus the current EMR.

Results

Of 185 charts reviewed, 70% of patients had received PCV13; however, of these, only 58% were carried over to the new EMR. In total, 12% of patients who had previously received PCV13 had no record of doing so. This resulted in the clinic's vaccination rate to be below the clinical integration network benchmark rate of 68%.

Discussion

It is generally agreed that EMRs can better assist physicians to improve the accuracy of data; however, unorganized data entry still exists, especially when transitioning from one EMR to another.[2] In reality, most providers are dealing with a complex hybrid of records domains. In order to transition efficiently, providers must develop appropriate workflows to make the new system meet its potential. By understanding how data is stored and transitioned, providers can implement strategies to reduce the loss of data. For the next phase, we plan to use the Model of Improvement to develop guidelines for EMR transitions that can be generalized for use by other hospital systems.

Conclusions

By developing guidelines during EMR transition, healthcare providers can streamline EMR usage in order to deliver patient care benefits.

References

1. Conley, T. G., & Dupor, B. (2013). The American Recovery and Reinvestment Act: Solely a Government Jobs Program?. *Journal of monetary Economics*, *60*(5), 535-549.

2. Kruse, C.S., et al., The use of Electronic Health Records to Support Population Health: A Systematic Review of the Literature. Journal of Medical Systems, 2018. 42(11): p. 214.

C220

Concurrent clinic based primary care use in Veterans Affairs Home-Based Primary Care

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Background: Home-based primary care (HBPC) programs typically serve as the sole source of primary care for complex, older adults, but patients can also receive concurrent primary care (PC) services from clinic based providers, leading to fragmented care. We examined how much patients in Department of Veterans Affairs (VA) HBPC used clinic based PC in addition to HBPC, and analyzed the relationship of concurrent clinic PC use with patient characteristics and hospitalization risk.

Methods: We examined patients who were enrolled in one HBPC site prior to and throughout fiscal year (FY) 2015. We divided patients into three groups based on the number of clinic based PC visits in FY15: zero, 1-2, and 3 or more. We extracted demographics, comorbidity scores (Medicare Hierarchical Condition Categories [HCC], JEN frailty index) and health care service use in FY15 from the VA health record and Medicare claims. We compared patient characteristics using summary statistics and we used logistic regression to estimate risk of VA and non-VA hospitalization in FY15 by category of clinic based PC use, controlling for demographics and comorbidity scores.

Results: Among 522 patients, 69 saw HBPC only, 332 had 1-2 clinic based PC visits and 156 had 3 or more clinic based PC visits. Comparing patients who saw only HBPC to patients with 3 or more clinic based PC visits, HBPC only patients were younger (mean age 72.0 vs. 73.4) had lower comorbidity scores (e.g. Medicare HCC 2.41 vs. 3.14) and had fewer hospitalizations (mean 0.43 vs. 1.40). HBPC only patients had more HBPC visits (mean 27.0 vs. 22.7) and more visits from HBPC providers (i.e. physicians or nurse practitioners, mean 3.01 vs. 0.28). After controlling for demographics and comorbidity scores, patients with 3 or more clinic based PC visits had 3.28 higher odds of having a hospitalization (95% confidence interval 1.45-7.43).

Conclusions: HBPC patients that have concurrent clinic based primary care are more medically complex and are at higher risk for hospitalization. Further work is needed to understand how best to deliver and integrate care for this vulnerable group of Veterans.

C221

Persistent Low Uptake of Obesity Intensive Behavioral Therapy in Medicare (2012-2015)

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Background: Prevalence of obesity among adults aged 60 and older in the United States has increased from 30.5% in 2000 to 41% in 2016. Rising prevalence is predicted to have significant medical and health policy implications due to cumulative multimorbidity coupled with progressive disability. In 2011, Intensive behavioral therapy (IBT) codes for obesity counseling were approved by the Centers for Medicare and Medicaid Services (CMS) to benefit Medicare beneficiaries. The face-to-face intensive individual visit codes (introduced in 2012) and the group counseling codes (added in 2015) were designed to be delivered in primary care with up to 22 short (15 minute) visits over 12 months. We analyzed the uptake of this service in its initial 4 years of implementation.

Methods: Serial cross-sectional analysis of fee-for-service Medicare beneficiaries aged 65 older (N approx. 28 mil per year) use of IBT individual visits (2012 to 2015) and group visits (2015). Data was obtained from the Medicare Beneficiary Summary file for demographic data and the Carrier file for IBT use. We report IBT use as the percentage of beneficiaries receiving at least one IBT visit and the number of IBT visits per beneficiary.

Results: Utilization of IBT among older adults in Medicare has not increased (from 2012 to 2015, 0.10%, 0.17%, 0.20%, 0.21%, trend p=.16). The number of visits per user is low and did not change (1.9, 2.2, 2.1, 2.0 visits/user in each successive year, trend p=.48). Trends in uptake were no different by age, gender, race, or census region of the U.S. The number of visits per beneficiary was higher for group counseling (5.9 visits/user) although the number of older adults having any group visit was exceedingly low (N=440).

Discussion: IBT for obesity remains underutilized. Continued low uptake over this period of time calls for action and re-evaluation of the obesity IBT benefit structural design. Characteristics of older adults and provider factors may limit its uptake. For example, older adults who often have co-morbidities and mobility limitations may find frequent short sessions infeasible. For physicians, incorporating these visits, which have low reimbursement relative to other potential services that could be delivered in the same time, may contribute to continued lack of implementation and may argue for use of non-physician team members and exploring telemedicine visits.

C222

Orange County Elder Death Review Report

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Background: Elder Death Review Teams (EDRT) are confidential interdisciplinary teams that study the role of abuse or neglect in the death of older adults while seeking system-wide opportunities for improved education and coordination. The Orange County (OC) EDRT was established in 2003 and is co-chaired by an OC Coroner's investigator and an UC Irvine geriatrician. Through a collaborative review, both co-chairs select the cases to be reviewed at each EDRT meeting.

Method: Case selection from 2008 to 2017 focused on protective services involvement and suspicious deaths. A total of 44 cases were analyzed, using key factors such as victim and suspected abuser age, race, and gender; death-related medical conditions, suspected abuser and victim relations, and causes of elder death as well as the role of agencies involved in pre and post-mortem events. Each case discussion involved an analysis of common themes, systemic gaps, and opportunities for improved communication and coordination.

Results: The cases reviewed revealed that 77.78% of decedents were female, with a victims' family members comprising 71.11% of suspected abuser relationships; of which 49% were the victim's adult children. The most commonly recorded death-related medical conditions included decubitus ulcers, respiratory and infectious conditions, malnutrition, dementia and fall risk. Neglect was the most common cause of abuse at 58.21%, followed by physical abuse and/or self-neglect, both at 10.45%. Natural causes were determined to be the primary cause of death among all reviewed cases at 50%, with 37% of deaths occurring due to undetermined or undeclared causes. Expert consensus noted that the overall caregiving situations was necessary for review in respect to cause of death. For instance, if death was due to pancreatitis, a delay in care should be considered in the overall evaluation for neglect.

Conclusions: A review of cases from the OC EDRT resulted in a demographic profile similar to nationally analyzed characteristics of victims and abusers. Elder mistreatment is most commonly perpetrated by members of a victim's own family, with medical conditions noted to be consistent with neglect and vulnerabilities for abuse.[1] The manner of death should be evaluated in the context of the care received.

[1]Source: National Center on Elder Abuse, www.ncea.acl.gov, Accessed 12/3/18

C223 Encore Presentation
Droxidopa and Midodrine Treatment Persistence in Patients With Orthostatic Hypotension

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Background: Orthostatic hypotension (OH) is a sustained drop in blood pressure upon standing that can lead to falls, impaired function, and poor quality of life. Neurogenic OH (nOH) is OH with a neurogenic etiology. Droxidopa and midodrine are approved in the United States to treat symptomatic nOH and symptomatic OH in adults, respectively. The objective of this analysis was to determine the treatment persistence of droxidopa and midodrine in patients with nOH or OH when medication cost was not a factor.

Methods: Retrospective analyses of patients prescribed either droxidopa or midodrine were performed using the Symphony Health Solutions Database (Symphony Health; Conshohocken, PA, USA). Inclusion criteria were continuous healthcare coverage from 9/1/14 to 6/30/17, an active prescription for droxidopa or midodrine of ≥30 days' duration during that period, and no copay ($0.00) for the prescribed drug. Persistence was capped at 365 days to provide an unbiased comparison between midodrine (introduced in 1996) and droxidopa (introduced in 2014). The statistical difference between estimated survival curves for droxidopa and midodrine was calculated using a log-rank test and a multivariable Cox regression analysis.

Results: Data from 688 patients on droxidopa (mean [SD] age, 63.8 [16] years; 48% women) and 1888 patients on midodrine (mean age, 55.2 [16] years; 62% women) were included. Patient diagnoses in the droxidopa and midodrine groups were Parkinson disease (12% and 1%), cardiovascular disease (34% and 69%), both Parkinson disease and cardiovascular disease (18% and 3%), and unknown (35% and 26%). Median (95% CI) persistence was significantly longer for droxidopa vs midodrine (240 [210–299] vs 180 [160–183] days; $P<0.0001$). Patients on midodrine were 27.4% more likely to become non-persistent than those on droxidopa when adjusted for demographic and clinical factors ($P=0.002$).

Conclusions: When medication cost is not an influencing factor due to insurance coverage, patients using droxidopa were more likely to remain on treatment than patients on midodrine. The reason for this is unknown, but could be due to enhanced efficacy or fewer side effects.

C224 Encore Presentation
Systematic Advance Care Planning and Potentially Avoidable Hospitalizations of Nursing Home Residents

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Background
Prior research suggests associations between nursing home (NH) residents' preferences for comfort-focused care and lower rates of hospitalization.[1-4] This study's purpose was to compare hospitalization rates among residents following intensive efforts to systematically offer advance care planning (ACP).

Methods
The sample consisted of 1,486 NH residents enrolled in a multi-component demonstration project designed to reduce potentially avoidable hospitalizations between January 2015 – June 2016.[5] Project nurses certified in Respecting Choices Last Steps facilitated ACP. Hospitalizations were tracked using Minimum Data Set 3.0 data and judged as avoidable or unavoidable by project nurses.

Results
Comparisons were made between residents based on ACP status: 1) ACP indicting comfort care/DNH (n = 497, 33%); 2) ACP with other preferences (e.g., code status only: n = 771, 52%); and 3) no ACP (n= 218, 15%). Compared to the comfort care/DNH group, the overall hospitalization rate was 1.47 times higher for patients having other ACP preferences (p=.013) and almost 2 times higher for those with no ACP (p=.0010). Compared to the comfort care/DNH group, avoidable hospitalizations were 2.48 times higher than for those with no ACP (p=.0014). However, when adjusted for covariates including gender, age, hospice, functional status, and cognition, there were no differences between the three groups.

Discussion/Conclusions
In this large, non-randomized study, the association between lower hospitalization rates and ACP status were no longer significant once fully adjusted for resident characteristics. Isolating the effects of ACP may be challenging due to study design (multi-modal intervention, non-randomized) and the nature of the population.

C225 Encore Presentation
Metabolic profiling of CSF from people suffering from Parkinson's disease.

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Background: To biochemically profile CSF from unique groups of Parkinson's Disease (PD) sufferers to identify previously unreported metabolic pathways linked to PD pathogenesis and characterize novel biochemical biomarkers of the disease.

Methods: Utilizing both ^{1}H NMR and DI-LC-MS/MS we quantitatively profile metabolites in CSF from patients suffering from sporadic PD (n=20) and those who are genetically predisposed (LRRK2) to the disease (n=20) and compare them with age- and gender-matched controls (n=40). Further, we systematically evaluated the utility of several machine learning techniques for the diagnosis of PD.

Results: ^{1}H NMR and mass spectrometry-based metabolomics, in combination with bioinformatic analyses, provided useful information highlighting previously unreported biochemical pathways and CSF based biomarkers associated with both sporadic and LRRK2 PD. Results of this metabolomics study further support our group's

previous findings identifying Bile Acid metabolism as one of the major biochemical pathways to be perturbed in PD sufferers.

Conclusion: This study demonstrates that a combination of 2 complimentary techniques can provide a much more holistic view of the CSF metabolome and by association, the brain metabolome. Future studies for the prediction and diagnosis of those at risk of developing PD should investigate whether the CSF based biomarkers for the various forms of PD have any clinical utility in more accessible biomatrices and determine if the biochemical pathways highlighted here are recapitulated in the brain of PD sufferers.

C226

APOE genotype influences post prandial hypotension in older adults

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Background: Postprandial hypotension (PPH) is a common phenomenon among older adults and is more common in individuals with neurodegenerative diseases including Alzheimer's disease (AD). Carrier status of the E4 allele of the apolipoprotein E (APOE) gene is a risk factor for AD and influences a variety of responses to metabolic and dietary interventions. However, it is unknown whether APOE genotype influences the risk of PPH and whether type of meal can mediate that response.

Methods: Participants included 32 cognitively healthy older adults with and without E4+ carrier status, as a part of an ongoing meal study involving ingestion of a high carbohydrate (HCM) and high fat meal (HFM). Blood pressure measurements were taken at 7 time points. Change scores and area under the curve (AUC) scores were calculated; data were analyzed by repeated measures ANOVA and Pearson correlation.

Results: Both meals produced an average drop in systolic blood pressure (SBP), with 37.5% of participants meeting criteria for PPH. E4+ participants experienced a larger decrease in SBP than E4- participants, particularly after the HFM (E4+ AUC = -30.8 ± 7.6, E4- AUC = -0.2 ± 8.7, p=0.015). Increasing age was associated with a larger drop in postprandial blood pressure but only for the E4+ group after the HFM (p=0.002).

Conclusions: These data suggest that E4+ carriers experience a greater postprandial blood pressure response particularly following high fat feeding, and this effect becomes more pronounced with age.

C227

Disability variation among older adults with dementia

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Objective: This study analyzes the relationship between types of mild dementia at the moment of the diagnosis with disability. Methods: This is a cross-sectional analysis of the baseline data of the Demwest study, a longitudinal cohort-study of patients with mild dementia in the west of Norway. We used The Rapid Disability Rating Scale-2 (RDRS-2), the version with 21 questions to assess disability. Each question has a response as able to perform the activity: 1=alone 2=with some help, 3=with a lot of help and 4=it is not done (potential range 21-84); a higher score meaning more disability. We performed bivariate and multivariate analyses. Results: Participants had a mean age of 75.8±7.6 and mean RDRS-2 of 37.2±10.2; 58.9% were women; dementia types include 49.6% for Alzheimer's disease (AD), 29.9% for dementia with Lewy body (DLB), 12.4% for Mixed AD-Vascular dementia (VD) or VD, 5.1% Parkinson's disease dementia (PDD), and

3% other (Frontotemporal or alcoholic). Persons with AD have lower RDRS-2 scores at the moment of the diagnosis compared to persons with other types of dementia (table; F=4.46, p<.01). The RDRS-2 is negatively correlated with the MMSE scores (r=-0.23, p<.01) and positively correlated with the Unified Parkinson's Disease Rating Scale (r=0.34, p<.01), which has an ADL component, in our population. In multivariate analyses (adjusting for age, gender, MMSE and comorbidity) persons with DLB (beta 5.0 SE=2.0 p=0.01) and persons with Mixed AD-VD or VD (beta 5.8 SE=2.9 p=0.04) had higher RDRS-2 scores than persons with an AD. Conclusion: Disability measured by the RDRS-2 was lower in AD patients compared to those with other types of mild dementia.

RDRS-2 Score by Type of Dementia

Dementia type	Mean ± SD	Median
AD	33.7 ± 8.8	32.0
DLB	39.7 ± 10.9	40.0
Mixed AD-VD or VD	41.5 ± 10.4	43.5
PDD	40.3 ± 7.7	41.5

C228

Medication Management in Normal Aging: Cognitive Predictors and Self-Report Measures

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Background: Managing medications is an important part of independent living, and many older adults struggle to manage their medications. The Medication Management Ability Assessment (MMAA) is a test of medication management for clinical and research settings. However, the cognitive domains that underlie the ability to accurately and efficiently manage medications are not well-understood. We evaluated cognitive predictors of the MMAA, and compared self-report of medication management with MMAA performance in a healthy older adult sample.

Methods: 175 older adults completed the MMAA as part of a comprehensive neuropsychological battery, including measures of attention, processing speed, memory, and executive functioning. Participants also completed self-report measures of everyday functioning. For analyses, participants were split into 3 age groups: <65, 65-75, & >75 years.

Results: Significant group differences were found in MMAA total time (i.e., speed of completion), such that the oldest and middle-age groups performed significantly worse than the youngest group (*p*'s<.01). There were no significant group differences for MMAA accuracy; however, the oldest group self-reported significantly more difficulties with medication management (*p*<.05). Immediate and delayed episodic memory and processing speed were significant predictors of MMAA total time in the youngest group (R^2=.33, $F(3,54)$=8.38, *p*<.001), whereas only processing speed was predictive of MMAA total time in the oldest group (R^2=.264, $F(3,38)$=4.18, *p*=.12). Self-reported medication management abilities correlated significantly with MMAA total score (*r*=-.396, *p*=.10) and total time (*r*=.420, *p*=.11) for the oldest group only.

Conclusions: Older age is associated with reduced speed on a simulated medication management task. When comparing age groups of older adults, processing speed and immediate and delayed episodic memory predicted the speed of completing medication tasks; however, accuracy was not directly related to these findings. Results suggest that changes in processing speed, which are common in normal aging, affect the ability to perform medication management tasks quickly. Difficulties with accuracy were only evident in the oldest age group, whom were also more likely to self-report these difficulties, suggesting self-awareness of changes in medication management abilities.

C229

Depressive symptoms may hamper long-term maintenance of cognitive training gains and downstream functional benefits in older adults at-risk for dementia: ACTIVE 10-year follow-up study

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Background: ACTIVE study showed overall increase in dementia from year 5 to 10, with dementia nonsignificantly reduced at year 5 in cognitive intervention groups and significantly reduced for speed trained participants at year 10. We measure: (i) prevalence of depressive symptoms from baseline to year 10 (ii) whether participants with depressive symptoms responded differently from participants without depressive symptoms to cognitive intervention.

Methods: Randomized, controlled, study, testing memory, reasoning and speed of processing cognitive interventions in 2802 older adults across 6 US sites, prospectively followed up at 1, 2, 3, 5, and 10 years. The Center for Epidemiological Studies-Depression scale CES-D 12-item version with cut-off score of 9 or above identified their depressive symptoms.

For aim (i) we used chi square tests comparing the overall difference of depression prevalence from baseline to year 10. For aim (ii) we used two-sample t-tests with equal variance.

Results: (i) Depressive symptom prevalence in total study sample remained almost same across baseline, year 1, 2, 3, 5, and 10 (23.03, 22.80, 22.01, 20.55, 22.83, 22.97% respectively; $\chi^2(5) = 4.92$, $p = 0.427$ (with similar trends across intervention groups and control); prevalence was higher in females (24.71, 24.08, 23.40, 21.51, 23.40, 23.96% respectively; $\chi^2(5) = 5.11$, $p = 0.403$), than in males (17.77, 18.69, 17.44, 17.44, 20.87, 18.99% respectively; $\chi^2(5) = 2.19$, $p = 0.823$).

(ii) Table

Conclusions: Depressive symptom prevalence was higher in females. Depressive symptom group had significantly worse reasoning, speed of processing and daily function change scores and nonsignificantly worse memory change score at year 10, showing poor proximal and downstream primary (functional) outcomes.

Advanced Cognitive Training for Independent and Vital Elderly ACTIVE: Year 10 proximal and primary outcomes in participants without and with depressive symptoms (change score from baseline)

Outcome [mean (SD)]	Participants without depressive symptoms	Participants with depressive symptoms	p-value
Memory composite			
Reasoning composite	-2.11 (2.03)	-2.40 (2.03)	0.074
Speed of processing composite	-0.35 (1.55)	-0.74 (1.71)	0.002*
MDS IADL total difficulty	0.90 (2.31)	1.28 (2.15)	0.044*
MDS IADL total difficulty across the 3 cognitive interventions:	0.81 (2.55)	2.17 (4.51)	<0.001*
Memory	-1.93 (2.22)	-2.31 (1.82)	0.30
Reasoning	0.12 (1.52)	-0.60 (1.97)	0.004*
Speed of processing	-0.35 (2.22)	0.49 (2.44)	0.021*

* p<0.05: significant
Note: the lower the speed score, the better; the lower the IADL difficulty score, the better

C230

Combining Cognitive-Behavioral Therapy and Social Support for Older Adults with Hoarding Disorder

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Background: Hoarding disorder (HD) in late-life is associated with increased symptom severity and social consequences. Cognitive-Behavioral Therapy (CBT) has limited efficacy in this age group. This study evaluated the role of intensive social support by including it as an adjunct to CBT treatment. The objective was to assess if CBT with in-home support would lead to improved outcomes vs. CBT alone.

Methods: Twenty-six community-dwelling individuals with HD over age 50 were evaluated and offered treatment. In addition to hoarding measures, the Clutter Image Rating (CIR) and the Savings Inventory-Revised (SI-R), participants were assessed for depression, anxiety, self-compassion, indecisiveness, loneliness, and social network. Participants received fifteen sessions of CBT (adapted from a manual by Steketee and Frost) and were assigned a social worker for home-based support to facilitate decluttering. CIR and SI-R were repeated post-treatment. Correlations among variables were explored using multivariate and partial correlations. The two hoarding scales served as outcome variables in Paired Sample T-tests and within-subject ANCOVAs to measure the effect of treatment.

Results: Fifteen women and 8 men (mean age = 67.4 years, range: 52- 85) received hoarding severity ratings. Fifteen participants completed treatment and had post-treatment hoarding ratings. CIR and SI-R scores were significantly correlated at pre-treatment, r(18)=.77 and post-treatment r(12)=.76. Pre-treatment SI-R scores correlated with scores on the Geriatric Depression Scale, r(20)=.63 and the UCLA-Loneliness Scale, r(21) =.49. Over the course of treatment SI-R scores declined by an average of 25.5% (pre-treatment *M* = 52.1, SD=15.9 vs. post-treatment *M* = 38.8, SD = 17.6), p<.001, whereas scores on the CIR declined by 28.6% (pre-treatment *M*= 4.2, SD= 2.5 vs. post-treatment *M* = 3.0, SD =1.8), p<.007.

Conclusions: In this case series, combined psychotherapy and concrete social support was associated with a modest, statistically significant reduction in HD symptoms. This outcome is similar to previous studies with CBT, alone, that demonstrated a reduction of 20-28%. A more successful approach might be to start first with the CBT treatment and provide the in-home support only after the older adult has a better understanding of their HD condition.

C231

Gait Assessments and Cognition in Geriatric Veterans Evaluated Outside of Geriatric Medicine Clinics

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BACKGROUND

Dementia and the medications routinely prescribed to treat symptoms complicating dementia (e.g., psychotropics) increase the risk of falls in the elderly. The Timed-Up-and-Go (TUG) that includes a cognitive task (TUG-cog) is more sensitive and specific in identifying individuals who are at high risk for falls and who may thus benefit from fall-prevention strategies. Given that TUG assessments are rarely performed outside of geriatric medicine clinics, this study investigates the TUG-cog in relation to traditional cognitive assessments.

METHODS

Veterans age 85+ who received care at non-geriatric VA Puget Sound clinics were evaluated for cognitive impairment using the Montreal Cognitive Assessment (MoCA) and for gait using the TUG-alone and TUG-cog.

RESULTS

The median MoCA score was 22, which is also the MoCA reference value for cognitive impairment. Veterans with low MoCA scores (i.e., ≤22; n=23) performed worse on the TUG than the normative reference values (11 sec for TUG; 15 sec for TUG-cog), taking 15.7±5.2 sec on the TUG-alone and 23.0±11.9 sec on the TUG-cog (paired t-test, p=0.0014). Veterans with high MoCA scores (i.e., >22; n=19) performed in line with the normative reference values, taking 11.9±2.9 sec on the TUG-alone and 16.2±5.1 sec on the TUG-cog (paired t-test, p=0.004). Veterans with predominant executive impairment per the MoCA performed worse on the TUG-cog (mean=19.4 sec)

than Veterans with predominant memory impairment per the MoCA (mean=17.1 sec), but this finding was not statistically significant (p=0.86).

CONCLUSION

As expected, Veterans with low MoCA scores performed worse on both the TUG and TUG-cog than Veterans with high MoCA scores. This sample was too small to detect statistically significant differences related to MoCA subscores and the TUG-cog, but future studies should investigate executive MoCA subscores and TUG-cog, as executive impairment on the MoCA may be associated with increased fall risk in elderly patients. Indeed, it is critical that non-geriatric medical providers consider fall risk in patients who perform poorly on bedside cognitive screening prior to prescribing medications that may increase such risks.

C232
Gait Dysfunction In Motoric Cognitive Risk Syndrome
E. Ayers, J. Verghese. *Albert Einstein College of Medicine, Bronx, NY.*

Background: Motoric cognitive risk (MCR) syndrome is a pre-dementia syndrome characterized by the presence of cognitive complaints and slow gait velocity. Individuals with MCR are at high risk for transitioning to both Alzheimer's disease and vascular dementia. MCR subtypes have also been defined using gait parameters other than velocity, and were shown to have distinct cognitive profiles and risk factors. Presence of clinical gait abnormalities have also been shown to predict dementia in older adults. However, the prevalence and patterns of clinical gait abnormalities in MCR have not been examined. Hence, we conducted a systematic examination of the clinical gait abnormalities in older adults with MCR.

Methods: We studied community-residing adults age 65 and older enrolled in the "Central Control of Mobility in Aging" study. MCR was diagnosed in 43 non-demented older adults aged 65 and older (47% women) based on presence of cognitive complaints and slow gait velocity (MCRv). Four additional subtypes of MCR were defined by substituting slow gait with short stride length (MCRsl, n = 41), slow swing time (MCRsw, n = 21), high stride length variability (MCRslv, n = 24) and high swing time variability (MCRswv, n = 25). Clinical gait abnormalities (neurological or non-neurological) were examined to compare prevalence across MCR overall and by subtypes.

Results: Of the 81 participants with MCR overall (any subtype), 52 (64.2%) had gait abnormalities. Neurological gaits were seen in 28 (34.6%) of the MCR overall group, and non-neurological gaits in 39 (48.1%). Most clinical gait abnormalities were mild in the MCR subtypes (44 to 61%). Neurological (range 24 to 46%) and non-neurological gait abnormalities (range 33 to 61%) were common in MCR subtypes. Neurological gaits were most frequent in MCRsl (46%) and non-neurological gait abnormalities in MCRv (61%). Neuropathic and unsteady gait subtypes accounted for 28.4% of the neurological gait abnormalities in MCR overall. Arthritis accounted for 30.9% of non-neurological gait abnormalities in MCR overall.

Conclusion: Clinical gait abnormalities are common in MCR syndrome and its subtypes. Results from this study provide evidence of the gait phenotypes in MCR cases and may provide insights into underlying etiologies and improve prognostication.

POSTER SESSION D (STUDENTS & RESIDENTS)

Friday, May 3
2:45 pm – 3:45 pm

D1 Resident Presentation
Beware When It Comes To Catheter Care
A. Pervaiz, S. Samanani. *Internal Medicine, UMMS-Baystate, Springfield, MA.*

Intro

Elderly patients frequently present with surgical emergencies, and outcomes in this population remain poor due to multiple factors. We present a patient who presented with obstructive uropathy and suffered multiple complications after a minor procedure.

Case

A 70 year old man with a history of chronic urinary catheter for bladder outlet obstruction presented with altered mental status (AMS). Laboratory studies showed WBC 30.3, BUN 276, and Creatinine 22.3. He did not have a urinary catheter on admission and two unsuccessful attempts were made by nursing after which a physician attempted to place the catheter. Due to increased swelling after placement a CT scan was done which showed a malpositioned foley catheter perforating through the midportion of the penis with urethral disruption, catheter tip and balloon noted to be posterior to the penis, surrounded by a large heterogeneous collection tracking along the penis and entering the scrotum. A suprapubic catheter was subsequently placed by Urology with large amounts of brown, purulent output consistent with fecal matter. The patient developed Fournier's gangrene and had a prolonged ICU course where he sustained significant deconditioning and multiple complications.

Discussion

The number of patients presenting to the emergency department requiring urgent intervention increases with age. Elderly patients are a particular challenge owing to pre-existing co-morbidities, frailty, and polypharmacy.[1] AMS is also a common complaint which may lead to a delayed diagnosis. These factors are difficult to monitor or manage in the emergency setting and can lead to poorer outcomes. Depending on the specific scenario, these poor outcomes may be increased risk of postprocedural complications, prolonged hospitilization or discharge destination being rehabilitation or nursing home placement.[2] Such was the case in our patient who was not able to communicate effectively due to AMS and had a prolonged hospital stay with multiple complications following a simple procedure.

Conclusion

Procedures and surgical interventions in geriatric patients should be done with caution especially in vulnerable patients who may not be able to effectively communicate and should be tailored to improve outcomes and avoid futile care.

1,2 Andrew D W Torrance, Susan L Powell, and Ewen A Griffiths Emergency surgery in the elderly: challenges and solutions Open Access Emerg Med. 2015; 7: 55–68.

D2 Resident Presentation
When Cancer Is The Answer
A. Pervaiz, R. Tabbalat, S. Samanani. *Internal Medicine, UMMS-Baystate, Springfield, MA.*

Intro

Small bowel tumors are rare and are diagnosed at advanced stages due to nonspecific clinical manifestations. We present a patient who presented with nausea and vomiting, found to have an adenocarcinoma of the duodenum.

Case

A 70 year old female with history of Barrett's esophagus presented with intermittent nausea and vague abdominal pain. Labs

were significant for ALP 147, Lipase 93, AST 17, ALT 19, and bilirubin 0.4. Abdominal CT showed inflammatory changes around the pancreatic head and second portion of the duodenum concerning for focal pancreatitis or duodenitis. She was subsequently discharged on pantoprazole with improvement in her symptoms. She represented after 2 days with episodes of projectile vomiting and exam showed mild epigastric tenderness. A MRI abdomen was obtained which showed a normal pancreas, narrowing of the common duct as it passes through the pancreatic head, and wall thickening of the second part of the duodenum. EGD was done which showed severe erosive esophagitis and narrowing of the second part of duodenum with edematous mucosa suggestive of extrinsic compression. Biopsy of the duodenum confirmed adenocarcinoma with lymphovascular invasion. During her hospital course, she had multiple complications and was eventually discharged home with hospice.

Discussion

Small intestinal tumors are rare and account for about 1-3% of all gastrointestinal malignancies and primary malignant tumors arising in the duodenum account for approximately 0.3% off all GI tumors.[1] Small intestinal tumors pose a diagnostic challenge as clinical manifestations are generally vague and nonspecific. Such as in our patient, symptoms include pain, nausea, and vomiting which may be related to partial or complete bowel obstruction. The diagnosis of small intestinal malignancy is not only delayed due to non-specific clinical presentations, but also due to inaccessibility by EGD especially to the jejunum and ileum. Early diagnosis may lead to a better prognosis as surgical resection is the only treatment modality with a chance of a cure. [2]

Conclusion

A high index of suspicion for patients with nonspecific symptoms will improve tumor detection and enhance the management and outcome of patients with small intestinal malignancies.

1. Jemal A, Cancer statistics, 2002. CA Cancer J Clin. 2002;52:23–47.

2. Chen EY, Small Bowel Adenocarcinoma. Clin Colon Rectal Surg. 2018 Sep;31(5):267-277.

D3 Resident Presentation, Encore Presentation
Azathioprine Induced Delirium

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Azathioprine (AZA) is a commonly used immunosuppressive medication. Hepatotoxicity is uncommon side effect, with a reported incidence of 1.4% annually. It can range from mild asymptomatic elevation in aminotransferase levels to cholestatic hepatitis. Medication related delirium in elderly patients, is often under-recognized, resulting in increased morbidity and mortality. We present a case of an elderly woman with AZA induced hepatotoxicity and delirium, where prompt recognition and drug discontinuation resulted in gradual recovery.

A 71 year old woman with a history of idiopathic pulmonary fibrosis and chronic SIADH presented with 2 months history of progressive weakness and confusion. AZA therapy had been initiated 3 months back. Lab studies done a week ago had showed transaminitis and hyperbilirubinemia leading to drug discontinuation. On physical exam she was alert, oriented to place and person but not to time. Labs were significant for serum sodium 124 meq/L, total bilirubin 10.8 mg/dl, direct bilirubin 8 mg/dl, ALT 372 U/L, AST 172 U/L, ALP 328 U/L, GGT 3470 U/L, ammonia 62 umol/L, lipase 82 U/L. CT abdomen demonstrated peripancreatic fat stranding. Work up of other causes of delirium was unremarkable. She was treated empirically with lactulose and rifaximin for presumed hepatic encephalopathy. She had worsening confusion and drowsiness initially and dosage of lactulose was gradually optimized. Her mentation improved a week later. Liver tests continued to improve gradually. On day 9, the family wished for outpatient follow-up; given the concern for weakness and deconditioning she was referred to subacute rehabilitation.

Delirium from AZA use is an infrequent occurrence and not well documented in the literature. When elderly patients present with delirium, clinicians should consider AZA in the differential diagnosis once alternate etiologies have been ruled out. Drug discontinuation often results in improvement in mental status and gradual resolution of lab abnormalities. Further studies are needed to understand the relationship between dose and duration of AZA therapy and risk of delirium and it's reversibility. Early recognition of medication induced delirium will help prevent associated complications.

D4 Resident Presentation
A 74 elderly female with paranoid delusion and hoarding, Is it dementia?

A. Eltanbedawi,[1] k. Sawalha,[2] A. Battisha.[3] *1. Internal Medicine, UMMS-Baystate, Agwam, MA; 2. Internal Medicine, University of Massachusetts Medical School-Baystate, West Springfield, MA; 3. internal medicine, baystate medical center, Springfield, MA.*

Introduction:

Psychological symptoms are common characteristics of dementia. Also detailed collateral history is very important. In our case, collateral history revealed undiagnosed schizophrenia in a patient who was admitted with presumed dementia diagnosis with abnormal behavior.

Case presentation:

A 74 year-old female, with no documented past medical history who didn't see a doctor for the last 29 years. She presented to ER with epistaxis after it was sever enough for 3 weeks to push her to seek medical advice. In the ED she reported "there is a psychotic phantom man whispering grotesque things into my left ear". She reported having auditory hallucinations for a long time. Sometimes she has "whispers commands". Patient was admitted with dementia with abnormal behavior. History taking from collateral revealed long-standing auditory hallucinations, paranoid delusions and hoarding behavior. Her apartment is cleaned out twice a year which is very traumatizing for her. She lives a fairly independent life. She has a guardian in the form of Jewish Family Services in place for last 10 years and they take care of her finances. She still drives in the daylight without problems.

On physical examination she was alert and oriented to person, place and time with fair attention, and full affect. Her thought content was normal but her thought process was very tangential. MOCA: 27/30. PHQ9 negative. Blood work up within normal. CT of head without significant vascular disease. Patient was diagnosed with schizophrenia and had follow up with psychiatry.

Discussion:

Our patient came to hospital with epistaxis. She was found to have abnormal behavior with paranoid delusion. She was admitted with presumed dementia with abnormal behavior. Collateral history was difficult to get in the setting of distrusting everyone and having no friends. Collateral history revealed ongoing paranoid delusion, auditory hallucination and hoarding all her life. She has fair independent life and still drives with normal MOCA test. She was diagnosed with schizophrenia and dementia was excluded.

Conclusion:

Our case highlights the importance of collateral history in geriatric medicine. Our patient was assumed to have dementia with abnormal behavior. Collateral history and detailed assessment showed underlying undiagnosed schizophrenia.

D5 Resident Presentation
An Older Woman with Dementia: A Breast Cancer Screening Dilemma.

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Introduction:

Breast cancer is the second leading cause of cancer death for women in US and its incidence rises with age. The *USPSTF* states the evidence to screen women ≥75 years old is insufficient; the American Cancer Society recommends screening for women with a prognosis of 10 or more years. We present a case of an older lady with a delayed diagnosis to highlight the complexity of the issue.

Case:

A 97 year old patient at a community health center had longstanding dementia, hypothyroidism, OSA, depression, CHF. She lived alone and although independent in her BADLs, required assistance with all IADLs. She presented with left arm swelling and further questioning and physical exam revealed a breast mass. Her left arm was edematous, warm with engorged veins, erythema down to the elbow. A firm, fixed 8 x 13 Cm mass occupied the central and lateral breast with an inverted nipple and Peau d'orange. Subsequent biopsy confirmed infiltrating carcinoma; she and her family decided against surgery or chemotherapy and began hormonal treatment. In the subsequent weeks, she had several hospitalizations, a DVT, decompensated heart failure and worsening depression. She declined functionally and needed a SNF rehab stay although she later returned home with enhanced services.

Discussion

Chart review revealed that in the prior 20 years (over 100 visits to the practice) she had never had a clinical breast exam or discussed mammography. A root cause analysis defines opportunities to improve care. Major contributing factors appeared to be the patient's memory loss and the lack of clear prompt to consider screening. We are considering a number of interventions to improve processes such as adjustments to the ROS and more regular breast exams.

Guidelines do not recommend breast cancer screening for those with a life expectancy less than 10 years. Given her multiple chronic conditions, our patient would not have been expected to survive to 97 years of age. However, breast exams might have identified the disease earlier and improved quality of life.

Conclusion:

Each older woman with dementia and multimorbidity requires individualized care planning and shared decision making regarding breast cancer screening. These challenging discussions are our responsibility as geriatricians although dilemmas persist given challenges in predicting prognosis and current gaps in the literature.

D6 Resident Presentation
Red eye is not always an infection.

A. Eltanbedawi,[1] A. Battisha,[2] k. Sawalha,[3] A. Abou Aitah,[4] S. Ang.[5] *1. UMMS-Baystate, Doha, Qatar; 2. internal medicine, baystate medical center, Springfield, MA; 3. Internal Medicine, University of Massachusetts Medical School-Baystate, West Springfield, MA; 4. geriatrics, Baystate Health, West Springfield, MA; 5. Medicine, Baystate Medical Center, Springfield, MA.*

Introduction Red eye is a very common presenting complaint-in urgent visit. Most common causes are inflammation and infection. We report a rare case of unilateral spontaneous hyphema with subconjunctival hemorrhage due to supratheraputic INR

Case Report An 87-year-old man with past medical history of mild cognitive impairment, congestive heart failure with sever aortic stenosis, atrial fibrillation on warfarin who presented to the emergency department with unilateral red eye and decreased vision. He was found to have supratherapeutic INR of 9.6. Due to cognitive impairment he was taking 11 tablets of warfarin daily, instead of his furosemide to help his leg swelling. On examination, right eye showed hyphema occluding the entire anterior chamber, right mild subconjunctival hemorrhage, right eye blindness, and elevated right intraocular pressure 36 mmHg. His INR was reversed with Vitamin K and prothrombin complex concentrate. Eventually, his Hyphema improved gradually and right eye vision acuity improved. On discharge, we involved Interdisciplinary team, medical social worker to educate patient and family on his dementia. Direct supervision on medications and visiting nurse was arranged to ensure ongoing medication compliance and safety.

Discussion: This patient progressed from mild cognitive impairment to dementia. By mistake he was taking 11 tablets of warfarin daily to manage lower limb edema. He presented with atypical presentation of supratheraputic INR as a unilateral red eye. In this patient proper regular cognitive assessment could have helped to assess the level of care needed and provided proper supervision to medications. An interdisciplinary team approach including medical social worker, clinical pharmacist, patient and family can prevent adverse and life threatening event.

Conclusion: Our case demonstrates the atypical presentation of supra therapeutic INR in elderly as unilateral hyphema. Also it highlights the importance of ongoing cognitive assessment and follow up of cognitive function in mild cognitive impairment patient.

D7 Resident Presentation
Late Onset IgA Nephropathy in an Elderly Patient Associated with Squamous Cell Carcinoma of the Skin

A. Khodak, S. Ahmad. *North Shore University Hospital/Long Island Jewish Medical Center, Brooklyn, NY.*

The patient is a 76-year-old male with a PMH of DM2, HTN and HLD who presented with a complaint of bloody urine accompanied by fevers and chills for a day. The patient stated that he has also had a new right lower eyelid lesion for a month and a left cheek lesion for 4-5 years. The patient conveyed that he has never noticed bloody urine before.

The patient was febrile with a temperature of 38.1C. Pertinent labs revealed proteinuria and numerous RBCs in UA. He had AKI with a creatinine of 1.52. CT scan of abdomen ruled out renal calculus and other intra-abdominal pathology; CXR showed pleural effusions. His pertinent autoimmune work up was positive for PR3 but was otherwise negative. The patient was treated with a short course of IV antibiotics for suspected pneumonia and after his URI symptoms improved began on prednisone for suspected vasculitis, with subsequent resolution of the patient's hematuria. Renal biopsy was consistent with IgA nephropathy. Biopsy of his face skin lesions showed squamous cell carcinoma (SCC) of right lower eyelid and left cheek.

IgA nephropathy is referred to as synpharyngitic hematuria because it usually presents with gross hematuria that occurs in conjunction with a URI, which was the case for this patient. It most often manifests in the second or third decade of life. It is known to be associated with renal, lung and GI carcinomas, likely secondary to elevations of IgA levels in these malignancies. Here we present a rare case of late onset IgA nephropathy in a 76-year-old male in association with SCC of the skin, which has not been previously reported. The unusual late onset of IgA nephropathy in this elderly patient correlates with the development of a new right lower eyelid SCC lesion that was present for only a month. Elevated IgA levels associated with SCC can lead to immune complex deposition in the kidney and contribute to the pathogenesis of IgA nephropathy in a genetically predisposed patient, which was likely the case for this patient due to a further worsening of his pre-existing SCC burden. It is important for geriatricians to be cognizant that IgA nephropathy can have a late onset and may occur as part of a paraneoplastic syndrome in an elderly patient so that they can take the necessary steps to investigate for possible malignancy in such patients.

D8 Resident Presentation
Keeping the Old Ticker Ticking

A. Ly, M. Hasan, S. Samanani. *Internal Medicine, Baystate Medical Center, Longmeadow, MA.*

Intro: More elderly patients are receiving pacemakers, and studies suggest the procedure is safe, even in those over age 90. The data for improved quality of life is less robust but does suggest reduced falls. The decision for pacemaker placement in the geriatric population is often swayed by underlying comorbidities and the idea of an "invasive" procedure. Our patient initially refused a pacemaker, but had improved quality of life after ultimately having the procedure.

Case: JG is an 85 year old man admitted for syncope. He has dementia, prior stroke with an antalgic gait, and frequent falls, but was still relatively independent at home. He previously refused a pacemaker for tachy-brady syndrome, a decision deemed reasonable due to his age, dementia, and overall goals of care. Collateral history from his family revealed multiple falls, some of which had associated lightheadedness or loss of consciousness. He sustained a radial fracture during one of these falls.

Telemetry showed bradycardia with frequent runs of supraventricular tachycardia but with significant bradycardia when just low doses of beta blockers were started. Cardiology ultimately recommended a pacemaker. The procedure was discussed with a focus on preventing further falls by allowing for adequate treatment of his arrhythmia. The patient and his family agreed. He tolerated the procedure well and was discharged two days later. In follow up clinic he had recovered well. His number of falls had drastically decreased and, as a result, his overall quality of life had improved.

Discussion: When our patient underwent workup, it was evident that at least some of his falls were caused by arrhythmias. Framing pacemaker placement as falls prevention and being very clear about the purpose of the device was critical as the patient and his family had misconceptions about the device functions and scope of the procedure. In this case, pacemaker placement allowed for initiation of beta blockers to manage his tachy-arrhythmias, without causing bradycardia. The combination of these treatment modalities decreased arrhythmias and prevented his cardiac related falls. Certainly, the risks of the procedure, particularly those unique to this population, such as increased risk of delirium with procedural sedation, need to be considered. However, pacemaker placement is a relatively low risk procedure that can decrease falls and improve overall quality of life even in frail elderly patients with multiple comorbidities as seen in our patient.

D9 Resident Presentation, Encore Presentation
Large Saddle Embolism in Coronary Vasculature leads to Flash Pulmonary Edema - A Rare Case Report

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Background: Coronary artery embolism (CE) is a rare cause of acute myocardial infarction (AMI), with an increased risk of death in older adults. Although flash pulmonary edema(FPE) may present following acute coronary ischemia, it has not been reported in the setting of an AMI from a large saddle embolism. To our knowledge, this is the first reported case in literature.

Case Description: An 86-year-old Caucasian female with hypothyroid and dementia presented to ED in acute respiratory distress. Vital signs demonstrated tachycardia and hypoxemia. Physical examination revealed bilateral crackles. A 12-lead electrocardiogram showed sinus tachycardia with ST-segment depressions in leads V2 to V5. Labs revealed a troponin-I of 0.38 ng/mL which increased to 64.50 ng/mL. Treatment was instituted for FPE secondary to NSTEMI. Transthoracic echocardiography showed moderate mitral valve regurgitation and stenosis. Subsequent left heart catheterization revealed a large saddle embolism involving two vessels of non-dominant circumflex coronary artery without associated stenosis. Unfortunately, she sustained cardiopulmonary arrests which lead to her death.

Discussion: CE is associated with poor long-term survival and increased risk of death in the geriatric population. Diagnosis is corroborated by angiographic findings and thromboembolic risk factors in the presence of an AMI. The underlying cause of coronary artery embolism in our patient may be attributed to mitral valvulopathy. Emergent percutaneous intervention may necessitate both thrombus aspiration and stent placement.

Conclusion: The presentation of an AMI from a saddle CE is rare; however it can prove fatal as in our case report. Older adults are particularly prone to complications. Early recognition and appropriate therapy should be instituted promptly to prevent further decline.

D10 Student Presentation
Evalaution of Cognitive Function and Medication Management in Geriatric Primary Care Patients

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Background:
Cognitive impairment impacts the ability of patients to self-manage their health conditions, including medication management. Prior pilot studies suggest executive functioning is more important in medication management than recall, although the "teach-back" method, recalling medication instructions, is commonly used for medication education. This study aimed to confirm if executive functioning plays a greater role than recall in the ability of geriatric outpatients to independently manage medications, assessed through ability to correctly fill a pillbox.

Methods: Thirteen geriatric primary care patients at the Michael E. DeBakey VA Medical Center were enrolled in the study. Patients were administered the Montreal Cognitive Assessment (MoCA) and Pillbox Test.[1,2]

Results: Increased errors on the Pillbox Test correlate with poor overall performance on the MoCA, including executive function and clock-draw (Table 1). There is no correlation between performance on the Pillbox Test and delayed recall.

Conclusions: Difficulty filling a pillbox correlates with poor performance on the executive function portion of the MoCA. Pillbox performance does not correlate with delayed recall on the MoCA. This raises concerns regarding the utility of "teach-back" in assessing patient ability to self-manage medications.

References:
Nasreddine ZS, Phillips NA, Bedirian V, et al. The Montreal Cognitive Assessment, MoCA: A brief screening tool for mild cognitive impairment. JAGS. 2005;53:695-699.

Zartman AL, Hilsabeck RC, Guarnaccia CA, Houtz A. The Pillbox Test: An ecological measure of executive functioning and estimate of medication management abilities. Archives of Clinical Neuropsychology: The Official Journal of the National Academy of Neuropsychologists. 2013;28:307-319.

Two-sided Student's t-test p-values

Variable	No Pillbox errors vs. ≤5 errors	No Pillbox errors versus >5
Correlate home values	0.95	0.015
Medical diagnosis of cognitive impairment	0.25	0.017
Number daily unique medications	0.45	0.88
Total MoCA score	0.043	0.0038
Executive function portion MoCA	0.29	0.0067
Clock-draw	0.29	0.013
Time complete Pillbox test	0.27	0.95

D11 Resident Presentation
Call for Vigilance: Clinical Consequence of Overlooking Mild Cognitive Impairment

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Background

Mild cognitive impairment (MCI) is an intermediate state of cognitive dysfunction between age-appropriate decline and early stages of dementia. Despite objective evidence of a decline in one or more main cognitive domains, MCI represents an independent functional state without interference with activities of daily living; as such, it often goes under-recognized.

Case Presentation

72- year-old male with multiple comorbidities was admitted for the management of groin and abdominal wall cellulitis complicated by acute renal failure due to obstruction. He underwent left ureteral stent and right percutaneous nephrostomy tube placement. His hospital course was complicated by delirium, which was presumed to be multifactorial with elements of toxic and metabolic encephalopathy. While confused, he had a poor appetite, requiring nasogastric tube insertion for tube feeds. Work-up for reversible causes of delirium included an arterial blood gas, TSH, vitamin B12, and ammonia levels and an EEG all of which were within normal limits. MRI of the brain revealed microangiopathic changes. Given his slow improvement in mentation, the geriatric service was consulted, and collateral history was obtained which was consistent with mild cognitive impairment. He had been having progressive cognitive decline, had become homebound with issues paying bills and taking his medications. Due to delayed recognition of his baseline status, he had a prolonged hospital stay (25 days) awaiting return to presumed "normal" function.

Discussion

This case demonstrates the importance of early identification of MCI. Poor insight into our patient's cognitive decline affected both the primary inpatient team and the family's ability to recognize his baseline—thereby introducing issues with safe discharge planning and incurring additional financial cost. The patient's final discharge diagnosis was early dementia. Data has shown that octogenarians with MCI who develop delirium during hospitalization are more likely to be diagnosed with early dementia as compared to those who do not experience delirium.

Conclusion

Early recognition of MCI by physicians is crucial because of its influence on clinical outcomes and appropriate care planning among the geriatric population during an inpatient hospital stay.

D12 Resident Presentation
Multiple Myeloma with Cast Nephropathy as a Cause of Significant Morbidity in the Elderly.

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A 71-year-old previously healthy man presented with a history of a few months of progressive lower back pain now limiting his ability to stand as well as new rib and shoulder pain. Exam showed tenderness at T12. Labs showed Hb 9.5, K+ 5.5, BUN 72, Cr 4.0 and ionized Ca of 1.55. Multiple myeloma was highly suspected. Kappa light chain was elevated at 9749, free kappa/lambda ratio of 1089 and beta-2-microglobulin was 9.72. SPEP showed IgA kappa and free kappa monoclonal proteins and UPEP showed free kappa monoclonal light chains. Imaging confirmed T12 fracture and many osteolytic lesions of the skeleton. Bone marrow biopsy showed hypercellular marrow kappa-clonal plasma cells. The diagnosis of symptomatic plasma cell myeloma and light chain cast nephropathy (LCCN) was confirmed. He was managed with IVF, calcitonin, and zoledronic acid. He received 4 sessions of plasmapharesis with significant improvement in his renal function followed by chemotherapy.

Discussion:

Multiple myeloma (MM) is a hematological malignancy characterized by plasma cell proliferation in the bone marrow. Its prevalence increases with age making it a common disease of the elderly with half of patients developing renal disease with cast nephropathy as the most common.

In LCCN, filtered free light chain (FLC) proteins aggregate and can cause tubular obstruction leading to renal damage.

Cast nephropathy in MM is associated with poor 1-year disease survival and renal function recovery is more predictive of overall survival than response to chemotherapy, making appropriate management of renal disease in MM crucial.

Supportive treatment is recommended for all patients including IVF and correction of electrolytes. Conventional therapy involves anti-myeloma agents such as bortezomib. This decreases FLC production, but does not rid the circulating FLC. 60% reduction in the FLC levels in the first 21 days has been shown to produce renal recovery in 80% of patients.

Plasmapharesis is an options for reducing FLCs. Randomized controlled trials have shown mixed evidence for plasmapharesis. However, a recent study showed renal recovery in 3/4 of cases where FLC were reduced by over 50% with plasmapharesis combined with chemotherapy. Despite the approach used, early intervention and management of renal injury in MM is crucial to increase overall survival and decrease disease burden in these patients.

D13 Resident Presentation
A Rare Case of Candida Meningitis

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Case Presentation

A 66 year old man with past medical history of squamous cell cancer of anterior skull status post resection one year ago, presented to the Emergency Department with acute onset of fever and decline in mentation for one day. In the past one year, he underwent multiple invasive neurosurgical procedures including skull mass resection, CSF leak repair requiring a graft, endonasal repair, lumbar drain placement and was recently treated for culture negative meningitis. He was started on meropenem and vancomycin while awaiting CSF cultures. Initially CSF cultures grew *Candida tropicalis*, subsequent CSF cultures grew *Candida kruzei* and *Candida lusitaniae*. The MIC of amphotericin B for *C. tropicalis* and *C. kruzei* was 0.5mcg/ml. MIC for flucytosine for *C. tropicalis* was <=0.6 mcg/ml and *C. kruzei* was 16mcg/ml. Patient received liposomal amphotericin B for 37 days, intrathecal amphotericin B for 10 days and flucytosine for 23 days. His external ventricular drain was exchanged two times during his hospitalization. He underwent endonasal repair of skull base defect, paramedian forehead flap reconstruction of skull base defect and multiple debridements with nasal packing changes. Subsequent CSF cultures showed no growth. His nasal packing was removed. The patient demonstrated clinical improvement and he was later discharged to inpatient rehabilitation facility.

Discussion:

A high index of suspicion is needed to diagnose candida meningitis in patients who are most at risk. This include patients who underwent invasive neurosurgical procedures such as ventriculo -peritoneal shunts and lumbar drains placements, extremes of age, patients with indwelling catheters and patients who received broad spectrum antibiotics therapy.

This case raises alert for the the need to consider Candida species as a potential cause of meningitis and for the increasing incidence of rarer species of Candida after endonasal endoscopic skull base surgeries.

D14 Resident Presentation
A Rare Case of Debilitating Polyneuropathy in MGUS
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BACKROUND:

Anti Myelin associated glycoprotein (Anti-MAG) neuropathy is a rare form of a polyneuropathy, which is associated with IgM monoclonal gammopathy of undetermined significance (MGUS). The pathophysiology is thought to be due to deposition of M protein along the myelin fibers with damage of the nerve fibers. These patients often have an insidious onset of neuropathy and is associated with a debilitating course.

HOSPITAL COURSE:

This is a 76-year-old male with a medical history significant for MGUS, who presented with a 6-month history of progressive and ascending weakness in his bilateral lower extremities which had resulted in him crawling at home. On Physical Exam- 1+ DTRs in his bilateral upper extremities, absent DTR in his lower extremities and absent vibration sensation in his bilateral lower extremities. Lab findings were unremarkable. Due to concern for inflammatory demyelinating polyneuropathy, an MRI of the Cervical and Thoracic spine were performed which showed no lepto-meningeal enhancement or intrinsic cord signal changes. Lumbar Puncture was performed which was also normal. An EMG showed a generalized distal demyelinating and axonal sensorimotor peripheral neuropathy. Due to worsening weakness, a decision was made to treat the patient empirically with IVIG. His symptoms improved transiently with IVIG. Meanwhile, further workup revealed a negative Paraneoplastic Panel and Vasculitis workup. An anti-MAG level was ordered due to concern for an acquired polyneuropathy and was positive with a high titer of 1:25,600. It was decided to start the patient on immune suppression with Rituximab with outpatient follow-up. He was readmitted 2 months later with a 47-pound weight loss and worsening weakness. Due to worsening quality of life and overall decline it was decided to transition the patient to a DNR/DNI and manage the patient symptomatically.

CONCLUSION:

Anti MAG neuropathy though rare, accounts for close to 50% of MGUS associated neuropathies. The symptoms often improve after a course of IVIG, but the improvement is often temporary. Recent evidence suggests the use of Rituximab as therapy to target the CD20 molecule. However, there are limitations due to associated adverse effects. Close to 50% of the patients respond if treatment is started early enough. It is important consider presence of Anti-MAG antibodies in MGUS patients with polyneuropathy and initiate treatment early on to improve prognosis and reduce associated morbidity.

D15 Resident Presentation
Admitting Diagnosis: Caregiver Burnout
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Background:

Physical and cognitive impairments increase with age, leading to the need for support from informal caregivers, often a spouse or child. Providing this support can result in caregiver stress, burnout, and, ultimately, an inability to continue providing care. Caregivers of patients with neurodegenerative diseasesare particularly prone to stress as a result of increased care needs during later stages of the disease.

Case:

A 71-year-old man with Parkinson disease presented to the hospital with worsening rigidity, gait dysfunction and recurrent falls, despite recent uptitration of carbidopa-levodopa. His wife reported that his functional capacity had decreased over the preceding 2 months, and he now required assistance with most activities of daily living. Upon further investigation, he had also presented to the hospital multiple times over the past month for non-motor symptoms, including cognitive impairment, erratic driving with episodic loss of consciousness, constipation and urinary incontinence. His primary care physician (PCP) tried admitting him to a skilled nursing facility (SNF) but was unable to coordinate care and recommended an inpatient admission. During the admission, orthostatic hypotension, delirium and polypharmacy were addressed. He was seen by physical therapy, who recommended rehab, and social work, who recognized that his wife needed more support since he could no longer be left unattended. He was discharged to a SNF while his wife planned to obtain more services at home.

Discussion:

This patient's worsening motor and non-motor symptoms led to greater dependence on his caregiver resulting in caregiver burnout, hospitalization due to delayed care coordination and institutionalization. This case emphasizes the need for primary clinicians to anticipate and recognize increasing care needs of patients with progressive diseases and to help facilitate necessary services to mitigate caregiver burden. Failure to recognize and manage caregiver burden can lead to burnout, unnecessary utilization of healthcare services, hospital admissions and premature institutionalization. Further research should focus on providing anticipatory guidance in progressive disease, using interdisciplinary teams to align patient needs with available resources and recognizing caregiver strain before it becomes burnout.

D16 Resident Presentation
Multiple Systems Atrophy Presenting as Sudden Respiratory Arrest.
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Introduction: Multiple system atrophy is a rare neurodegenerative condition which affects the central nervous system. It may resemble Parkinson's disease with tremors and motor slowing as well as signs of cerebellar and autonomic dysfunction. MSA presents a diagnostic challenge given the rarity of the condition and shared features with other neurologic conditions.

Case presentation: A 70-year-old male with no known medical issues was brought in to the emergency department after sudden onset unresponsiveness and respiratory arrest. He had been intubated by paramedics on arrival. Upon transfer to the emergency department, he was found to be in unstable atrial fibrillation necessitating cardioversion.

While the patient was stabilized on initial presentation, all attempts at extubation during his hospitalization were unsuccessful. Physical examination was notable for a resting tremor, cogwheeling, dysarthria, and multidirectional nystagmus.

History from the patient's wife revealed that the patient over the past 4 years had progressive weakness, requiring the use of a walker or wheelchair. He had also developed a pill-rolling tremor, dysarthria, imbalance, recurrent falls and intermittent urinary retention over the past few months. His wife said he had become homebound. Previously, Carbidopa-Levodopa was trialed for suspicion of Parkinson's disease with no relief of symptoms.

On review of past magnetic resonance imaging, no acute cerebrovascular process or focal lesions were evident; however, our neurology team noted olivopontocerebellar atrophy which was out of proportion to global volume loss, findings consistent with MSA. After discussion with the patient and his family, the patient ultimately decided against tracheostomy and wished for comfort measures only with terminal extubation.

Discussion: MSA is a rare, progressive neurodegenerative condition which often presents with signs of Parkinsonism. MSA is classified into three different subtypes: olivopontocerebellar atrophy, striatonigral degeneration, or a mixed subtype, which was seen in this patient. Our patient's initial presentation with sudden respiratory muscle compromise is usually sequelae of late stages of the disease rather than initial presentation. Prognosis in MSA is poor and there are

no effective disease-modifying therapies available. Therefore management is mainly supportive and early recognition is critical to ensure understanding and facililate goals of care discussion.

D17 Resident Presentation
Suspect Dialysis Disequilibrium Syndrome in Hemodialysis Patients with Stroke-like Symptoms.

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Introduction: Dialysis disequilibrium syndrome (DDS) is a rare but likely under-recognized condition seen in hemodialysis patients. The condition presents with neurological signs and symptoms or altered mental status that occur during or after hemodialysis sessions. Older patients and those with pre-existing neurological conditions are predisposed. Given the variable neurological findings associated with the condition, patients presenting with DDS may raise alarm for a cerebrovascular accident.

Case presentation: A 91-year-old male with end-stage renal disease on chronic hemodialysis was brought from his dialysis center to the emergency department with an episode of unresponsiveness during a routine dialysis. He was nearing the end of his dialysis session when he was found to be nonverbal and unresponsive. He was described as being awake but staring in one direction during this event with a "glazed eyes" appearance. This episode lasted 10-15 minutes in total and en route to the hospital he began to recover towards his baseline. He also had a history of dementia and a previous stroke.

He was admitted for suspicion of transient ischemic attack versus stroke. Physical exam was without any focal deficits. Laboratory findings including blood glucose and computed tomography of the brain were unremarkable. The patient was assessed by neurology and his condition was felt due to transient hypotension episodes during dialysis rather than a cerebrovascular event.

According to history from the patient's son, the patient had numerous similar episodes during dialysis with transient neurological signs and often syncopal-like episodes where he "passed out" for short durations. Given his return to cognitive baseline, he was discharged home the next day.

Discussion: DDS is a rare syndrome characterized by neurologic symptoms of varying severity that affect dialysis patients. DDS is thought to be due to transient cerebral edema caused by rapid fluid shifts during hemodialysis. Those with underlying neurological disease including past strokes and older age are predisposed to the condition. DDS may involve a broad range of neurological signs that may range from confusion and visual changes to seizures and coma. Altogether the presentation may resemble a cerebrovascular event or seizure activity. DDS is a diagnosis of exclusion once other acute pathologies are ruled out based on examination and imaging.

D18 Resident Presentation
Atypical presentation of syncope in older adults

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Introduction: Syncope is a devastating event in older adult. It carries a high mortality and morbidity rate and accounts for up to 6% of all hospitalizations. There is an annual incidence of 2% in those over the age of 80. Our case illustrates an atypical presentation of syncope

Case: JW is a 99-year-old female with past medical history of hypertension and mild cognitive impairment who was found unresponsive in a supine position in her bathroom, covered in urine. Paramedics noted her blood glucose was 89 with otherwise normal vital signs. Family revealed she had more frequent episodes of sudden unconsciousness over the past few months. Most recently, she had up to 3 episodes a week with each lasting 3 to 15 minutes. The clinical

history was suggestive of postictal symptoms and she would slowly regained her consciousness

Initial workup showed that orthostatic vitals were within normal range, and computed tomography imaging of the brain showed no acute abnormalities. She was started on valproic acid for suspicion of seizures, however her electroencephalogram and magnetic brain imaging showed no remarkable findings. Given the unexplained nature of her syncope and high risk for injury, a tilt table test (TTT) and a loop recorder was planned.

TTT showed profound orthostatic signs dropping from supine blood pressure of 120/61 to 65/47 with tilt at 70 degrees after 10 minutes. This confirmed orthostatic hypotension despite her initial orthostatics being normal. She was advised to increase both salt and water intake and wear compression stockings. Compressions stockings alone provided good relief from recurrent episodes. However, she did have a subsequent emergency room visit after family forgot to apply her stockings that morning.

Discussion: Syncope is a potentially life threatening event especially in older adults. Orthostatic hypotension is a common cause of syncope, however atypical clinical presentations, with normal orthostatic vitals as our case confrimed, can disguise the diagnosis. Further evaluation with a tilt table testing maybe considered in these cases prior to invasive procedures such as loop recorders. The patient and family should be counselled and educated about the importance of supportive measures such as compression stockings which can successfully avoid recurrent episodes.

D19 Resident Presentation
Orthostatic hypotension in an older adult with Parkinson's disease

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Background

In community-dwelling older adults, orthostatic hypotension is an important risk factor for unexplained falls. Multiple system atrophy is a sporadic progressive adult-onset neurodegenerative disorder characterized by progressive autonomic dysfunction (including orthostasis) along with motor symptoms of Parkinsonism and/or cerebellar ataxia. MSA is classified into two subtypes depending on the predominant motor features at the time of evaluation: MSA-P (predominant Parkinsonism) and MSA-C (predominant cerebellar ataxia).

Case

EW is an 80 yo female with PMH bladder cancer s/p radical cystectomy, vitamin D deficiency and osteoporosis referred by geriatrics to neurology in 2/2018 for evaluation of imbalance, history of falls and left sided stiffness. Her exam was significant for L-sided Parkinsonism (rigidity, bradykinesia), a wide-based gait and intact cognition. In 4/2018 she sustained a fall resulting in subdural hemorrhage, hemorrhagic contusion and L clavicular fracture. Dehydration and electrolyte abnormalities were addressed. During her rehab stay she was found to have significant orthostatic hypotension, and required both midodrine and fludrocortisone support. Carbidopa-levodopa was then started post-discharge. Follow up visit at the geriatrics clinic had stable vital signs with BP above 100, and was not endorsing dizziness. On chart review, we found she had been hospitalized with orthostasis one year prior. She was educated on fall precautions, and was instructed to liberalize her salt intake and continue PO hydration. She did not report further falls.

Discussion

Here we present a case of possible MSA-P in a patient with recently diagnosed Parkinsonism. Supporting features include prominent orthostasis early in the disease course, postural instability within 3 years of motor onset, gait ataxia. Meanwhile, age of onset >75 years is

a feature that is less supportive of the MSA diagnosis. Perhaps due to MSA being a relatively rare disease, we commonly tend not to consider this diagnosis in our average older adult with orthostatic hypotension. In the inpatient setting, as much attention has been given to orthostatic hypotension as a significant risk factor for unexplained falls in the elderly, the diagnosis of MSA should also be considered in scuh cases.

D20 Student Presentation
Complications and Disabilities Associated with a Case of Calciphylaxis

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BACKGROUND

Calciphylaxis, calcific uremic arteriolopathy, is a rare, life-threatening syndrome of vascular calcification and microvascular occlusion that results in intensely painful ischemic skin lesions[1]. This underrecognized disorder typically affects patients with end-stage renal disease (ESRD) and has a poor prognosis[2].

CASE

A 66-year-old male with multiple medical issues significant for diabetes mellitus, hypertension and ESRD on peritoneal dialysis was admitted with severely painful skin ulcers on the bilateral calves and glans penis which progressed into eschars and then gangrene with infection. The patient underwent surgical debridement to the lower extremities and was initiated on intravenous Sodium Thiosulfate, as well as broad-spectrum antibiotics and wound care. Risks and benefits of surgical interventions to the penis including penile debridement, penectomy and perineal ureterostomy were discussed extensively. However, the patient persisted in his refusal for surgery and desired instead for conservative management and auto-amputation of the glans penis. For urinary assistance and prophylaxis against spread of infection, Foley catheter was recommended. Patient refused Foley catheter but agreed to a suprapubic catheter. Skilled nursing was utilized for wound care and physical rehabilitation, and the patient gained modest functional improvement for discharge home with a caregiver. The gangrenous glans penis later auto-amputated and he was switched from peritoneal dialysis to hemodialysis.

DISCUSSION

A higher incidence of Calciphylaxis is noted in patients treated with peritoneal dialysis as compared to those treated with hemodialysis. Approximately two thirds of patients with calciphylaxis are women. Patients typically have multiple bilateral painful skin lesions which rapidly progress to stellate, malodorous ulcers with black eschars, leading to increases in hospital visits with decline in functionality and quality of life. Sepsis from infected and necrotic wounds is the most common cause of death. The primary goals of treatment are to eliminate risk factors, in addition to removing exudate and necrotic tissue for prophylaxis against infection. Sodium Thiosulfate, an antioxidant and vasodilator that also inhibits calcification of adipocyte and vascular smooth-muscle cells, is used with limited success[1].

REFERENCES

1. N Engl J Med 2018;378:1704-14.
2. J Am Soc Nephrol 2016;27:3421-9.

D21 Resident Presentation
When the Blind Can See: Diagnosing Charles Bonnet in the Hospitalized Patient

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Background: Charles Bonnet syndrome (CBS) is a common disorder with prevalence in patients with visual impairment being 10-15% [1] yet it remains frequently under-reported. This is a syndrome describing visual hallucinations after vision loss and is often under recognized. This leads to delay in diagnosis causing significant distress to elderly patients who are already burdened with failing vision, social isolation, and other medical problems. The timely diagnosis of this distressing but not uncommon condition is of utmost importance, considering the serious implications of the alternative diagnoses[1].

Case Description: A 77 year old male with a past medical history significant for macular degeneration presented after a fall with the concern of worsening cognitive function. Hospital course was notable for non-distressing complex vivid visual hallucinations of "seeing people and children in his room and money blowing out the window". He had good insight that the hallucinations were not real and usually occurred in the evening hours. He did not smoke or drink alcohol. He had normal labs, imaging and neurological exam with negative workup for infectious and metabolic causes for hallucinations. He was otherwise well oriented with normal cognitive exam. He recently started amantadine which was discontinued yet the hallucinations persisted. After taking a thorough history, the hallucinations seemed to coincide with the onset of his vision loss and were consistent with CBS. He was counselled about behavioral changes and prescribed as needed Seroquel. The patient's anxiety about the hallucinations decreased and he was better prepared to manage them.

Discussion: This case highlights that it is imperative for physicians to always inquire elderly people with visual impairment if they have hallucinations and to keep CBS in the differential. A thorough history must be done as many of these patients are not forthcoming due to the fear of being labeled as crazy or "demented". Patient education is key in the treatment of CBS as reassurance not only helps them deal with their hallucinations but can help with their confusion in a delirious state. We recommend behavioral changes as first line treatment followed by olanzapine or quetiapine at low doses.

1. Jacob A, Prasad S, et al. Charles Bonnet syndrome—elderly people and visual hallucinations. BMJ. 2004 Jun 26; 328(7455): 1552–1554.

D22 Resident Presentation
The Importance of Shared Decision Making for the Selective Treatment of Melanoma in a Geriatric Patient

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Background:

Non-melanoma skin cancers (NMSCs) are slow growing and may not contribute to significant morbidity and mortality in geriatric patients. Accordingly, surgical and medical treatments for NMSCs can be deferred if risks of treatment outweigh benefits. On the other hand, melanomas can have significant mortality; thus, deferral of treatment of these high-risk cancers may not be appropriate even in geriatric patients with limited life expectancy.

Case:

A cognitively intact woman aged over 89 with a history of coronary artery disease and basal cell carcinoma on her neck status/post Mohs excision 2 years prior presented to her primary care doctor for a physical exam. Her physician noted a new 1.5 x 2.0 cm asymmetric irregular patch with variegated dark brown and black color on her leg. The patient was hesitant to have the lesion evaluated; nonetheless, she was referred to dermatology. The patient stated full body skin exams are unnecessary at her age; thus, the dermatologist performed a limited skin exam. The dermatologist performed a biopsy of the lesion, which was found to be malignant melanoma in situ (MMIS). She was offered the following three treatment options: surgical excision, topical treatment with imiquimod, or watchful waiting.

Discussion:

For this patient, geriatric principles can help guide treatment. The lag time to benefit of treatment preventing mortality should be weighed against the patient's life expectancy of less than 5 years. Since melanoma could shorten her life span despite her advanced age, it would be prudent to treat. The choice of treatment relies upon weighing the efficacy of treatment with the patient's acceptable risk of

side effects, some of which could affect her long- and short-term functional status. Topical treatment is not the standard of care for MMIS, but it would have less risk of side effects. A wide local excision is the preferred modality to treat, but it could necessitate general anesthesia or result in a large, painful, and difficult to heal incision due poor wounding healing on the patient's lower extremity. Depending on patients' goals, any treatment option or lack thereof is reasonable, and core geriatric principles, such as life expectancy, lag time to benefit, functional status, treatment side effect, and patient preference, can help guide a shared patient-centered decision.

D23 Resident Presentation, Encore Presentation
Staying Against Advice! A Major Ethical Dilemma in a Complex Patient on Acute Care of Elderly Unit

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This is a case of a 62 year-old woman with end stage renal disease on renal replacement therapy, Grave's thyrotoxicosis and HIV-related mild dementia, admitted to intensive care unit due to generalized weakness after missing several weeks of hemodialysis and discontinuing all her medications. She received emergent hemodialysis under sedation and treatment for acute thyrotoxicosis. Once stabilized, she was transferred to the Acute Care of Elderly Unit.

However after a few days, again she began refusing medications, hemodialysis and blood draws. Her mental status was unchanged, she remained alert, oriented in time, place and person, pleasant, able to engage in conversation and maintained a linear and goal-oriented thought process. Her reasoning was that "God had cured her". She refused to discuss advance directives and to be discharged home, or family member's home, assisted living housing or skilled nursing facility. Already six weeks have passed since last hemodialysis.

Because of concerns about her capacity to make medical decisions or to pursue legal action to treat her over objection, a multidisciplinary team was involved: geriatrics, nephrology, endocrinology, infectious diseases, neurology, psychiatry, palliative care, social worker and bioethics. Risks management was involved too. She was deemed to have capacity to refuse treatment based on the fact that she has the ability to communicate her choice and understand the consequences of her actions.

Upon discharge, patient refused the leave the hospital premises. The family became frustrated as they were unable to convince her to go with them. After more than one day sitting in the lobby she was readmitted.

Now the ethical dilemma is: What to do next? Should she be forced to leave the hospital premises escorted by a police? Or just let her stay on alternate level of care until she passes away? What to do if she codes?

Despite multiple family meetings, to date she is still in the hospital where her capacity and decision to refuse treatment has been acknowledged, granting her full autonomy, but unable to get optimum resolution of this case.

It became evident that when it comes to patient care, rules are not carved in stone. This case might be considered exceptional, as she is refusing all care, but insisting on staying in the hospital. Staying against medical advice might become a new dilemma in bioethics.

D24 Resident Presentation, Encore Presentation
Wild Wild West Nile: Fever and Encephalitis in an Elderly Patient

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Encephalopathy in geriatrics is challenging to diagnose and treat. It is crucial to perform a thorough evaluation to ensure a proper diagnosis. This case illustrates how neuroinvasive West Nile disease can present in the elderly as fever with acute encephalopathy. History can be difficult to obtain in these patients, however coarse upper extremity

tremors and bilateral caudate hyperintensity suggested presence of West Nile prior to serological confirmation.

An 86-year-old woman presented for evaluation of altered mental status and emesis. Previously, the patient was independent with all activities of daily living. A week prior, patient developed a cough and slow mentation. Exam was notable for fever 103.5F and inability to follow commands but no focal deficits. Initial labs and CT Head were unremarkable. Antibiotics were initiated for a urinary tract infection and aspiration pneumonia. Her mental status continued to deteriorate until she was unresponsive. Coarse tremor in the bilateral upper extremities was observed. Subsequent labs were notable for leukocytosis. EEG was negative for epileptiform activity. MRI of the brain showed bilateral hyperintensity in the caudate nuclei. Cultures were negative. Patient was treated empirically for meningitis. Serum and CSF were positive for West Nile IgG and IgM. Her mental status slowly improved with resolution of fever and leukocytosis with supportive care. The patient continued to recover before transfer to a skilled nursing facility.

West Nile has been increasingly documented in the United States over the last decade. It typically causes a flu-like illness but less than 1% may progress to encephalitis, meningitis, and polyradiculitis. We present a case of confirmed West Nile with MRI findings of bilateral hyperintensity in the caudate nuclei. Similar findings have been noted with other flaviviruses. The appearance of the MRI in our case fit well with the known pathology of this disease. The explanation for the symmetrical involvement of the deep gray matter by some members of the flavivirus family is unknown. The degree of white matter involvement may be due to small vessel atherosclerosis encountered in elderly patients who are at risk for neurologic complications. This case represents how a well identified infection such as West Nile Virus can present as worsening encephalopathy in the elderly that may be initially misdiagnosed due to other confounding factors.

D25 Resident Presentation
Caregiver Burnout: A Danger to Older Adults with Dementia

D. G. Freeland, J. Colburn. *Johns Hopkins University School of Medicine, Baltimore, MD.*

Caregiver burnout is common in those caring for patients with dementia, and it can result in neglect. Once caregiver neglect is identified, Adult Protective Services (APS) must be notified. Maintaining a therapeutic relationship with the patient and caregiver allows for provision of further interventions including education about dementia and resources for respite care and prevention of burnout.

Mrs. H is an 81 year old woman with dementia, bipolar I disorder, and frequent falls whose husband is her primary caregiver. Her Mini-Mental State Examination score is 18 of 30. She requires help with all instrumental activities of daily living, including medication administration, cooking, reminders to eat, and cues to remember to use her walker. She has bipolar disorder requiring psychiatric medications that should not be abruptly stopped. Her balance is poor without her walker, and she has had several hospitalizations for traumatic injuries after falling.

When Mrs. H did not want to go on a weekend trip, her husband decided that she would be safe at home alone. After many failed attempts to reach the patient, her husband, and other family members, it was determined that the police should assess her safety. They found that she was safe, although they could not confirm if she had taken her medications or eaten that day. The following day, the patient did not answer her phone so the police were called again. While she remained at home alone, she was not visibly injured. Emergency petition was considered to ensure her safety, but her husband returned home after two days. He ultimately did not understand the impact of dementia on her ability to function independently. APS was notified of potential neglect, and her husband continues to bring her to clinic for primary care and is aware of respite care for the future.

People with dementia are at increased risk of abuse, including caregiver neglect. While caregiver education played a role in Mrs. H's situation, she was still left alone without the ability to take her medications, prepare food, or ambulate safely. Mandatory reporting to APS for suspected neglect can cause conflicting emotions for providers due to concerns about affecting patient and family rapport. This case illustrates the challenges related to caregiver burnout and neglect, APS reporting, and the importance of education in dementia care.

D26 Resident Presentation
Pembrolizumab-Associated Adrenal Insufficiency

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Case:

A 79-year-old man with non-small cell lung cancer (NSCLC) was admitted for evaluation of 4 months of generalized weakness, fatigue and abdominal pain. Six months prior to admission, he had received pembrolizumab with good response. Recent imaging showed stable disease. He had chronic iron deficiency anemia, but extensive endoscopic work-up was unrevealing. Mesenteric ischemia, hepatobiliary disease and chronic infection were ruled out as causes for his abdominal pain.

During the hospitalization, he was noted to have hypoglycemia, with blood glucose as low as 21 mg/dL. He had not received any hypoglycemic agents. AM cortisol was 5.8 mcg/dL. An hour after receiving 250 mcg cosyntropin, cortisol was 13.5 mcg/dL, consistent with adrenal insufficiency (AI). Serum ACTH was undetectable, confirming secondary AI. He was started on hydrocortisone, with improvement in hypoglycemia, weakness and abdominal pain.

Discussion:

The symptoms of AI are non-specific, including fatigue, loss of appetite and abdominal pain. Secondary AI does not affect the mineralocorticoid axis and thus does not usually cause the electrolyte abnormalities seen in primary AI, making it a diagnostic challenge.[1] It was our patient's incidentally noted hypoglycemia that ultimately led to the diagnosis of AI.

Pembrolizumab is a PD-1 inhibitor used to treat NSCLC.[2] Endocrinopathies are well-described adverse events associated with immune checkpoint inhibitor therapy. Thyroid dysfunction is the most common endocrinopathy seen with PD-1 inhibitors, but hypophysitis, AI, and insulin-dependent diabetes have also been reported.[3] Given our patient's recent treatment with pembrolizumab along with a steady decline in serum ACTH during treatment, his AI was most likely an adverse effect of pembrolizumab.

Key Point: When evaluating non-specific symptoms in patients treated with immune checkpoint inhibitors, clinicians must remain vigilant for endocrinopathies.

References:

1. Bancos I, Hahner S, Tomlinson J, Arlt W. Diagnosis and management of adrenal insufficiency. Lancet Diabetes Endocrinol 2015;3:216-26.

2. Postow MA, Sidlow R, Hellmann MD. Immune-Related Adverse Events Associated with Immune Checkpoint Blockade. N Engl J Med 2018;378:158-68.

3. Barroso-Sousa R, Barry WT, Garrido-Castro AC, et al. Incidence of Endocrine Dysfunction Following the Use of Different Immune Checkpoint Inhibitor Regimens: A Systematic Review and Meta-analysis. JAMA Oncol 2018;4:173-82.

D27 Student Presentation
NSTEMI in Setting of Hypereosinophilic Syndrome

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BACKGROUND

Hypereosinophilic syndrome (HES) is defined by peripheral eosinophilia (absolute eosinophil count (AEC) > 1500/uL) and organ damage commonly targeting skin, lungs, GI tract, and less commonly, heart and brain. The prevalence of HES is estimated to be 0.4-6/100,000, with onset most common in the 6th decade of life. Clinical manifestations are most often dermatologic, pulmonary, and GI.

CASE

An 86 y/o male with history of HES, paroxysmal afib, GERD, and asthma presented to the ED with epigastric pain, weight loss, fatigue, and nausea. Labs on admission were notable for AEC of 19,049 (WBC 33×10^9/L, 58% eosinophils). Parasite workup was negative. Troponins were mildly elevated and cardiac MRI revealed subendocardial enhancement in basal segments of LV, suggesting inflammation. Bone marrow biopsy was notable for marked eosinophilia. IV solumedrol resulted in dramatic decrease of eosinophilia and leukocytosis. He was discharged on oral prednisone and quadruple therapy for H. pylori gastritis diagnosed on EGD.

Two months later, while on a steroid taper, patient presented to ED with midsternal chest pain, SOB and palpitations. WBC count on admission was 2.2×10^9/L with 8% eosinophils. EKG revealed atrial fibrillation with rapid ventricular response. He was medically managed and underwent cardiac workup including EKG and catheterization revealing non-obstructive LAD infarct; repeat cardiac MRI was consistent with prior imaging suggesting eosinophil-mediated inflammation. Patient was diagnosed with NSTEMI and started on aspirin. Clinical picture & cardiac MRI from both admissions now suggested eosinophilic myocarditis.

Patient is now asymptomatic on low dose prednisone with stable eosinophil count and followed by oncology and cardiology.

DISCUSSION

HES is a rare disorder that can present with nonspecific symptoms including fever, weight loss, SOB, and chest pain. This patient's NSTEMI & H. pylori gastritis demonstrated two pathologies potentially mediated by eosinophilic injury. Workup included cardiac MRI to assess chronicity of inflammation and bone marrow biopsy to determine etiology of his peripheral eosinophilia. Cases of myocarditis and gastritis in patients with HES have been reported and suggest a mechanism for disease. It is important to consider HES in the setting of eosinophilia and organ damage, as HES remains an under-recognized cause of morbidity and mortality.

D28 Resident Presentation
Patent Foramen Ovale Closure in Older Adults: A Square Peg in a Round Hole

E. Burgh, M. Kai. *Providence Portland Medical Center, Portland, OR.*

Introduction: For adults with cryptogenic strokes, recent large randomized trials have suggested patent foramen ovale (PFO) closure is beneficial when compared to medication therapy alone. Current recommendations apply to patients younger than 60 years old with a moderate to large sized PFO and an atrial septal aneurysm. This case illustrates a patient-centered approach to the complex treatment decisions surrounding secondary prevention of cryptogenic strokes in an older adult.

Case Presentation: A 72 year-old woman with two prior transient ischemic attacks (TIAs) presented to clinic after a hospitalization for transient right-sided weakness and aphasia consistent with TIA. A brain MRI showed no acute changes but revealed a remote stroke in the right temporal region, not seen on prior imaging. The etiology

of her strokes remains unclear. She does not have significant carotid stenosis and no arrhythmias were detected during extended cardiac monitoring. She is a non-smoker and does not have hypertension, diabetes, or abnormal cholesterol. A transesophageal echocardiogram revealed a PFO with bidirectional flow and atrial septal aneurysm. The patient would like to discuss strategies to help prevent strokes.

Discussion: Strokes are a major cause of mortality and morbidity in older adults. Approximately one third of strokes have no determined cause and are referred to as 'cryptogenic'. A PFO is a hole between left and right heart chambers that does not close at birth. This heart defect is present in one quarter of the general population and considered mostly benign. One potential cause of a cryptogenic strokes is venous embolism travelling through a PFO, bypassing the lungs, and occluding cerebral blood vessels. Multiple therapies have been proposed for prevention of recurrent cryptogenic strokes in the setting of a PFO including antithrombotic medications and PFO closure. Although evidence is building in support of PFO closure, clinical data has also revealed potential harms associated with the procedure. The FDA approval does not specify age limits or PFO characteristics. The current age recommendations are based on the populations included in the larger trials, with the average participant age around 45. Only one small study included patients over age 60. Aside from the patient's age, she does not have typical stroke risk factors and may fit the demographic of the trials. This case highlights the importance of patient selection in therapeutic decision making.

D29 Resident Presentation
PropanoFall

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Introduction

Propanolol is a first line agent in the treatment of essential tremors. The side effect profile is not well reported in older adults, however, it is generally a well-tolerated medication. It is important to start low and titrate up in geriatric populations due to the potential of developing unpredictable responses to medications.

Case Presentation

A 93 year old male with a past medical history of Alzheimer's dementia, macular degeneration of the left eye and hypertension was admitted with a 3 day history of lower extremity weakness and falls. These were associated with visual hallucinations (seeing people, spiders and worms) without auditory hallucinations. His medications included amlodipine for hypertension and recent commencement of low dose propranolol for an essential tremor. The propanolol was stopped the day prior to admission due to hypotension and sinus bradycardia. Further work up confirmed that he was orthostatic positive and had an acute kidney injury thought to be from hypotension. He was also found to have hyperactive delirium. CT head was negative for acute pathology and lab work up was negative for infection or electrolyte abnormalities. His propanolol was held and his symptoms resolved with intravenous fluids. His delirium resolved spontaneously after three days of hospitalization. It was felt that his hypotension and bradycardia were secondary to propanolol as he clinically improved after the medication was held without further intervention.

Discussion

Our case highlights older adults as a vulnerable group that is more prone to experiencing adverse effects of medications that are otherwise relatively benign. Despite the existence of guidelines recommending medications to avoid in the elderly, caution should be used with any new medication in this population. This perhaps warrants even lower introductory doses with closer monitoring to prevent adverse outcomes and unnecessary hospitalizations.

D30 Resident Presentation
Hydroxyurea-related AML and Myeloid Sarcoma in a patient with Polycythemia Vera

F. Ali. *Internal Medicine, Baystate Medical Center, Springfield, MA.*

We present a case of a patient with PCV, treated with hydroxyurea for ten years, who had a malignant transformation into AML. Various sources have reported malignant transformation to acute leukemia in the setting of a myeloproliferative neoplasm such as PCV. However, the risk of transformation is increased in individuals treated with alkylating agents and hydroxyurea alone is purported to be less likely to produce treatment-related AML.70-year-old female came to the ED after a fall with acute worsening of back pain. Endorsed a 4-month history of generalized weakness and progressive back pain. PMH significant for hydroxyurea-treated PCV diagnosed in 2006, hypertension, DVTs and PE s/p IVC filter, and chronic back pain. Labs showed pancytopenia (WCC of 3.1 k/mm3, Hb of 7.4 gm/dL, Platelets101m MCV of 107.8, MCH of 34.3 with evidence of peripheral blasts:8.1%). CT abdo/pelvis showed a progressively enlarging lytic lesion at T10, which had also been noticed on a scan done one month prior, however, biopsy of the lesion had been delayed due to development of cellulitis. She developed progressive lower extremity weakness due to which an MRI Lumbar spine was obtained revealing complete replacement of the T10 vertebral body associated with mild pathologic compression fracture, severe spinal stenosis with cord compression. She received IV steroids for subacute spinal cord compression. IR Biopsy of the T10 lesion revealed myeloid sarcoma. Peripheral smear:A background of granulocytic precursor cells and monocytic cells supported the morphologic impression of tAML. Oncology team was consulted and palliative radiotherapy was initiated with a plan to start chemotherapy with decitabine. Unfortunately, owing to the patient's poor performance status, the decision was made to forego aggressive treatment. It has been well-established that patients with myeloproliferative neoplasms (MPN) such as polycythemia vera (PCV) have a higher than normal risk of future diagnosis of myelodysplastic syndrome (MDS) or an acute leukemia. Several studies and case reports suggest a correlation between hydroxyurea monotherpay and leukemic transformation of PCV, with one study suggesting malignant transformation in upto 22% of patients. Our patient was noted to have hypodiploidy with cytogenetics revealing abnormalities including a 5q deletion, monosomy 7 and monosomy 17. It is important to note that hypodiploidy and abnormalities of chromosomes 5 and 7 have been associated with de novo and therapy-related MDS and AML.

D31 Resident Presentation
Why am I so tired? Chronic Fatigue Syndrome as a presentation of Coronary Artery Disease in a Nonagenarian Women.

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Introduction:

Ischemic heart disease, including acute MI, may present without typical cardiac chest pain in older patients. If not diagnosed and treated promptly, it can be life-threatening. Non-specific symptoms such as fatigue, dyspnea, palpitations may be the sole presentation of this life-threatening condition.

Case presentation:

A 94 year old African–American woman with history of essential hypertension, dyslipidemia, and chronic kidney diseases presented to the hospital with chronic fatigue, exhaustion and shortness of breath with light activity, such as sweeping the kitchen floor. She was living alone and required only some assistance with IADL. Her family history was unremarkable. She denied tobacco or alcohol use. Vital signs were stable. Physical examination was within normal limits and diagnostic workup including blood chemistry,

cardiac enzymes, electrocardiogram, and CT chest, was all normal. She was recently admitted to the hospital with severe shortness of breath. Diagnostic workup did not revealed an underlying etiology. Shortly after being discharged from hospital, she was re-admitted with syncope. This time she was diagnosed with STEMI. Cardiac stress test revealed no evidence of reversible ischemia, and echocardiogram revealed an LVEF of 30-35%, significantly decreased from her baseline of 70-75%. Cardiac catheterization was not performed due to her advanced age.

Discussion:

Coronary artery disease in older patient, especially older woman often presents silently with non-specific symptoms. This may lead to a delay in diagnosis, misdiagnosis and mistreatment. Even in cases where it is diagnosed promptly, procedures that are otherwise indicated, such as cardiac catheterization, are often underused among older patients with acute MI. Advanced age, female sex, multiple co-morbidities and higher risk for bleeding may exclude some patients from indicated procedures. Our patient, despite her advanced age, remains in a relatively stable condition.

Conclusion:

Life threatening conditions, such as acute MI, may present in atypical ways in older patient. Therefore, subtle and non-specific symptom should not be ignored. Indicated procedure should be considered on an individual basis, and require shared decision making to assess potential benefit to preserve quality of life while considering possible harm.

D32 Resident Presentation
When Advanced Care Planning Isn't In Advance: Lack of Early Intervention in a Heart Failure Patient
J. Clark, M. Hasan. *UMMS - Baystate Medical Center, Springfield, MA.*

Background:

Despite the notion that most Americans would prefer to die at home, more die in hospitals. The majority of patients who die in hospitals in the United States are above the age of 65, and an increasing number are above 85. Early advanced care planning has been associated with improved patient and caregiver outcomes for patients with serious illness by increasing the quality of life of dying patients, improving family members' experiences, and decreasing healthcare costs and recurrent hospitalizations.

Case:

A 91-year-old lady with an extensive medical history including dementia, CHF, CAD, and *S.bovis* endocarditis presented from her rehab facility with shortness of breath and hypoxia. She was found to be in acute decompensation of her heart failure and was treated with diuretics and non-invasive ventilation. This was the patient's third admission in one month for heart failure. Throughout these admissions, there were many family meetings that addressed poor prognosis with her family, who continued to believe that the patient would improve. Despite the patient being 91 with progressive heart failure and significant comorbidities, these advanced care planning discussions did not occur as an outpatient; she remained a Full Code and received aggressive medical treatment for her heart failure and endocarditis. In the hospital, she was somnolent, disoriented, and in a significant amount of pain. Even on maximal medical therapy, the patient continued to decline, and she was eventually made comfort measures only by her family members. She ultimately passed away in the hospital.

Discussion:

This case highlights the complicated nature of end-of-life care in a medically complex elderly patient in the hospital. It exposes the idea that the goals of a patient, a patient's family, and his or her medical team may drastically differ. It also emphasizes that primary care physicians and geriatricians should be cognizant of the fact that many elderly patients, especially those with heart failure, may benefit from early advanced care planning, as the disease can have an unpredictable trajectory.

Conclusion:

Initiating early advanced care planning conversations may allow providers to improve the quality of life for both elderly patients and their families and reduce unnecessary hospitalizations and healthcare costs.

D33 Resident Presentation
Calcium-alkali syndrome in older adults: where disposition for disease meets polypharmacy
J. Burnett, C. McDougall. *Dept. of Medicine, Oregon Health & Science University, Portland, OR.*

A 69-year-old woman with chronic kidney disease (CKD) stage V, heart failure, and chronic dyspepsia presented to the emergency room with 1-2 weeks of malaise, anorexia, and nausea. Her medications included total daily doses of 4 g calcium acetate, 1.5 g calcium carbonate, and 2 g sodium bicarbonate. On arrival, labs were notable for creatinine of 5.68 mg/dL (baseline ~2 mg/dL), bicarbonate of 31 mmol/L (baseline 21 mmol/L), and corrected calcium of 15.3 mg/dL (baseline 10.5 mg/dL). Calcium-containing drugs were discontinued and she was treated with fluid resuscitation and parathyroid hormone antagonism, resulting in electrolyte correction. No malignancy or hormonal derangements were found. She was diagnosed with calcium-alkali syndrome in the setting of advanced CKD and total daily calcium ingestion of 1.6 g from prescribed and over-the-counter (OTC) sources. At discharge, calcium products were discontinued.

This case highlights a classic presentation of calcium-alkali syndrome (CAS), defined by the triad of AKI, metabolic alkalosis, and hypercalcemia in the setting of excessive calcium ingestion. Whereas CAS once commonly affected young men with peptic ulcer disease, in its modern epidemiological permutation the geriatric population is most often affected. Older adults, especially postmenopausal women, are at higher risk for CAS due to age-related changes in bone metabolism and renal function, leading to reduced bone mineralization and impaired renal calcium excretion. These physiologic risks are compounded by pharmacologic risks in the form of absorbable alkalis and calcium-containing drugs. Older adults are vulnerable to pharmacologic risks given that calcium carbonate is widely used for the prevention of osteoporosis and is readily available OTC for the treatment of dyspepsia. Absorbable alkalis used in the treatment of CKD also increase risk for CAS. Prevention of CAS in older adults focuses on restriction of total calcium intake to 1.5 grams daily and avoidance of absorbable alkali products. Clinicians must therefore exercise caution in prescribing calcium and alkali products in older adults and should seek to identify all sources of ingested calcium. When CAS occurs, management involves treatment for acute hypercalcemia and restriction of calcium and alkali intake.

D34 Resident Presentation
Atypical presentation of atrial flutter in the setting of acute thyrotoxicosis while undergoing chemotherapy
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Background: Atrial flutter is an abnormal cardiac rhythm characterized by rapid, regular atrial depolarizations. Symptoms include palpitations, shortness of breath, fatigue, and lightheadedness. A-flutter is caused by any disorder that causes atrial fibrillation such as thyrotoxicosis, OSA, pericarditis, or pulmonary embolism. Atrial thrombus is a feared outcome and can lead to cerebral or systemic embolization. The decision to anticoagulate can be complicated when a patient has both a hypercoagulable state and a bleeding diathesis. Identifying the underlying cause of a-flutter can aid in disease management and guide long-term anticoagulation decisions.

Case : 60yo female with a h/o HTN and breast cancer s/p bilateral mastectomy and adjuvant CTX with doxorubicin and

cyclophosphamide followed by paclitaxel presented with refractory epistaxis and found to be in a-flutter w/ RVR. She had associated fatigue, malaise, and light-headedness. Her exam was notable for tachycardia and pretibial myxedema. Thyroid panel was diagnostic of hyperthyroidism. She was started on a diltiazem infusion and initially placed on a continuous heparin drip. Anticoagulation was not continued because of recent CTX induced anemia requiring transfusions and her acute epistaxis. Endocrinology started methimazole but was unclear why she developed thyrotoxicosis, and heme-onc did not feel her chemotherapeutic agents were associated with hyperthyroidism. Lab markers for TPO and Tg Ab, TRAb, and TSI were negative. Thyroid US was unremarkable. Beta blocker therapy was initiated and methimazole was continued through the completion of her CTX. Follow-up thyroid function testing improved and she was weened off of methimazole. Etiology of thyrotoxicosis remained undetermined but iatrogenic thyroiditis from chemotherapy is of consideration.

Discussion: Hyperthyroidism is one of several diseases that can present with a cardiac arrhythmia. There are multiple causes for hyperthyroidism, however, this patient's chemotherapeutic agents are not commonly identified as risk factors. Primary treatment of hyperthyroidism, and timely discontinuation of offending agents, should improve associated symptoms. Anticoagulation should be considered in patients who do not have a bleeding diathesis because hyperthyroidism is considered a hypercoagulable state.

D35 Resident Presentation
Be cautious of using physical restraints
K. Gupta, A. Shami, V. Ali. *Baystate Medical Center, Springfield, MA.*

Introduction: The use of physical restraints is fairly widespread in the inpatient environment. Physical restraints cause both physiologic and functional consequences including injuries, pressure ulcers, worsening delirium or agitation and severe deconditioning. They are often not removed expeditiously when other measures are available.

Case history:

A 66-year-old gentleman was brought to the hospital after being found confused and wandering on the side of the road by police. He was found to have acute gout of the knee, urinary tract infection (UTI), and acute kidney injury, all potential precipitants of his acute delirious state. Brain imaging showed he had numerous chronic infarcts and small vessel ischemic changes, raising suspicion for underlying vascular dementia. Per family, they had suspected mild underlying cognitive impairment for some time but he was far more altered than usual. Functionally, he was a strong gentleman and independent, climbing several sets of stairs to his apartment everyday without requiring any assistive devices.

In the ED, a posey vest restraint was applied due to agitation. During his hospitalization, he was treated for his medical issues but his course was complicated by unresolved delirium and intermittent agitation despite non-pharmacological interventions. He was trialed on scheduled antipsychotic medications for agitation and received a constant companion to help redirect him.

Despite these measures, he had intermittently received soft restraints and attempts at removal were hindered as the patient became restless during the parts of the day. This, in turn, limited his ambulation during times in the day during a hospitalization of almost two weeks. Unfortunately, this deconditioned him severely, and this once strong gentleman was eventually unable to walk a few feet or climb more than a few steps without assistance. With resolution of his delirium, he was discharged to a post-acute rehab facility.

Discussion:

Physical restraint use for agitation is often accompanied by use of alternative measures to restrain the patient as a last resort which may include pharmacological therapy and constant companion. However, the use of such measures (if employed) should be strictly to minimize the need for physical restraints and reduce risk of harm to the patients or others. The result of prolonged restraints, as shown in our case, can lead to a very significant change in the patient's functional status.

D36 Resident Presentation, Encore Presentation
A Series of Unfortunate Events
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Introduction

Transcatheter aortic valve replacement (TAVR) has revolutionized the management of severe symptomatic aortic stenosis (AS). Studies have shown TAVR is superior to surgical aortic valve replacement (SAVR) in reducing mortality and peri-procedure strokes. We present a case of a female who underwent a TAVR but unfortunately suffered multiple complications.

Case presentation

We present a case of a 92-year-old female with a past medical history of hypertension and diabetes mellitus. Despite her advanced age, she was independent with activities of daily living and enjoyed painting and playing Bingo on Sundays. She had recurrent episodes of dyspnea with exertion and pre-syncopal episodes, which prompted work up with a transthoracic echocardiogram. This revealed preserved left ventricular ejection fraction and severe AS with an aortic valve area of 0.82 cm^2. The patient was evaluated by a multidisciplinary team and was recommended for an elective TAVR procedure. During the procedure, she developed a plaque rupture propagating an embolus into her coronary sinus resulting in an ST segment elevation myocardial infarction requiring 2 drug-eluting stents. The TAVR was unsuccessful due to challenging anatomy and hence she underwent aortic valvuloplasty. Furthermore, she developed a large hematoma at the femoral access site requiring multiple blood transfusions. Her post procedure stay was complicated by melena likely secondary to newly initiated dual antiplatelet therapy. Given her multiple complications and prolonged hospital course she declined further interventions and opted for comfort-focused care.

Discussion

The triad of symptoms classically associated with severe AS are syncope, angina and dyspnea. These symptoms can be a major hindrance to a good quality of life. Beyond medical optimization the traditional approach for severe symptomatic AS has been SAVR. Recent advancements in minimally invasive procedures including TAVR have provided a viable alternative for high-risk patients with multiple comorbidities at an advanced age. While TAVR remains a relatively safe procedure it is important to bear in mind that every procedure carries certain inherent risks and a comprehensive risks and benefits discussion is important prior to any intervention.

D37 Student Presentation
Adverse Events in Radiation/Biologic Combination Therapy for Older Non-Small-Cell Lung Cancer Patients
K. B. Yerigeri,[1] J. Zhang,[2] K. Marrone.[2] *1. Northeast Ohio Medical University, Rootstown, OH; 2. Sidney Kimmel Cancer Center, Johns Hopkins, Baltimore, MD.*

Background: Pre-clinical investigations suggest radiotherapy (RT) can potentiate the tumor microenvironment for immune checkpoint inhibition (ICI), a biologic therapy, in addition to direct cytotoxic effects. Monoclonal antibody suppression of programmed death-1 and its ligand (anti-PD-1/PD-L1) have become standard of care in treatment of advanced or metastatic non-small-cell lung cancer (NSCLC). This retrospective analysis explores whether RT as an antecedent for ICI increases the frequency and severity of toxicities in older patients.

Methods: The Johns Hopkins Upper Aerodigestive Diseases Immunotherapy Database was queried for all patients ≥ 75 years old

treated with prior RT and anti-PD-1/PD-L1 agents as part of a clinical trial or standard of care. Demographic data, specific NSCLC therapies and dosages, disease progression per CT scans, and toxicities graded by Common Terminology Criteria for Adverse Events (CTCAE) v.4 were extracted.

Results: Eighteen patients ≥ 75 years old receiving anti-PD-1/PD-L1 agents for locally advanced or metastatic NSCLC were identified with prior RT. Three patients were female; median age was 81.6 years (range: 75.8-90.7) with ECOG PS=1 (range: 0-3). Nine patients received ICI within one year (≤ 1yr) of completing RT; nine after more than a year (> 1yr). In ≤ 1yr ICI patients, median doses received was 6 (range: 1-22), rates of 78% all-grade toxicity and 33% high-grade (3+) toxicity were seen, and 56% were taken off treatment due to adverse events (AE). In > 1yr ICI patients, median dose administration was 2 (range: 1-8), all-grade toxicity was 67% and high-grade was 56%, and 67% were taken off due to AE. High-grade toxicities included dyspnea (n=4), pneumonitis (n=2), cardiac pain (n=1), aspiration (n=1), delirium (n=1), and pleural infection (n=1).

Conclusions: The results indicate elevated high-grade toxicity frequency in older NSCLC patients receiving combination therapy compared to monotherapy, insinuating adverse reactions specific to the older population. Further evaluation and understanding of the physiologic mechanisms of RT, ICI and combination-therapy in older NSCLC patients is needed.

D38 Resident Presentation
Sublingual atropine-induced delirium in Elderly Patient with Sialorrhea, a case report

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Introduction

Anticholinergic agents are a well-known cause of altered mental status in elderly patients and are usually avoided. Sialorrhea is a common symptom in Parkinson disease and sublingual atropine has been proved to an effective treatment. To our knowledge, we present the first case of delirium induced by sublingual atropine.

Case presentation

We present a case of 83-year-old male who presented with confusion, restlessness, and picking at imaginary objects. He was agitated and not cooperative. He has a past medical history of Parkinson disease and he is on levodopa/Carbidopa. His symptoms started acutely after arriving from the overseas trip. History was provided by the family who denied any recent infection, fever or any other symptoms. He had no recent change in his medications. He was vitally stable and had a normal physical examination. He had normal CBC, electrolytes and urine analysis. He had normal chest X-ray. On further history, wife reported that patient started using atropine drops for excessive salivation two weeks ago based on family doctor recommendations overseas. He used it during the flight after lunch. Atropine was stopped and the patient improved after two days. He was discharged home.

Conclusion

Anticholinergic medications such as atropine are usually avoided in geriatric population as they increase the risk of delirium. Elderly are at higher risk to develop central anticholinergic syndrome given their low metabolism and drug clearance. Herein, we present the first case of delirium induced by sublingual atropine drops to alert clinician about the possibility of developing this complication at lower doses of medicine.

D39 Resident Presentation
Hemorrhagic herpes encephalitis presented with visual hallucination and delirium; An unusual presentation in an elderly woman

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Introduction:

Herpes simplex encephalitis (HSV) is a serious medical condition with a high mortality rate reaching 70% if left untreated. It can present in hemorrhagic form and has a variable clinical presentation. We describe a challenging case of hemorrhagic herpes encephalitis that presented as delirium and visual hallucinations without a CSF finding. This case emphasizes the importance of early consideration of HSV encephalitis in the differential of an elderly patient with delirium.

Case presentation:

An 85-year-old female presented with fluctuating consciousness status, headache and visual hallucinations. She has a past medical history of mild cognitive impairment. She was living independently and had no limitations in performing daily activities. The patient developed the symptoms a month before presentation. She also developed difficulties in performing daily activities such as dressing herself and feeding. She was initially treated as occipital neuralgia in the setting of normal MRI she had at outside hospital. She continued to deteriorate and was found to have weakness and papilledema at her neurologist office and was sent to our medical center for further workup. She was afebrile and vitally stable. She had head CT scan which showed vasogenic edema. MRI brain showed findings of temporal and occipital hemorrhagic meningoencephalitis. She was treated with IV Acyclovir given high suspicion of HSV encephalitis. She had lumbar puncture two days after which was significant only for high protein. She had extensive workup including ANA, Lyme, rheumatoid factor, cryoglobulins and SPEP were all negative. She improved on IV acyclovir, and she was discharged.

Conclusion:

Delirium is a common medical condition in the geriatric population. There are multiple causes of organic delirium including brain infection. HSV is a common cause of encephalitis, and the diagnosis highly relies on CSF analysis. Although uncommon, multiple cases have reported that CSF analysis could be normal in HSV encephalitis. Our case report presents an atypical presentation of HSV encephalitis and reinforces the need for a low index of suspicion and early empiric therapy to decrease mortality.

D40 Resident Presentation
Mending a Broken Heart: Considering TAVR in a Centenarian

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Introduction: Aortic stenosis, a condition that both affects quality of life and functional ability, is associated with advancing years. Transcatheter aortic valve replacement (TAVR) is an accepted standard of care for severe aortic stenosis. As the number of centenarians in the US grows, there will likely be more discussions regarding surgical procedures in this population. This case study focuses on one particular centenarian's evaluation for and consideration of TAVR.

Case: 102 year old independent living female with history of SVT, carotid artery stenosis, paroxysmal AFib, hypothyroidism, hypertension, GERD, OA, and CKD presented to hospital after experiencing a presyncopal event while walking to Mass. The patient described the event as a sudden onset of profound weakness in her arms and legs as well as shortness of breath, forcing her to sit down immediately. There was no accompanying chest pain and/or diaphoresis. In the hospital, the patient was put on telemetry and evaluated by Cardiac Electrophysiology. She was diagnosed with symptomatic

sick sinus symptom that would benefit from pacemaker placement. On evaluation for surgical appropriateness, patient was found to have severe aortic stenosis. Because of her severe AS, this patient would need to undergo TAVR to be a candidate for pacemaker placement.

Discussion: While there is limited data on TAVR in centenarians, and even nonagenarians, an estimated 16% of adults over 90 years old have undergone the procedure. Recent research has indicated that while initial mortality may be higher and short-term outcomes more complicated in these older adults, the long-term benefits they receive may be equal to relatively younger adults. By illustrating a case involving a community-dwelling centenarian and the discussion regarding TAVR, we seek to bring awareness that the procedure may be an option for older adults and allow for improvement of quality of life.

D41 Resident Presentation
Two Broken Hearts
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Mr. M was a 71-year-old retired security agent and primary caregiver for his wife of 49 years. His past medical history was notable for severe coronary artery disease, congestive heart failure, and atrial fibrillation. He was admitted to the cardiac progressive care unit with 2 day history of dyspnea, thought to be in setting of acute decompensated heart failure. On hospital day 3, he was found to be hypotensive, bradycardic, and went into pulseless electrical activity arrest. Resuscitation attempts were unsuccessful. Four days after Mr. M's death, his wife Mrs. M was admitted to the same service with nausea, vomiting, and elevated troponin. She also had a significant cardiac history with poorly-controlled type 2 diabetes. She underwent a left heart catheterization that showed moderate to severe 2 vessel disease not amenable to revascularization. Per her request, Mrs. M was discharged on hospital day 2 to attend her husband's funeral.

Mrs. M subsequently underwent 4 more hospitalizations due to diabetic ketoacidosis. Her family noted a dramatic decline in her emotional and physical health, complicated by ongoing grief, difficulty performing activities of daily living, and managing her insulin regimen. On her last admission, she was intubated for airway protection and found to have profound acidemia, hyperglycemia, acute renal failure, and shock requiring maximum dose of 2 vasopressors. Her children expressed that she would have wanted to pass peacefully and that Mr. M would have supported this decision. Her care was thus transitioned to Do-Not-Resuscitate, Do-Not-Intubate, comfort measures. Mrs. M died 41 days after her husband's death.

Older, widowed patients have a 48% increase in mortality risk in setting of bereavement.[1,2] This phenomenon has been described as the "widowhood effect."[3] Mr. and Mrs. M's story reflects the importance of anticipating acute and chronic impacts of widowhood, recognizing factors that may contribute to poor health outcomes, and supporting vulnerable individuals during times of grief.

1. Patton KK, Glymour MM. In anticipation of grief: Using insights from social epidemiology to improve quality of care. Circulation 2013; 128:2725-2728.

2. Sullivan AR, Fenelon A. Patterns of widowhood mortality. J Gerontol B Psychol Sci Soc Sci 2014; 69(1): 53-62.

3. Parkes CM, Benjamin B, Fitzgerald RG. Broken heart: A statistical study of increased mortality among widowers. Br Med J 1969; 1(5646):740-3.

D42 Resident Presentation
Providencia Species: Ubiquitous But Dangerous Agent of Disease Amongst Elderly Patients
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Providencia rettgeri (P. rettgeri) is an uncommon clinical isolate that seldom causes significant disease burden in humans, but it's ability to form biofilms allows for a particular niche in the catheterized urinary tract, and carries the potential for considerable morbidity and mortality in the elderly population. Here, we report a case of *P. rettgeri* infection in a patient with an indwelling foley catheter leading to systemic illness.

Our case involves a 65 year old male who was admitted to the ICU for hemodynamically unstable lower GI bleeding with bright red blood per rectum causing acute blood loss anemia. He was transfused 16 units of packed red blood cells and 1 unit of fresh frozen plasma to maintain homeostasis, and a foley catheter was placed on admission due to the acuity of his illness. The patient was taken to the endoscopy suite where he underwent bidirectional scoping with EGD and colonoscopy which showed large bleeding diverticula at the hepatic flexure which were banded endoscopically. His hospital course was complicated by transfusion related volume overload causing hypoxemic respiratory failure, and so his foley catheter persisted due to a need for diuresis. Two weeks into his hospital stay, the patient became febrile and blood cultures grew *P. rettgeri*. His foley catheter was discontinued, he was treated with course of IV piperacillin-tazobactam, and repeat blood cultures were negative. After extensive participation with physical therapy, he was eventually discharged to home in stable condition.

Providencia infections account for one of the most common catheter-associated urinary tract infections in the elderly, and are especially prevalent amongst hospitalized patients and residents of care facilities with long term catheters. Most *Providencia* species isolated from long term catheters are resistant to multiple antibiotic agents, and studies have shown that the mortality rate from *Providencia* bacteremia can be quite high, and often fatal in elderly patients with severe comorbid diseases. While our patient's outcome was favourable, it is important to recognize that *Providencia* species, though commonplace in the environment, should be considered a critical opportunistic pathogen in elderly patients with comorbid disease requiring long term urinary catheters, and emphasis should be placed on infection control practices to prevent the spread of this often multidrug resistant species.

D43 Resident Presentation
Nutrition, Dietary Modifications and Palliative Dental Care in Dementia Patients: A Case Study
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Background: Malnutrition is commonly seen in older adults with dementia. Nutritional supplements help increase caloric intake, but are often high in added sugars, which contribute to oral diseases such as dental caries. Oral diseases can result in pain and interfere with food intake and nutrition.

Case: A 90-year-old male with history of Alzheimer's disease, depression, pressure injuries and failure to thrive was seen for dental evaluation in a nursing home. His medications included donezepil, memantine and sertraline. The patient appeared cachectic, had poor appetite and experienced significant weight loss since admission to the home. His nutritional recommendations included a regular diet, oral nutritional supplements and between meal snacks, such as cookies, pudding and ice cream, to help increase caloric intake.

The dental examination revealed 10 missing teeth, 9 dental caries, an abscess in a lower molar, and 3 teeth broken at gum level. His chewing function was limited to the right side due to missing teeth on the left side of his mouth. Considering his high dental caries risk

and difficulties in undertaking complex dental procedures, the care team decided to provide palliative dental care. This included symptomatic relief and an aggressive oral hygiene protocol for prevention of further oral diseases.

The care team reviewed the patient's dementia medications, which could negatively impact his appetite and weight. The team recommended nutritional and dental reconciliation, as high amounts and frequency of sugar intake worsen the severity of dental caries. Prescribed snacks were substituted with less cariogenic foods with little or no added sugars, such as fruits, cheese and milk, which the patient enjoys. This ensured a greater chance of acceptance and successful tapering of cariogenic snacks and supplements. In addition, close supervision and cueing at meal times can help ameliorate his inadequate meal intakes.

The goals of care for this patient are control of chronic medical conditions, adequate nutrition and preventing exacerbation of oral diseases.

Conclusion: This case demonstrates the multi-factorial nature of malnutrition in a patient with dementia and the benefits of an interdisciplinary approach in caring for the geriatric patient.

D44 Student Presentation
Rehabilitation Challenges in a Patient with Relapsing-Remitting Multiple Sclerosis

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BACKGROUND

Multiple sclerosis (MS) is the most prevalent chronic inflammatory disease with progressive deterioration of the central nervous system and is currently incurable[1]. MS is characterized most commonly by impaired ambulation, loss of bladder control, and slowed cognitive processing with a huge economic burden on health care system.

CASE

A 68 year old female with MS presented with right facial droop, dysarthria and dysphagia. MRI with Gadobutrol of brain showed new focus of restricted diffusion within the right posterior midbrain consistent with acute ischemia vs active demyelinating plaque. Neurologist attributed her symptoms to a flare of multiple sclerosis. Although it was initially treated as a stroke, she later received steroid therapy and was transferred to skilled nursing facility (SNF) for rehabilitation. At baseline, patient had paraparesis with gait impairment, cognitive dysfunction, and bladder disfunction. With two weeks of intense physical and occupational therapy, her Functional Independence Measure[2] (FIM) only improved from 43 to 47.

DISCUSSION

The MS is classified as either relapsing-remitting, more common, or primary progressive based on the initial disease course[3]. Women are affected three times more often than men and the incidence is increasing. Recovery from relapses is variable and can be incomplete. Typical syndromes at presentation may include monocular visual loss, double vision, limb weakness, or ataxia. A progressive course develops in many patients leading to impaired mobility and cognition. MS has both genetic and environmental risk factors. High-resolution MRI is used as a tool for noninvasive staging of lesions which are most easily recognized in the white matter as focal areas of demyelination, inflammation, and glial reaction. Demyelination also involves gray matter, but the lesions are less inflammatory. The FDA has recently approved several medications for modifying the course of multiple sclerosis including the monoclonal antibodies[1]. All are approved for relapsing–remitting MS and to reduce new white-matter lesions, clinical relapses, and stepwise functional decline or disability. At present, it still remains uncertain that MS can be fully arrested with current therapeutic agents.

REFERENCES
1. N Engl J Med 2018;378:169-80.
2. Adv Clin Rehabil 1987;1:6–18.
3. Lancet 2017;389:1336–46.

D45 Resident Presentation
Dramatic cognitive improvement after Pacemaker insertion

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There is no consensus in prior publications on the effects of implantable cardiac devices on cognition in the elderly, it remains unclear if there is a definite positive effect.

We present a case of a 79 year-old woman with recent history of frequent falls, brought to the emergency room after her neighbor found her disoriented, on the apartment floor for an unknown period, presumably after a fall. The patient is highly educated and independent but neighbor reported her having progressive cognitive decline for the last three months. On admission, she was in delirium and not able to answer questions or provide a clear recollection of recent events. Physical exam showed stable vitals, temporal wasting, and very thick skin of both lower extremities associated with severe edema. Detailed neurological assessment revealed that the three point recall and clock drawing were abnormal. She was admitted to the Acute Care for Elders (ACE) unit and placed on continuous heart monitoring. Brain tomography and echocardiogram were unremarkable, and blood workup showed no metabolic, vitamin or hormonal imbalances. Her initial electrocardiogram (ECG) showed normal sinus rhythm and rate, but on the next day, marked bradycardia and Mobitz type I atrio-ventricular (AV) block was seen on the monitor and repeated ECG, with a rate nadir of 32 beats per minute, raising the suspicion for bradyarrhythmia as the etiology. After atropine therapy failure, a dual-chamber pacemaker was inserted, after which her heart rate's pacing was stabilized. The post-pacemaker assessment showed markedly improved cognition, scoring 20 points out of 30 on mini-mental status exam, and visibly reduced lower extremity swelling. Interestingly, she was able to draw a clock reasonably accurately. Patient was discharged with home physiotherapy.

This case impressively demonstrated the benefit of pacemaker on the mental performance of the patient. A careful history, a thorough physical exam and documenting the cardiac rhythm is essential to establish a direct correlation between cognitive symptoms and bradyarrhythmias. Physicians should be aware of this fact in cognitively impaired patients. Pacemaker not only improved patients' symptoms but had a significant impact on the quality of life.

D46 Resident Presentation
Megaloblastic mania with low normal vitamin B12 levels in the elderly

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Vitamin B12 (cyanocobalamin) deficiency has been related to neurological problems, but its relation to psychiatric manifestations is not well documented with limited literature on the need to supplement in low normal states.

We present a case of a 66 year-old homeless man with an unknown medical history, who presented to the emergency room (ER) after a fall secondary to assault. He sustained face and head injury with a scalp laceration, requiring staples. After the fall, patient had dizziness with questionable loss of consciousness. Patient was admitted to the Acute Care for Elders unit for safety. He was noted irritable and to have bizarre thoughts and delusions of grandeur declaring himself as son of Christopher Columbus. No coexisting delirium nor hallucinations noted, and his mini-mental state exam was normal. Neurological assessment noted to have intact sensory, motor, proprioception, vibratory responses, and normal reflexes. His initial blood test was significant for macrocytic anemia without any other abnormalities. Due to his psychiatric symptoms and possible history of syncope, psychiatric and neurological consult, full imaging, and blood workup were ordered. His brain tomography, electrocardiogram, carotid doppler

and echocardiogram were unremarkable. Toxicology screen was also negative. Full anemia and vitamin levels workup revealed underlying lower normal vitamin B12 level (229pg/mL). With no other apparent cause of his symptoms, he was started on weekly vitamin B12 parenteral replacement and received a total of four injections. The rest of hospital stay was uncomplicated with good response to B12 therapy. At the time of discharge, mania and delusion resolved completely, and he required no other active interventions for his psychiatric ailment.

This case demonstrates an exciting case of megaloblastic mania. A comprehensive history and physical exam is required to make a correct diagnosis and to rule out other common organic causes of intellectual clouding. In the elderly population, lower normal vitamin B12 levels can still be a trigger for new-onset mania even in the absence of other classical features of B12 deficiency. Physicians should be aware of this fact and more research is needed on this topic.

D47 Resident Presentation
Carcinomatous Meningitis presenting as acute psychosis; a challenge in diagnosis
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Background:

Carcinomatous meningitis, also known as Leptomeningeal metastases (LM), is a destructive impediment that can be a result of advanced cancer. Most commonly patients present with headache, mental status change, and weakness. The diagnosis can be made through MRI or through cerebrospinal fluid (CSF) studies showing malignant cells.

Treatment is dependent on patient's performance status. Patients with moderate neurological deficits and good functional status can be considered for intrathecal treatment. Patients with poor functional status and irreversible neurological loses should be considered for comfort directed care.

Case:

This case discusses an 88-year-old male who presented to the emergency department due to altered mental status and hallucinations. Patient's past medical history consisted of coronary artery disease, congestive heart failure with an implantable cardioverter defibrillator (ICD), as well as recently relapsed adenocarcinoma of the gastroesophageal junction.

Vital signs were concerning as patient was hypotensive with a temperature of 100.4 degrees Fahrenheit. A Cat Scan (CT) of the head without contrast was completed, which was negative for any acute intracranial pathology. A lumbar puncture was done that demonstrated elevated protein, low glucose, and WBC count of 35 and CSF was sent for cytology. He was empirically started on intravenous antibiotic treatment for meningitis, however all tests and culture data were negative for infection and so antibiotics were discontinued.

The patient's CSF cytology returned showing malignant cells. Although the patients vital signs improved, he continued to exhibit symptoms of acute psychosis that attributed to complications of leptomeningeal metastasis. The patient was ultimately made hospice.

Conclusion:

The number of individuals correctly identified with LM is roughly 5 percent. A high index of suspicion and early diagnosis may influence the outcome for these patients. Both MRI of the brain and CSF cytology should be ordered to increase diagnostic efficiency of diagnosis.

Poor-risk patients with low performance status, and extensive systemic cancer such as our patient should focus on palliative care. The goals of our case report is to raise awareness of the rare metastatic possibility in advanced stages of cancer.

D48 Resident Presentation
Chronic lymphocytic leukemia with central nervous system involvement: a rare presentation
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Background

Chronic lymphocytic leukemia (CLL) is the most prevalent adult leukemia and a disease of the elderly. Central nervous system (CNS) involvement is an under-recognized complication that clinicians should maintain a high index of suspicion for.

Case presentation

A 67-year-old female presented with a few weeks of difficulty concentrating, lymphadenopathy and unintentional weight loss. On exam, she had poor concentration and enlarged, non-tender bilateral anterior cervical, supraclavicular, and inguinal lymph nodes. Work-up showed a mild normocytic anemia, mild thrombocytopenia, normal TSH, vitamins B12 and D, and negative Hepatitis C and HIV serology. A peripheral blood smear showed variant forms of lymphocytes with enlarged nuclei and small nucleoli. A CT scan of the head showed a small scalp hematoma. A CT scan of her chest, abdomen, and pelvis showed small pulmonary nodules and diffuse lymphadenopathy: axillary, inguinal, common iliac, retroperitoneal, and upper abdominal. During her hospitalization she continued to have poor concentration and gradually became more confused. On hospital day 3 she underwent a left groin lymph node fine needle aspirate and biopsy which showed small lymphocytic lymphoma/chronic lymphocytic leukemia (SLL/CLL). Flow cytometry showed a clonal B-cell population with kappa light chain phenotype and positive CD19, CD20, CD5, and CD23. A bone marrow (BM) biopsy was done showing extensive BM involvement and malignant cells with identical immunophenotype to the lymph node. A lumbar puncture was done and cerebral spinal fluid (CSF) cytology and flow cytometry confirmed suspected CNS involvement. She was diagnosed with SLL/CLL with CNS involvement and started on rituximab and bendamustine with intrathecal methotrexate.

Discussion

SLL/CLL involving the CNS is likely under-diagnosed. Antemortem studies report an incidence of ≤2%; whereas, autopsy studies show up to 70% of patients with CLL have some CNS involvement. Diagnosis is challenging due to a lack of patient or disease-specific risk factors and a lack of consistent detection on imaging, with ≤ 33% of autopsy-confirmed cases having had abnormal imaging findings. CSF cytology is often necessary and flow cytometry can improve diagnostic sensitivity by differentiating reactive lymphocytes from CLL cells. Treatment with intra-thecal methotrexate and/or whole-brain radiation typically improves neurologic symptoms.

D49 Resident Presentation
Awaiting Palliative Chemotherapy in an Older Adult
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Introduction: The management of cancer is challenging and with lung cancer disproportionately affecting older adults, management can be even more complex as declines in physical and cognitive function accompany aging. Advanced care planning can be better supported in older adult cancer patients with early consultation of Geriatrics and Palliative Care.

Case: We describe a 74-year-old man with metastatic adenocarcinoma of the lung with nodal, adrenal, and bone metastases who awaiting palliative chemotherapy, sustained bilateral segmental pulmonary emboli and a large malignant pericardial effusion with tamponade physiology causing obstructive shock requiring pressor support. Palliative and Geriatrics teams were consulted the first day after his admission to the ICU to assist with complex decision making and goals of care discussions. During the patient's twenty-five-day hospitalization, he had multiple complications meriting the consultative services

of cardiology, vascular surgery, nephrology and oncology. He endured placement of a pericardial drain, developed necrosis of his fingers due to a radial artery embolism and developed disseminated intravascular coagulation followed by heparin-induced thrombocytopenia. Palliative and Geriatrics teams followed the patient and monitored his progress providing care coordination between medical, social, and consultative services. Discussions regarding treatment and end of care goals were visited multiple times. His disposition to a rehabilitation facility was delayed several days due to arrhythmias and hypoxia. After 11 days in rehabilitation, he presented to his oncologist to discuss reevaluation for palliative chemotherapy. In view of his poor performance status, hospice was initiated; one month later he passed away at home.

Discussion: This case highlights the need for a multidisciplinary approach with geriatric and palliative assessments in older adult cancer patients to ensure supportive end-of-life care. Studies demonstrate that geriatric consultation aids in complex treatment decisions and reduces over-and undertreatment of this population. Assessing these patients' life values in the setting of a terminal cancer diagnosis is crucial to delivering care that is in accordance with their wishes. With this in mind, discussions can be had about treatment expectations, responsible care, and advanced care planning that upholds our older adults' dignity and autonomy.

D50 Resident Presentation
An Agitated, Broken heart- Identifying Psychosis as a Cause of Takotsubo in Elderly

M. Dogra, P. Sander, S. Zachary. *Internal Medicine, SUNY upstate medical university, Syracuse, NY.*

Takotsubo cardiomyopathy(TC), also known as "broken heart syndrome", is a unique type of reversible cardiomyopathy that mimics an acute coronary syndrome and is frequently found in patients with emotional, physical, or medical stress without coronary atherosclerosis

Case Presentation

68-year-old female with diabetes, hypertension, and vascular dementia was brought to the hospital for worsening dementia, behavioral disturbances including agitation, insomnia, hallucinations and delusions. Lab workup showed troponin of 0.09 ng/ml, CK of 88 u/l, CK-MB of 2.25 ng/ml. Electrocardiogram showed new T-wave inversions in the anterior leads and new Q waves in the inferior leads. Echocardiogram showed left ventricular ejection fraction of 20-25%, apical ballooning of left ventricular apex and hyperkinesia of the basal walls. Notably, patient denied chest pain or shortness of breath and didn't have a past history of coronary artery disease. A diagnosis of psychosis, secondary to worsening dementia was made and Haloperidol, olanzapine and ziprasidone were initiated. Given the absence of symptoms, no past history of coronary heart disease and her age, a decision was made to not pursue urgent cardiac catheterization. Troponin levels gradually trended downwards. Her mental status returned to baseline within a week. Follow up echocardiogram showed significant improvement in wall motion abnormalities and left ventricular ejection fraction improved to 50%.

Discussion

TC is a unique form of LV systolic dysfunction associated with regional wall motion abnormalities, which extend beyond a single epicardial coronary artery distribution. Patients present with chest pain, S-T changes, and positive cardiac enzymes. It is usually seen in association with intense emotional or physical stressors and is rarely reported with acute psychotic states. The influence of psychiatric illness in the pathogenesis of TC is an under-recognized association. These patients have higher circulating catecholamine levels which may increase their risk of developing TC. This potential association opens room for further research, including the elective decision to avoid catheterization in such cases. Our patient responded effectively to mood stabilizers and made complete recovery without undergoing cardiac catheterization.

We aim to sensitize physicians to identify acute psychosis as a potential precipitant of TC and diagnosis and management of this condition.

D51 Resident Presentation
An Unusual Cause for an Older Adult Fall

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Falls are an important cause of morbidity and mortality in older adults. Approximately 30% of adults above the age of 65 years fall each year, with higher rates in those over the age of 80. When older adults fall, their assessment often focuses on areas of obvious injury or complaint, and may be limited if the older adult has an underlying dementia. At our Level 1 Trauma Center, falls in patients older than 65 is the number one cause of Level A trauma activations. The case below, although rare, will exemplify the need to apply the principles of trauma evaluation in cases of older adult falls.

We present an 84-year-old woman with history of ischemic stroke, HTN, hyperlipidemia and DVT on chronic anticoagulation (> 10 years) who presented with pelvic pain following a ground level fall. Vital signs on presentation were significant for pulse of 115 and blood pressure of 168/79. Physical exam was significant for tenderness to palpation around right hip, bilateral venous stasis changes, right eye with exotropia and non-reactive pupil from an old injury, and 4/5 strength with hyperreflexia in right upper extremity. Strength was normal in other extremities, and the exam was otherwise benign. Per protocol for GLF in older adults on full anticoagulation, a head CT was performed that showed a large left frontal intracranial mass with early herniation. The care team began medical management for increased intracranial pressure immediately. MRI confirmed a 6.1 cm extra-axial hyper-vascular mass in the left frontal region with extensive surrounding edema and mass effect. Once anticoagulation was reversed, the patient underwent urgent resection of the tumor. Final pathology was consistent with an oncocytic meningioma.

Our institution performs screening CT scans of the head at the time of presentation and then 6 hours later on older adults who fall when on full anticoagulation therapy. Oncocytic meningioma is a rare type of meningioma with only 21 cases described thus far in the literature. However, in this case, a standard trauma screening protocol led to an important incidental finding that required emergent medical therapy and urgent surgical intervention. Many falls in older adults are under-evaluated due to a variety of factors including ageism and a lack of awareness of the principles of trauma evaluation in non-trauma center facilities. An organized protocol focusing on patient risk factors, such as anticoagulation status, may provide a way to combat implicit bias and improve outcomes.

D52 Resident Presentation
The Way to a Man's Heart is Through His Stomach: Atypical Presentation of Acute Myocardial Infarction in an Older Patient

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Background: In patients with myocardial infarction, delays in seeking medical attention and receiving care can result in poor short and long-term outcomes. Barriers may include limited social support and failure of patients and providers to recognize atypical symptoms.

Case Presentation: A 66-year-old man with a past medical history of hypertension, Parkinson's disease, and remote stroke presented to his primary care doctor reporting fatigue. At baseline, he is independent of all ADLs and IADLs, lives at home with his wife, and exercises regularly.

One week prior he experienced 2-3 days of a "flu-like illness," with upset stomach, diarrhea, decreased appetite, and a transient sensation of chest discomfort that lasted on the order of minutes and

subsided on its own. After his symptoms resolved, he had extreme fatigue confining him to the bed or couch.

In clinic, vital signs and physical exam were unremarkable. Given his report of transient chest discomfort, an ECG was obtained which revealed large ST elevations in multiple anterior and lateral leads. He was sent directly to the hospital where cardiology felt he suffered a myocardial infarction during his episode of chest discomfort.

He was found to have severe triple vessel coronary artery disease, a left ventricular thrombus, and ejection fraction of 30%. Treatment options included stent placement, coronary artery bypass surgery, or medical management – including starting anticoagulation for his thrombus. The patient, his family, and the cardiology and cardiothoracic surgery teams engaged in shared decision making. He decided to start warfarin and prepare for bypass surgery in the near future.

Discussion: This case illustrates two important concepts when treating older adults: atypical symptom presentation and shared decision making. While the patient was not concerned about his chest discomfort, his primary care doctor astutely obtained an ECG, which was likely life-saving. Shared decision making becomes especially vital when caring for older adults. In this patient's case, he had decision making capacity and a knowledgeable and supportive family. However, older adults are at risk for having limited social support and cognitive deficits which can impact their ability to seek medical attention and make informed decisions when they do.

D53 Resident Presentation
Diagnosis and Management of UTIs in Home-Based Primary Care: A Case Series
M. Gaynor. *Pharmacy, VA ECHCS, Denver, CO.*

Background: Home-based primary care (HBPC) is a multidisciplinary health care service provided in the home to Veterans with complex chronic medical conditions. Urinary tract infections (UTIs) commonly occur in this population and symptoms are often non-specific. There is scarce literature discussing UTI treatment in this patient population. Therefore, it is important to properly diagnose and manage patients with suspected UTIs to prevent overtreatment and improve outcomes. This case series focuses on the effect of provider education on diagnosing and prescribing practices.

Methods: The HBPC team at VA Eastern Colorado Health Care System (VA ECHCS) was provided education about diagnosis and management of UTIs. After the education, patients were tracked for suspected UTI and evaluated for UTI diagnosis and management. Patients with a suspected UTI were treated at the discretion of the provider and pharmacy was alerted for retrospective chart review. HBPC providers received a pre-education survey about current treatment practices and a post-education survey about education effectiveness and areas of improvement.

Results: Eight HBPC patients were diagnosed with a UTI post-education. Five patients met study criteria and were treated for a UTI (male, age 71-99 years). Two patients have indwelling foley catheters, three patients have DM, four patients have BPH, four patients have MCI/dementia, and four patients have a history of UTI. Four patients had a urinalysis/urine culture (UA/UCx) sent prior to treatment and one patient had a UA/UCx completed after starting antibiotics. All patients were treated with antibiotics including cephalexin (20%), ciprofloxacin (40%), nitrofurantoin (20%), and SMX/TMP (20%). Treatment duration was 7 days (60%) or 10 days (40%). One patient developed a *C.Difficile* infection, which was complicated by antibiotic treatment prior to UTI. One patient had a potential recurrent UTI and one patient went to the ER for similar symptoms despite feeling better with antibiotics.

Conclusions: Treating UTIs in the HBPC population is complex and complicated by factors related to patients, providers, location/home-bound, caregivers, and the system. Based on post-education surveys, providers perceived the education as valuable, but none of them used the hand-out or felt the education changed their practices.

Documentation and rationale for diagnosis and management of UTIs can be improved. Follow-up education can potentially address issues and further research needs to be conducted.

D54 Resident Presentation
And it was all yellow!
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Introduction:

Drug-induced liver injury (DILI) refers to drug-induced hepatic dysfunction in the absence of another etiology or underlying liver disease. It's the commonest cause of acute liver failure (ALF) and post-marketing drug withdrawal. Presentation is variable. We present a case of cefepime-induced DILI, which is rarely identified in literature.

Case:

An 86-year-old female presented with anemia and transaminitis in the setting of recent eosinophilic pneumonia treated with vancomycin and cefepime. She appeared jaundiced, and initial work-up revealed a dropping hemoglobin with hemolytic pattern, transaminitis, eosinophilia, and MELD score of 21. Direct Coombs test confirmed IgG hemolytic anemia, so prednisone was initiated. Despite improvement in hemoglobin, her transaminitis continued to worsen. Differential diagnosis focused on viral/autoimmune hepatitis and DRESS syndrome, however, viral panel and auto-antibody screen were negative. Lack of an alternate explanation prompted liver biopsy, revealing a cholestatic hepatitis with focal hepatocellular necrosis consistent with DILI. Transaminases began to improve on day 12 post-exposure, and Cefepime was identified as the culprit drug.

Discussion:

Multiple substances cause DILI, with acetaminophen and antibiotics being most prevalent. Clinical clues are subtle, so a high index of suspicion is required. This case highlights that diligence be present in identifying cases where culprit medication might not be well recognized. The predilection for females could lead to unnecessary healthcare expenditure through extensive autoimmune work-up, as well as to the condition being overlooked in men. Cephalosporins rarely lead to DILI, presenting with a cholestatic pattern of liver injury, sometimes associated with non-specific findings such as fever, rash, eosinophilia, or jaundice. Liver biopsy is the gold standard for diagnosis, but should be reserved until alternate diagnoses have been excluded. Prognosis is favorable if the implicated agent is discontinued, however, progression to ALF is possible with a grim outlook in absence of liver transplant.

Hospital day	AST	ALT	ALP	Bilirubin	Direct bilirubin	Hemoglobin	LDH
1	119	282		25.3	20.0	7.2	740
3	1182	1340	298	15.6	11.2	9.4	701
4	676	1285	283	15.9	12	8.9	494
9	345	827	264	7.1	4.6	9.8	

D55 Resident Presentation, Encore Presentation
An Outlandish Neurological Side Effect of Marijuana in Elderly Woman After First Time Use.
M. M. Majmundar, S. Chaudhari, E. Roffe. *Internal Medicine, Metropolitan Hospital, New York, NY.*

Introduction:

In view of the expeditiously altering panorama regarding legalization and decriminalization of marijuana use for medical and recreational purposes, it is needed to inform the community and public about harms and benefits associated with marijuana use.

It is well established that acute marijuana usage is associated with psychosis, mania, reduced memory and impaired attention. Marijuana has been tried but not approved as a treatment for several movement disorders.

Case Presentation:

84 year-old woman with low back pain secondary to compression fracture of lumbar vertebrae. Neurosurgery deferred surgical intervention because of advanced age. Patient had persistent pain despite taking maximum doses of acetaminophen, gabapentin, tramadol and oxycodone. Out of agony, she tried marijuana infused tea for the first time ever. Following which, she was confused, mumbling few words and displayed shaking movements of her head (titubation) and tremors of both hands. Laboratory and computer tomography was unremarkable. On follow up, after 12 hours, she became alert, oriented and tremors resolved. Patient was discharged home.

Discussion:

Marijuana use is very common in younger individuals. However in older patients, specific presentations of benefits and side effects are not well documented in the literature. Since pain management is a mayor challenge in elderly patients, and due to its publicity advantages, older people are likely to try it too. Our patient had unexpected tremors and titubation after first time use of marijuana, we believe more observational studies might be needed to be aware of marijuana side effects in the geriatric population.

D56 Resident Presentation
Amiodarone Woes: A case of overt hypothyroidism
A. Kudrimoti, <u>N. D. Stewart</u>. *Family and community Medicine, University Of Kentucky, Lexington, KY.*

Case presentation: 96-year-old female with Alzheimer's dementia and constipation presented 4 years ago with Atrial Fibrillation with rapid ventricular rate. Amiodarone 200 mg daily was added to Metoprolol for improved rate control. The patient was euthyroid at the time amiodarone was started. At routine annual TSH check, it was noted that the TSH (7.61, ref. 0.4-4.2) was elevated 4 years after the initiation of amiodarone. The level was rechecked two months later and rose to 19.64. TSH peaked at 21.99 one month later with a low T4 level (0.7, ref. 0.8-1.7). As the patient continued to have memory decline levothyroxine 50mcg was started to see if it would improve her memory. Amiodarone was reduced from 200mg to 100 mg while monitoring heart rate to maintain the lowest dose of Amiodarone. TSH recheck 3 months after initiation of levothyroxine was 6.68 and 4.68 two months later. TSH returned to normal eight months after starting levothyroxine and continued till today. Prior to diagnosis of hypothyroidism, she began to have worsening of mental status and was attributed to new diagnosis of Alzheimer's and there was no improvement of cognitive function following normalization of TSH.

Discussion: Amiodarone Induced hypothyroidism (AIH) occurs due to intrinsic effect on thyroid cells or blockage of Iodine uptake. Overt AIH (TSH >10) developed in 5 % of all patients. but subclinical AIH (TSH 4.5 to 10) developed in 25 %. AIH has also been reported in 32% to 38% of older amiodarone users, with a higher risk in women and with previous thyroid dysfunction. Timing of onset of AIH is variable. Increases in serum TSH levels (10 to 20 mU/L) are seen in euthyroid patients for the first 3 to 6 months after amiodarone therapy is initiated. AIH should only be diagnosed when serum T4 levels are low-normal or low, or TSH elevation persists (above 20) as in our case.

Primary hypothyroidism remains on the differential. However, AIH is more likely with such a profound change in TSH in an elderly female who was previously euthyroid. In our patient, the TSH corrected after starting levothyroxine dose and by reducing the amiodarone dose by half. Amiodarone is continued to treat the underlying cardiac arrhythmia and levothyroxine continued due to the ease of replacement to maintain euthyroid state. It is therefore advised to check TSH annually to diagnose AIH early and reassess thyroid function even after stopping of amiodarone due to its long half-life (100 days).

D57 Resident Presentation
Acute encephalopathy in end stage dementia – A case of Parkinsonism-Hyperpyrexia Syndrome
<u>O. Salaami</u>. *Mayo Clinic, Rochester, MN.*

Background: Acute encephalopathy is a common clinical presentation in the ICU. We describe a rare but potentially fatal etiology of acute encephalopathy in a patient with end-stage dementia.

Case Report: An 84 year old woman was taken to the emergency department after she was found unresponsive. Upon presentation, she was vitally within normal limits with a Glasgow Coma Sale of 7 prompting emergent intubation. Due to a history of mechanical falls, she underwent CT scans that were unrevealing. She was subsequently admitted to the Medical Intensive Care Unit where she developed hemodynamic lability (SBP rapidly fluctuating between 100 to 200 mmHg), tachycardia, moderate temperature increase, and progressively worsening extremity rigidity. A complete blood count, extended metabolic panel, hepatic function panel, TSH, AM cortisol, B12, EKG, and troponins were unrevealing. A urinalysis showed moderate pyuria with gram stain positive for few gram negative bacilli. Neurology was consulted and obtained an EEG which a propensity for focal seizures without definitive seizures. She was started on levetiracetam. Further history was obtained from her nursing home which revealed she had spit up all her medications the morning of and the night prior to presentation. Her clinical presentation was thought to be consistent with the Parkinsonsm-Hyperprexia Syndrome precipitated by the sudden withdrawal of antiparkinsonian medications. An enteric tube was placed to administer her home carbidopa-levodopa. Her neurologic status returned to baseline and she was extubated without difficulty.

Discussion: Parkinsonism-Hyperpyrexia Syndrome is a rare but potentially fatal complication seen most commonly in the cessation of antiparkinsonian medication. The syndrome resembles neuroleptic malignant syndrome and is characterized by reduced conscious level, rigidity, pyrexia, and autonomic dysfunction (tachycardia, labile blood pressures). Late complications can include rhabdomyolysis, aspiration pneumonia, DVT/PE, DIC, and seizures. Early recognition, such as in our patient, with a high index of suspicion can greatly improve morbidity and mortality.

D58 Student Presentation
Colonel Mustard with the Candlestick: A Case Report Demonstrating the Clues to Diagnose and Manage Mixed Alzheimer's Disease and Dementia with Lewy Bodies.
<u>P. Connell</u>, H. Okhravi. *Eastern Virginia Medical School, Norfolk, VA.*

Background: Overlapping pathologies are common in dementia and can affect clinical presentation and accurate diagnosis.[1] In these cases, there may be a temporal lag between clinical presentations of different pathologies. The underlying pathophysiologies of Alzheimer's Disease (AD) and Dementia with Lewy Bodies (DLB) co-occur in 80% of diagnosed DLB cases.[1] Careful history taking and imaging biomarkers can aid in identifying this under-diagnosed mixed pathology and help guide management.

Case: The patient is a 67-year-old male with a 2-year history of memory problems, a past medical history of depression, and a family history of dementia. Neuropsychological testing revealed intact visual recall but impaired verbal recall, visuospatial, and executive functions. MRI showed no vascular pathology, and normal hippocampal volumes. FDG-PET favored a temporoparietal etiology supporting the diagnosis of probable AD and the patient was started on donepezil. Over the next 14 months, the patient developed core clinical features of DLB including fluctuating cognition, visual hallucinations, tremor, REM sleep behavior disorder, and bradykinesia.[2] During this time, the patient was seen by a different group who diagnosed multi-system atrophy and stopped donepezil which resulted in significant cognitive and functional decline noted by his wife. In light of such mixed symptoms, an amyloid PET scan was conducted which showed brain amyloidosis consistent with AD.

Conclusions: Geriatric patients presenting with cognitive impairment and associated movement disorder are difficult to diagnose because the similarities between possible etiologies are numerous, and the differences can be subtle or take time to develop. Therefore, physicians must be thorough in their history and physical exam, patient in their diagnosis, and vigilant for evolving symptoms. In this case we show how initially ambiguous symptomatology evolved into a mixed picture of AD and DLB.

References:

1. Karantzoulis S & Galvin JE(2011). Distinguishing Alzheimer's disease from other major forms of dementia. Expert Review of Neurotherapeutics. 11:11, 1579-1591.

2. McKeith IG, Boeve BF, Dickson DW, et al. Diagnosis and management of dementia with Lewy bodies: Fourth consensus report of the DLB Consortium. *Neurology*

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D59 Student Presentation
Suicide, firearms, and frail elders

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Case:

Mr. J was an 80 year old Veteran is seen by his primary care physician (PCP) for a post discharge follow-up after a recent inpatient admission for acute exacerbation with COPD.

<u>Social and psychiatrist history:</u> Mr. J had been widowed for 1 year, he lived alone, and his son lived nearby. He tested positive on a depression screening questionnaire 1.5 years ago when his wife was ill in a nursing home. He experienced caregiver burnout due to frequent visits to nursing home, household responsibilities, and loneliness. At the assessment, he had denied having a firearm in the home, and had refused individual therapy and medication for depression.

PCP appointment: At this post discharge follow-up visit with PCP a week later, was doing well.

Later in the day, his blood work done during the appointment showed acutely abnormal labs with leukocytosis and thrombocytopenia A nurse at the PCP office tried to reach patient to discuss lab results and plan without success. Finally she was able to reach patient's son 5 days later, and informed that the veteran killed himself with his rifle two days after the office visit,.

<u>Discussion:</u> Suicide is the 10th leading cause of death in the USA, and firearms are responsible for half of these deaths. Firearms account for 90% of suicide deaths in persons 65 years and over. Evidence suggests that a loaded gun at home is associated with about a 10% higher risk of suicide. Interventions that reduce access to the gun in moments of a mental health crisis including a locked gun locker, keeping guns unloaded, and locking ammunition or storing it in a different part of the house. These interventions each reduces the risk of suicide by 55%−73%.

While firearm related mortality is a public health crisis, studies exploring physicians attitudes show that physicians' screening of high risk patients is around 15-25% This presentation highlights evidence based interventions to improve lethal means safety in older adults with access to firearms.

D60 Resident Presentation
Bronchopleural Fistula Causing Tension Pyopneumothorax : A Rare Complication of Community Acquired Pneumonia in Elderly

P. Putthapiban, W. Sukhumthammarat, N. Kanjanahattakij, S. Chaudhary, B. Sharma. *Internal Medicine, Einstein Medical Center, Philadelphia, PA.*

Community-acquired pneumonia (CAP) is one of the leading causes of hospitalization and death among elderly. Complications and mortality are higher in aged populations. We herein report a case of cardiac arrest due to tension pyo-pneumothorax as a complication of CAP.

A 70 year-old female with no past medical history presented with progressively fatigue. She was hypothermic and markedly decrease breath sound on left chest on examination. Her CT chest showed large tension left empyema and empyema necessities with marked rightward mediastinal shift (Figure A). She became asystole, received 3 minutes of cardiopulmonary resuscitation and achieved return of spontaneous circulation. Intercostal drainage (ICD) was promptly inserted and drained 1 liter of frank pus with analysis showed exudative. She was intubated and received board spectrum antibiotics. Her pleural fluid and blood culture grew Streptococcus viridans. Due to persistent circuit leak alarm on mechanical ventilator and constant pneumothorax on following x-ray despite adequate ICD, repeat CT chest was obtained and revealed necrotizing pneumonia and possible broncho-plural fistula (Figure B). Her bronchoscopy confirmed pulmonary fistula of left lower lobe. Thoracic surgery was consulted, however, patient was not a surgical candidate. Antibiotic and ventilatory support was continued with gradually improved in her clinical status.

Broncho-pleural fisula is a rare but serious complication of CAP in elderly. Prompt treatment with adequate systemic antibiotics and chest tube drainage are crucial in patient who deem poor surgical candidate.
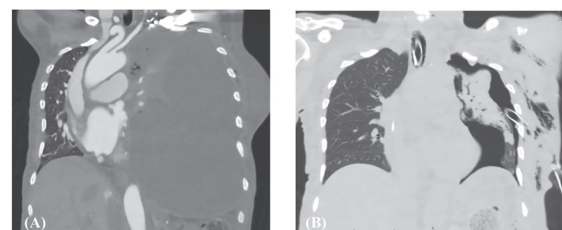
Figure (A) large tension left empyema with marked rightward mediating shift
(B) large left pneumothorax with near complete left lung collapse after intercostal drainage

D61 Student Presentation
Denosumab-Induced Hypocalcemia

R. Kalayanamitra, N. Ekpa, C. Valdes Sanchez, A. Groff, S. Piedra Abusharar, M. Lipinski, R. Patel, R. Jain, S. Muallem, A. Maddukuri, I. Yaghnam. *Department of Internal Medicine, Penn State College of Medicine, Hershey, PA.*

Background:

Denosumab is a human monoclonal antibody RANKL inhibitor commonly used to treat osteoporosis. Approximately 25.9% of patients treated with denosumab will develop persistent hypocalcemia. In elderly patients with on denosumab with hypocalcemia, it is important to consider it as its cause.

Case Report:

74-year-old male with gastric ulcers s/p sleeve gastrectomy, Crohn's disease s/p small bowel resection, and osteoporosis who presented due to an acute onset of right shoulder pain. Initial work-up revealed severe hypocalcemia and hypophosphatemia. Of note, he has a history of chronic hypocalcemia with a baseline of 7mg/dL. Patient denied muscle cramps/spasms/weakness, seizures, and facial twitching. He reported taking calcium and vitamin D supplements daily.

Patient was afebrile, BP 112/61, HR 78, RR 16, SpO2 92% on 1.5L/min NC. His physical exam was unremarkable, except for shoulder pain on passive range of motion. Chvostek and Trousseau signs were negative. EKG revealed a prolonged QTc interval of 500ms. Lab results were significant for a serum calcium of 5.3, ionized calcium 0.44, phosphate 0.8, PTH 354.4, and 25-hydroxy vitamin D of 42. Arterial blood gas revealed a pH of 7.3, pCO2 of 64 mmHg, and pO2 of 72 mmHg. He was admitted to the ICU and started on IV calcium carbonate in addition to his home calcium and vitamin D oral supplements. Endocrinology was consulted and a CT scan of the head was completed to rule out an intracranial mass lesion. Calcium levels were trended until normalized. Upon discharge, more aggressive calcium repletion was recommended.

Conclusion:

Although denosumab-induced hypocalcemia is rare, it is a recognized and understood side effect. Common signs and symptoms of hypocalcemia include: perioral paresthesia, carpopedal spasm, tetany, and potential life-threatening cardiac arrhythmias. Still, some patients may lack these common symptoms of hypocalcemia. It is essential to obtain a complete history with medication reconciliation in order to identify drug-induced metabolic abnormalities. Denosumab is injected twice a year and so patients may forget to disclose this as a home prescription. Overall, this case highlights the significance of coordinated interdisciplinary care with pharmacists and the importance of geriatricians in regularly monitoring calcium levels when taking denosumab.

D62 Student Presentation
Barriers to Post-Acute Care for Older Adults with Opioid Use Disorder: A Chronic Disease Untreated

R. Ko,[3] S. P. Khalili,[2] B. H. Han.[1] *1. New York University, New York, NY; 2. Weill Cornell Medicine, New York, NY; 3. University of Hawaii, Honolulu, HI.*

Background: Drug use and prescription drug misuse are increasing in the United States among adults ≥65 and as a result there have been increases in opioid-related hospitalizations in this population. Older adults have more chronic health conditions and functional impairments, which increases the likelihood that older adults with opioid use disorder (OUD) will need post-acute care after a hospitalization.

Case presentation: A 68-year-old gentleman with history of OUD (on a stable dose of methadone for 8 years) presented to the hospital with left hand and foot weakness. He was admitted and found to have an acute right frontal infarct likely related to cardioembolism from new-onset atrial fibrillation. He was managed with anticoagulation and once stabilized accepted to an inpatient stroke rehabilitation unit. His methadone maintenance dose of 60 mg was continued. After 4 weeks, he made great improvements, but still had residual weakness and was dependent for several activities of daily living, thereby requiring transfer to a skilled nursing facility (SNF) for subacute rehabilitation. Despite a city-wide search and multiple screenings no SNF would accept him. Logistically SNFs could not dispense methadone for OUD, and would require staff to pick up methadone from a nearby program. The patient considered tapering off methadone or transitioning to buprenorphine, but felt given his new deficits from his stroke that it would be too overwhelming. In addition, no available SNF could offer buprenorphine treatment. The patient remained an inpatient for several additional weeks until an accepting SNF was identified, one located more than 2-hours away from his home.

Discussion: OUD is a chronic disease with available effective evidence-based treatment. However, OUD is also highly stigmatized and many barriers prevent its adequate treatment in many settings. With the increase in older adults with OUD, the need for post-acute care that can provide OUD treatment is an imperative. However many SNFs and long-term acute care facilities (LTAC) are not prepared to initiate or continue treatment for OUD.

Conclusion: Efforts should be made to make subacute and long-term care more accessible for patients with OUD. This includes offering treatment for substance use disorders, and increasing the availability of methadone or buprenorphine for opioid use disorder.

D63 Resident Presentation
Syncope secondary to Rivastigmine use in older adults

S. Saeed, D. Jeong, A. Mohammad, L. Cong. *Family and Community Medicine, Southern Illinois University, Springfield, IL.*

BACKGROUND: Pharmacologic therapy including Rivastigmine has been widely used for older adults with cognitive impairment eventhough the evidence does not fully support or justify the use despite of the potentially serious adverse effects. Emphasis should be placed on non-pharmacologic therapy first to improve memory, cognition and gait which include resistance training, physical therapy and occupational therapy to reduce risk of falls.

CASE PRESENTATION: 89-year-old female who lives independently at home presented to emergency department for light headedness. She was seen in the emergency room twice within last 72 hours for nausea, vomiting, fatigue, lethargy and decreased activity. On initial visit, she was found to have abnormal urinalysis and was subsequently discharged on Cephalexin for UTI. She then returned to emergency department again within 24 hours after having a fall at home. She was evaluated for fall and had negative work up after which she was

discharged to home. She came back to the emergency department for the third time complaining of nausea, vomiting, fatigue and dizziness. As per her, she has had persistent nausea, vomiting, diarrhea, abdominal pain, fatigue and dizziness since last 7 days when she

was started on Rivastigmine for her dementia. Before this, she was on Donepezil which was discontinued by her Neurologist for adverse side effects which included vivid dreams. She denied exposure to sick contacts and any changes in food or medications except Cephalexin

which was started after the onset of these symptoms. When she presented to the emergency department for the third time within 72 hours, she was admitted under family medicine service for overnight observation as she had borderline bradycardia with heart rate in 50's. She was

admitted overnight and had cardiac monitoring/telemetry. Her Rivastigmine was held during her admission and her symptoms resolved completely.

Conclusions: Syncope and recurrent falls in this patient were most likely due to Rivastigmine as all the other factors were unchanged during this time and symptoms were resolved after the medication was held during inpatient admission. One should take extra precaution when starting any medication especially centrally acting ones in older adults as they can increase the chances of falls in this vulnerable population.

D64 Resident Presentation
Dysphagia in Elderly

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Introduction

Dysphagia is a common problem in elderly population, nearly 50% of all patient in nursing homes suffer from a swallowing disorder. 63% of elderly patients have abnormal swallowing on radiological evaluation despite the absence of swallowing difficulties. Main complications are malnutrition and aspiration pneumonia. To date, the most wide-spread intervention is food consistency modification and tube feeding in attempt to decrease the aspiration risk.

Case Presentation

A 77-year-old female with past medical history significant for Parkinson's disease presented with aspiration pneumonia. Twenty two years of her condition had resulted in severe deterioration. She

was non-ambulatory and required assistance in activities of daily living and instrumental activities of daily living. She had previous Fiberoptic Endoscopic Evaluation of Swallowing study that showed oropharyngeal dysphagia, with recommendation for pureed and nectar thickened liquids. On examination, patient was frail but alert and oriented. She had severe rigidity, bradykinesia, hypokinesia dysarthria and hypophonia. Repeat swallow evaluation was significant for delayed swallowing initiation and silent aspiration. She was kept NPO and nasogastric feeding was initiated in anticipation for a permanent gastric tube placement. Patient underwent multiple bedside swallow evaluations that eventually showed improvement and she was started on her home diet consistency pureed and nectar thickened liquids. Patient was discharged to nursing home and continued to tolerate diet well and in overall stable health condition.

Discussion

Dysphagia has two major types, oropharyngeal and esophageal. Oropharyngeal dysphagia has high prevalence and affect up to 13% of the total population aged 65 years and over with higher prevalence in patients with neurological diseases. The observed most common intervention in hospitals and nursing facilities is food consistency change and tube feeding. To determine the effectiveness of food consistency modification and tube feeds on aspiration risk. Literature review using terms "dysphagia" or "aspiration pneumonia" and "elderly" of Pubmed database from January 2000 to December 2018. A total of 156 publications were identified, 26 articles met the inclusion criteria. It was found that none of the commonly used measures to prevent aspiration pneumonia proven to prevent the risk of aspiration pneumonia.

Proper oral hygiene shown to significantly reduce the risk of aspiration.

D65 Student Presentation
Is Autoimmunity The Common Factor Amongst Chronic Inflammatory Demylinating Polyneuropathy, Amyotrophic Lateral Sclerosis And Psychiatric Disorders?
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Background: Chronic Inflammatory Demyelinating Polyneuropathy (CIDP) is an autoimmune chronic inflammatory condition leading to demyelination of nerves. It is associated with autoimmune diseases, infections and malignancies. It also mimics the symptoms of Amyotrophic Lateral Sclerosis (ALS). We report an unusual case of CIDP in a patient with multiple psychiatric diagnoses and ALS.

Methods: A 67-year-old woman with anxiety, depression, attention deficit disorder, delusional disorder, fibromyalgia, MGUS, multiple myeloma, lumbar spinal stenosis, hypothyroidism and irritable bowel syndrome developed progressive motor weakness in her legs in September 2017. Based on lumbar puncture, EMG & muscle biopsy, CIDP was diagnosed. By April, she was wheelchair bound and admitted to a local hospital. She was treated with IV Immunoglobulins 400 mg/kg/day for 5 days.

After a few weeks she was transferred to subacute rehab where she received monthly immunoglobulins and physical/occupational therapy. She was closely followed by her neurologist and was also referred to a psychiatrist for panic attacks with hypomanic periods. Aripiprazole was started due to bipolar manic episodes with major depression. She was then discharged with home health. After 1 month, she was rehospitalized with respiratory decompensation and worsening motor weakness leading to a new diagnosis of motor neuron disease based on EMG studies. Due to limited improvement, the patient and family elected comfort care until she expired in October 2018.

Results: The patient showed progressive functional decline and opioid dependence. During treatment, new diagnoses of bipolar type I and ALS were made after she was readmitted to the hospital.

Conclusions: This case highlights various aspects of nursing home care. The new diagnosis of ALS suggests a possibility of motor neuron disease being disguised as a demyelinating disorder,

considering our patient's poor prognosis and limited response to immunoglobulins. Also, the co-occurrence of ALS and multiple psychiatric diagnoses with known autoimmune associations of CIDP suggest that autoimmunity may have a role in these psychiatric manifestations. Lastly, polypharmacy, opioid dependence and mood disorders leading to altered compliance contributed to the rapid decline of our patient thus reflecting the challenges faced by nursing homes in managing these conditions.

D66 Resident Presentation
Purpura Fulminans: A rare condition with a poor prognosis
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Introduction:
Purpura Fulminans is life-threatening and can occur in the setting of sepsis. Early recognition is vital for immediate action to avoid limb amputations and death.

Case:
A 64-year-old female with a complex past history including ischemic colitis with resection, rheumatoid arthritis, interstitial lung disease and Graves' disease presented to the hospital with abdominal pain. While in the ED she became hypoxic and suffered a PEA arrest.

After ROSC, she was sent to the ICU. She had septic shock due to ascending cholangitis and E. coli bacteremia. She underwent ERCP and required pressor support. Over the next few days she complained of pain in her distal extremities and developed necrotic skin lesions over her acral surfaces, described as hyperpigmentation with necrotic appearing fingers/toes, bullous ulcerations and surrounding purpura. DIC and heparin-induced-thrombocytopenia were ruled out. She was diagnosed with Purpura Fulminans. Days later, despite discontinuation of pressors and aggressive wound care, her lesions worsened, requiring bilateral below the knee amputations. She was eventually discharged but was very deconditioned. Her amputations limited her quality of life.

Discussion:
Pupura fulminans (PF) is a life threatening emergency in critically ill patients, characterized by the appearance of purpuric rash predominantly in the distal extremities. This can progress into sharply demarcated, symmetric, discoloration that evolves into haemorrhagic bullae and hard eschars of necrotic tissue. This occurs due to dermal microthrombosis and disseminated intravascular necrosis of the venules and capillaries, eventually causing deep skin necrosis. Multiorgan failure is also common. Shock liver is a common finding in 90% of critically ill patients with DIC in whom PF develops and happens 2-5 days after the initial enzyme elevation reflecting the time required for the level of Protein C to become critically low.

Standardised, full-code sepsis therapy, together with protein C substitution, resulted in high survival rate of patients with sepsis-induced PF and a lower rate of disabilities, preserving the quality of life. In cases of skin necrosis, debridement can be done. Despite this, PF is associated with mortality exceeding 50%, in some cases reported to be 80-100%. In those who survive one-fourth require a quadruple limb amputation increasing morbidity. Thus, early recognition is vital to allow for immediate action to decrease these outcomes.

D67 Student Presentation
Case Report: Successful Weight management for an Obese Diabetic Veteran
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Background: Obesity and the associated comorbidity of diabetes among nursing home patients with an associated mental illness represent a frustrating group of patients with excess mortality and significant costs to the health care system. Diabetic patients with mental illness on psychotropic medications are predisposed to develop

significant weight gain. We present a case of successfully overcoming the challenges of weight reduction in a morbidly obese, schizophrenic veteran with diabetes who was non-compliant with his diet.

Methods: A 62-year-old male resident with diabetes and schizophrenia steadily gained weight while residing in an unstructured VA nursing home. The interdisciplinary treatment team (IDT), in response to his steady weight gained, determined his compulsive eating was too difficult to control in an open unit. The patient voluntarily agreed to be transferred to a psychiatric community living center to control his weight gain and diabetes. An inter-disciplinary approach was undertaken with incorporating the patient's meal preferences in his dietary restrictions; reward motivational system; close and frequent medication adjustment in conjunction with cognitive behavioral therapy with the team; gradual increased physical and occupational therapy activities such as transfer, balance, strength, ambulation and endurance training.

Results: The patient lost 105 lbs. (303 lbs. now) in 11 months. He was weaned off both his long and short acting insulin treatments. His insulin was titrated down gradually from 248 units of long and short acting insulin along with sliding scale insulin coverage daily to only oral metformin treatment. Simultaneous improvement in physical ability led the patient to go from a wheelchair to ambulation with a walker daily (about 2600 feet) with minimal assistance and infrequent breaks. He is now able to participate in outdoor recreational activities with a significant increase in ability to tolerate physical therapy. His hemoglobin A1c dropped from 10.4 down to 6.9. His BMI decreased from 55 down to 43.

Conclusion: This case demonstrates how an interdisciplinary approach facilitates the adherence to an imposed strict diet control and behavior modification with resultant improvement in overall physical functioning. The significant reduction of the veteran's weight led to improved diabetic control, physical function, strength, and endurance over span of 11 months.

D68 Resident Presentation
A Rare Case of SMA and Celiac Artery Dissection
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Introduction

Spontaneous visceral artery dissection is uncommon and usually has a predilection for the superior mesenteric artery (SMA). This condition is difficult to diagnose and requires the use of CT angiography (CTA). Most of the times, the treatment is conservative with medical management. The following is a case presentation of an elderly patient who was diagnosed with SMA and celiac artery dissection without aortic involvement.

Case Presentation

An 83-year-old male with a past medical history significant for atrial fibrillation not on anti-coagulation and hypertension presented with complaints of bloody bowel movements. He started to have abdominal cramps for one day which was associated with watery bowel movements. He then started to notice blood on the toilet paper. The next day, the patient had a bloody bowel movement with clots. On arrival, the patient was hemodynamically stable. His lab work showed a stable H/H of 14/43. The patient was seen by gastroenterology who suggested further imaging prior to any procedure. Initially, the patient was worked up for possible ischemic colitis from embolic phenomenon as he was not on anti-coagulation for his atrial fibrillation. He had a CTA of his abdomen and pelvis which showed a dissection and dilation of the SMA and celiac artery as well as mild colonic thickening. The patient had a vascular surgery consultation who recommended conservative management with restarting his anticoagulation and strict blood pressure control. The patient also had a colonoscopy which showed erythematous mucosa at the splenic flexure. His colonic biopsy showed mucosa with features of ischemic colitis. The

patient had no further episodes of bleeding while hospitalized. After speaking with the patient, he decided against anticoagulation and was discharged home.

Discussion

Spontaneous visceral artery dissection is a rare condition especially without aortic involvement. Most commonly the SMA is involved. Patient typically present with abdominal pain, nausea, vomiting, and diarrhea. Risk factors include being male, Asian ethnicity, and age. Early use of CTA is needed for accurate diagnosis. The treatment usually includes medical management with anti-thrombotic agents.

Conclusion

This case highlights a rare condition of SMA and celiac artery dissection causing abdominal pain and ischemic colitis in the elderly. It is important to include this condition in your differentials in order to obtain the necessary imaging studies for an accurate and early stage diagnosis.

D69 Student Presentation
Better Living Through Chemistry; Substance Use Disorder in Older Adults
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Background: With the first wave of baby boomers turning 65 in 2011, we have entered a new era of a older adults living with substance use disorder (SUD) (1). It is well known that SUD for all persons leads to heightened morbidity and mortality, and older adults have higher risk factors for overdose. Pain (somatic, psychological, existential), mood, sleep, and diminished social support, all play a part in SUD in older adults (1).

Methods: We present a case that illustrates the complex challenge of identifying SUD and assessing a treatment plan. The 83-year-old, economically privileged patient presented with serious geriatric syndromes and very little chronic disease. Her syndromes were discovered to be due to SUD concurrent with complex psychosocial situation.

Results: After multiple consultations, our patient ultimately is not a willing candidate to undergo detoxification. We discuss the rationale for accepting that some older adults may not warrant a strong push for detoxification.

Conclusions: Given the expected increased prevalence of SUD in the aging baby boomers, providers and stake holders need to consider ways to address SUD despite the lack of evidence regarding effective identification and treatment, or roles and responsibilities(2-4). This case illustrates the value of comprehensive assessment and individualization of care regarding SUD in older adults.

References:

1. Molton IR, Terrill AL. Overview of persistent pain in older adults. *Am Psychol* 2014; 69: 197-207.

2. Medicine. Io. The mental health and substance use workforce for older adults: in whose hands?. *Washington, DC: The National Academies Press* 2012; 2012.

3. Han B GJ, Colliver JD, et al.. Substance use disorder among older adults in the United States in 2020. *Addiction* 2009; 104: 88-96.

4. Steffens DC. In our hands: responding to the IOM report on workforce needs for older adults with mental health and substance use disorders. *International Psychogeriatrics* 2013; 25: 1039-1040.

D70 Resident Presentation
Progressive Tooth Loss and Dysphagia in an Older Adult: A Case Report

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Background:
Dysphagia can lead to malnutrition, aspiration, pneumonia and death in functionally dependent older adults. Risk factors for dysphagia in older adults include age-related physical and cognitive changes, frailty, stroke, and neurodegenerative diseases. This case demonstrates that tooth loss is an additional risk factor of dysphagia.

Case:
A 96-year-old female nursing home resident presented at the dental clinic with pain around the gingiva (gums) on the left side of her lower jaw. Her medical history included hypertension, hyperlipidemia, coronary artery disease, diabetes, gastroesophageal reflux disease, depression, and history of B cell lymphoma. Dental examination revealed 8 missing teeth and 13 fractured teeth with localized gingival inflammation around the lower left fractured teeth. The patient reported difficulty with chewing, food getting stuck in her throat, "gurgling sounds," and coughing when drinking soup. These symptoms occasionally prevented her from finishing her meal. A review of her dental history revealed that the symptoms of dysphagia started after the loss of her last functional teeth unit, a dental bridge on the lower right side. After discussing the options with the patient, the care team planned to extract all the fractured teeth and replace the missing teeth with dentures. The dental treatment plan aimed to restore the patient's function, improve comfort and esthetics, and decrease symptoms of dysphagia.

Discussion:
The oral cavity and pharynx need to function in a coordinated manner to allow for smooth bolus passage. Teeth are essential for mastication and provide stability for the mandible as the pharynx and larynx are elevated during normal swallowing. This allows the bolus to pass safely into the esophagus. Tooth loss results in significant compensatory changes in mandibular and oropharyngeal movements. This increases the risk of dysphagia in older adults with diminished swallowing capacity. Furthermore, tooth loss and dysphagia can cause anxiety during meal times, decreased quality of life, and food avoidance, which increases the risk of malnutrition and dehydration. This case highlights the importance of maintaining adequate dentition to reduce the risk of dysphagia among older adults.

D71 Resident Presentation
A Rare Case of Hydroxyurea Related Acute Myeloid Leukemia in an Elderly Patient

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Introduction
Patients with myeloproliferative disorders are at risk of developing Acute Myeloid Leukemia (AML). This results from evolution of the disease itself or could be therapy related. Recognition of hydroxyurea as a potential cause of AML is important as prognosis and treatment differ from denovo AML.

Case Presentation
A 70-year-old female with multiple co-morbidities including PCV on hydroxyurea presented after an unwitnessed fall with acute back pain. Exam was remarkable for mid back tenderness. Labs revealed new pancytopenia. Peripheral blood showed dysplastic features. CT scan showed a lytic lesion in the vertebral body of T10. BM biopsy showed a hypercellular marrow with immature myeloid cells and trilineage dyspoiesis. Karyotype analysis showed complex cytogenetic abnormalities including a 5q deletion. Biopsy of the vertebral lesion showed a myeloid sarcoma. These findings were consistent with therapy related Acute Myeloid leukemia(T-AML)likely from her hydroxyurea. She was not a candidate for chemotherapy or BM transplant given her poor performance status and co-morbidities. She did not tolerate palliative radiation and received hospice care.

Discussion
T-AML results from mutational events induced by chemotherapy, radiation or immunosuppressive therapy. Risks of developing T-AML are age and certain polymorphisms in genes responsible for DNA repair and drug metabolism. This, along with the increased incidence of myeloproliferative disorders with age makes T-AML more prevalent in the geriatric population. The leukemogenicity of hydroxyurea as a monotherapy is debatable however it is established when combined with other cytotoxic agents. Complex karyotype or deletion of chromosome 5 or 7 in the setting of long-term use of hydroxyurea should raise the concern for T-AML. Patients with T-AML have a poor prognosis. Treatment is dependent on cytogenetics and performance status making it less feasible in elderly patients with multiple co-morbidities. Allogeneic bone marrow transplant should be considered in patients with good performance status. Some patients may respond to chemotherapy. Supportive care is offered for patients with poor performance status.

Conclusion
Considering T-AML in patients on hydroxyurea with new onset cytopenia in addition to complex karyotype with BM showing trilineage dysplasia is important.

References
Godley LA, Larson RA. Therapy-related myeloid leukemia. SeminOncol. 2008;35(4):418-29

D72 Resident Presentation
A Rare Case of Primary Autoimmune Myelofibrosis in an Elderly Patient

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Introduction
Primary Autoimmune myelofibrosis is a very rare condition associated with bone marrow(BM) fibrosis, cytopenia and autoimmune antibodies. It should be differentiated from primary myelofibrosis as therapeutic options are different. Early suspicion of this condition is important especially in the geriatric population refusing BM biopsy due to the presence of multiple co-morbidities.

Case:
84-year-old female with history of Parkinsonism presented with weakness. Exam was remarkable for parkinsonian features but no splenomegaly. Labs revealed acute anemia with a hemoglobin(Hb) of 4.5g/dL, `platelet count of118 K/mm3, new macrocytosis, low haptoglobin, reticulocytotsis and unconjugated hyperbilirubinemia. Peripheral blood smear showed tear drop cells, spherocytes and basophilic stippling. She had a positive direct antiglobulin test (DAT) for IgG and C3D indicating the presence of cold and warm autoantibodies. Her Hb continued to drop despite multiple blood transfusions. There was a strong concern that the tear drop cells, macrocytosis and pancytopenia are due to an autoimmune myelofibrotic process that triggered autoimmune hemolysis. She refused a BM biopsy due to her age and comorbidities, so she was started on prednisone for presumed Autoimmune Myelofibrosis (AIMF). Her cytopenias started to improve without receiving further transfusions. She was discharged on a 3 week course of steroids.2 weeks later, she had a negative hemolysis panel with continuous improvement in Hb level and leukocyte count.

Discussion:
Autoimmune myelofibrosis (AIMF) is a very rare condition that is seen in patients with SLE, Sjogren's and scleroderma. However, it is called Primary Autoimmune Myelofibrosis in patients without a clinically diagnosed autoimmune disease. AIMF should also be distinguished from Primary Myelofibrosis (PMF) as management of both is different. Patients with AIMF have no or mild splenomegaly, normal LDH and normal shaped megakaryocytes while patients with PMF have splenomegaly, elevated LDH and atypical megakaryocytes.

Pathogenesis remains unclear however involves the production of fibrogenic cytokines.

Conclusion

AIMF should be suspected in the setting of cytopenias, tear drop cells and a positive DAT with autoimmune antibodies especially in the geriatric population refusing BM biopsy so that steroids are started immediately.

References

Pullarkat V, Bass RD, Gong JZ,. *American Journal of Hematology*.2002;72(1):8-12. doi:10.1002/ajh.10258

D73 Resident Presentation
BRIDGING THE GAP BETWEEN ORAL HEALTH AND SYSTEMIC HEALTH: A CASE REPORT OF SEPTICEMIA SECONDARY TO CHRONIC PERIODONTITIS

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Chronic periodontitis is one of the most common oral diseases in the elderly population and associated with systemic health. We herein report an uncommon case of sepsis secondary to chronic periodontitis.

An 82 -year-old man who presented with 1 month of chronic fatigue and loss of appetite. The patient had a past medical history including of hypertension, chronic kidney disease stage 3 and history of prostate cancer in remission. On examination, the oral temperature was 37.5 c, other vital signs were unremarkable. He had mild icteric sclera, poor oral hygiene with severe plaque and calculus deposited. Laboratory investigations revealed cholestatic pattern of liver function test (ALP 242 IU/L, GGT 75 IU/L, TB 5.3 mg/dL, DB 4.2 mg/dL, ALT 60 IU/L, AST 57 IU/L). A serum of viral hepatitis was negative. Abdominal imaging (ultrasound and MRCP) revealed mild dilatation of common bile duct (7mm) with no evidence of choledocholithiasis. Blood cultures revealed *Streptococcus viridans* and *Prevotella oralis*. Transesophageal echocardiogram revealed no vegetations. A Patient received ceftriaxone and metronidazole and deescalate to amoxicillin with clavulanic acid to complete 2 weeks of antibiotics together with non-surgical periodontal treatment with resulted in complete resolution of blood cultures and liver function test.

This case report emphasizes the importance of oral health that can lead to systemic health problems. Oral health care should be more integrated in the overall health care maintenance especially elderly population who has self-care disability.

D74 Resident Presentation
Metastatic Squamous Cell Carcinoma of the Scalp

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A 74-year-old man presented to the emergency department after being found down for an unclear duration of time. His history was significant for squamous cell carcinoma diagnosed approximately 1 year prior to presentation and status-post Mohs excision, untreated bipolar disorder, hypertension, and prediabetes. He had been previously homeless, and was living in a nearby motel. The temperature was 38.1°C, and the blood pressure 174/80 mm Hg. Physical examination was notable for a large fungating mass on his anterior forehead, a profound expressive aphasia, and a slight right pronator drift. Computed tomography of the head visualized a large exophytic soft tissue mass arising from the frontal scalp eroding the frontal calvarium and extending to the dura. A large lobulated intraparenchymal hemorrhage in the left frontal lobe with rightward midline shift was also seen. He was admitted to the intensive care unit for frequent neurovascular checks and strict blood pressure control. Given the extent of his disease, otolaryngology assessed that surgical resection would not provide meaningful survival benefit. Upon medical stabilization, he was discharged to his insurer's acute care hospital for further management; follow-up revealed he ultimately transitioned to comfort care prior to discharge.

Squamous cell carcinoma is the 2nd most common form of skin cancer. With early detection, it is usually curable. It remains uncertain why this patient did not seek earlier treatment for his highly visible mass, but the authors suspect untreated mental illness and limited access to care played a role. The median age of homeless single adults in the United States has increased from approximately 35 years in 1990 to nearly 50 years in 2010[1]. This case emphasizes the critical nature of addressing social determinants of health for older adults.

Ref

1. Culhane DP, Metraux S, Byrne T, Steno M, Bainbridge J. The age structure of contemporary homelessness: evidence and implications for public policy. Analyses of Social Issues and Public Policy. 2013;13(1):1–17.

D75 Resident Presentation
From Prevention to Immobility: a Rare Zoster Vaccine Reaction

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Introduction

Herpes zoster vaccine (HZSU) is approved for the prevention of shingles in adults over 50 yo.[1] While relatively safe, reactions such as myalgias, fatigue, chills and fever can occur.[2] This case presents a rare adverse effect of this immunization that led to immobility in a previously independent older adult.

Case Report

An 85 yo independent man with HTN and DM II got a HZSU during an annual visit. On his drive home, he began experiencing body aches. Within 2 days, his pain worsened and he became very weak. In ER, he was found to be febrile with a WBC of 13. He was treated with ceftriaxone and admitted for a possible infection. Work up found no infection so antibiotics were not continued. Prednisone was added with no improvement. As no other reversible cause was found for his symptoms, he was discharged after a few days to a subacute rehabilitation facility (SAR).

Ten days later, he was readmitted with acute renal insufficiency. He was dehydrated and much weaker. He was again worked up with the only new finding being a pause in his heart rate. He remained weak despite pacer placement so he was again discharged to SAR

where he became quickly immobile. He continued to decline and was transferred out of state 2 months later to be closer to his son who could assist him with care oversight.

Discussion

This case describes a rare reaction in a previously independent, community living older adult. Despite his age and comorbid status, this patient lived alone and was fully independent. This rare reaction led to immobility and full physical dependence forever changing his life. Practitioners should be aware of this possible rare reaction given guidelines recommend shingles vaccination of all persons over 50 years of age.[3]

References

1. James SF, Chahine EB, Sucher AJ, Hanna C. Shingrix: The New Adjuvanted Recombinant Herpes Zoster Vaccine. Annals of Pharmacotherapy. 2018;52:673-680

2. Lal H, Cunningham AL, Godeaux O, et al; ZOE-50 Study Group. Efficacy of an adjuvanted herpes zoster subunit vaccine in older adults. N. England J Med. 2015;372:2087-2096

3. Centers for Disease Control and Prevention, Recommended adult immunization schedules, United States, 2018

https://www.cdc.gov/vaccines/schedules/easy-to-read/adult-easyread.html. Accessed November 9, 2018

D76 Student Presentation
Adaptation and Implementation of a Dementia Care Program in an Academic Geriatric Primary Care Clinic

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Background: Care Ecosystem is a telephonic and web-based model for dementia care developed by the University of California San Francisco and University of Nebraska Medical Center. The model has been implemented in neurology clinics and a community safety-net clinic for older adults. We identified facilitators, adaptations, and challenges during implementation in academic-based geriatric primary care.

Methods: Program implementation included identification of a care team navigator (CTN), project manager, medical director, and assembly of an interdisciplinary team (geriatricians, social work, pharmacy). Model adaptations, iterative workflow review, and implementation challenges were discussed in weekly meetings. An electronic health record report was developed to identify patients, and the primary care provider was contacted for enrollment approval. Patients living at home whose caregiver exhibited distress were prioritized. Direct provider referrals were also encouraged.

Results: After a 4-month planning period, 12 patient-caregiver dyads were enrolled over a 3 month-period. Unique implementation facilitators included: 1) a CTN embedded in a clinic experienced in multidisciplinary quality-improvement processes; and 2) funding through a care management value-based program. Adaptations included: 1) addition of a consultant geropsychologist; 2) immediate needs assessment over two visits, one in-home; 3) medication protocol workflow revision; and 4) resource revision for state-specific information. Implementation challenges included: 1) differentiating the scope of the program from standing social work, pharmacy, and behavioral health workflows; and 2) determining the scope of the CTN role as many caregivers were also clinic patients and their medical needs frequently arose in discussions.

Conclusions: Implementation of Care Ecosystem in an academic geriatric primary care clinic required unique adaptations to workflows for program delivery. Defining boundaries of the scope of the program and CTN are critical for addressing implementation challenges.

D77 Student Presentation
Pain Experiences in Inpatient Older Chinese American Patients

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Background: Chinese Americans are the largest subset of the fastest growing minority group in the United States, estimated to be 4.9 million people in 2016. HCAHPS surveys at NYULH show that older patients who identified as Chinese had the worst ratings of pain management when compared to other ethnicities. Even with this growing community, little is known regarding their hospital experiences and if this affects how patients perceive and manage their pain.

Objective: This mixed methods study includes a scoping review of the published peer reviewed literature and content analysis of patient data to gain a deeper understanding of how age, gender, and cultural norms influence patients' perceptions of their satisfaction and pain management experience.

Methods: Phase 1 included a literature review focused on age, gender, culture, and clinical experiences and how these factors relate to pain among Chinese Americans. Phase 2 involved collecting survey comments given from Chinese American patients at NYUMC and NYU Lutheran about their clinical experiences and creating a codebook with themes identified in the literature from Phase 1 and the survey comments. Qualitative analysis of these comments was performed using Atlas.ti.

Results: 36 articles were taken from PubMed and all were focused on integrating age, gender, Chinese culture, and clinical experiences with pain perception. Qualitative analysis comparing patients younger and older than 55 showed that older patients exhibited increased negative perceptions specifically towards the areas of patient-centered care and language barriers during their stay.

Conclusions: Findings suggest that Chinese American patients may have different social-cultural norms around pain expression, particularly in older age groups. The qualitative analysis results from Phase 2 contextualizes how pain management is linked to clinical experiences for older Chinese American patients. Future qualitative interviews focused on pain management will be conducted to form a culturally-sensitive approach to achieve better patient-centered care.

D78 Student Presentation
Embedded Palliative Care: Unique Care for Older Adults with Cancer

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Background: A palliative care (PC) team aims to improve quality of life (QOL) in cancer patients (including a large population of older adults) by expertly managing symptoms, facilitating difficult discussions, and providing spiritual and psychosocial support. There has been a recent movement to improve care delivery by integrating PC into outpatient oncology. Earlier PC referrals have shown to result in less ICU stays and lower symptom burden.

Objective: To evaluate the difference between geriatric and younger populations of an embedded VA PC oncology clinic.

Methods: Retrospective chart review at the South Texas Veterans Health Care System as part of quality improvement, 7/2016-06/2018. Variables included: demographics, symptoms reported, and reasons for PC visit. Geriatric group (GG) was classified as >64 years. Analysis performed with a one-tailed two-sample unequal variance t-test ($p < 0.05$).

Results: N=146 (91=GG, 55=Younger group (YG)). The YG ethnicity 40% Hispanic vs. GG 24.2% (p=0.02). For both groups, the five most common reasons for a visit were advance care planning (96.6%), pain (83.6%), goals of care (82.2%), medication refill (71.9%), and constipation (47.9%). Other symptoms were relatively equal between the groups: anorexia (44.5%), fatigue (39.0%), insomnia

(33.6%), dyspnea (26.7%), anxiety (17.8%), and diarrhea (13.0%). Symptoms with greater impact on the GG vs YG include: edema (13.2% vs 3.6%, **p=0.02**), numbness (8.8% vs 3.6%, p=ns), and dry mouth (4.4% vs 1.9%, p=ns). Symptoms with greater impact on YG vs GG include: nausea/vomiting (43.6% vs 29.7%, **p=0.05**), depression (36.4% vs 22.0%, p=ns), drowsiness (18.2% vs 8.8%, p=ns), altered mental status (12.7% vs 5.5%, p=ns), and irritability (9.1% vs 5.5%, p=ns).

Conclusions: The symptoms experienced in oncology PC patients was similar between GG and YG. Geriatric cancer patients are more likely to experience edema, likely due to associated comorbidities and less likely to report issues with nausea/vomiting. While providers often screen for the most common symptoms (pain/constipation/nausea/vomiting), symptoms like anorexia, fatigue, and insomnia may be under reported and may be an area where PC can improve QOL. Further research is needed to gain a better understanding of this.

D79 Resident Presentation

Effects of EMR-Based Advisories on Benzodiazepine and Sedative-Hypnotic Prescriptions in Older Adults

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Background: Hip fractures are a leading cause of morbidity and mortality in patients aged 65 and older. Up to 30% of patients die within the year following a hip fracture. In older adults, benzodiazepines and sedative-hypnotics have been shown to increase the risk of falls, hospitalizations, and death.

Methods: A best practice advisory (BPA) was implemented into the Stanford EMR based on recommendations from the American Geriatrics Society and the ABIM "Choosing Wisely" campaign: "Don't use benzodiazepines or other sedative-hypnotics in older adults as first choice for insomnia, agitation or delirium." We performed a retrospective review of BPA outcomes from June 2016 to April 2017 in Stanford outpatient clinics. Two physicians independently reviewed all free-text override comments and identified keywords which were grouped into categories based on common content. Interrater agreement was evaluated by Cohen's kappa coefficient. A confusion matrix was created for each category and used to calculate agreement statistics including probability of agreement, positive agreement rate, disagreement rate, and kappa coefficient.

Results: Of the 8,667 BPAs triggered during the study period, providers complied with only 64 (0.7%). 1,397 (16.1%) BPAs were ignored and the majority of BPAs, 7,173 (82.8%), were overridden. Of the overridden BPAs, 1,266 had an associated free-text comment entered as part of the override. The most common keywords encountered were related to clinician factors, including "tapering, monitoring, and temporary." Patient factors comprised the second most common category and included keywords such as "patient requests, insists, and dependence." The kappa coefficient values for all categories were 0.8 or greater, indicating near-perfect interrater agreement.

Conclusions: Implementation of interruptive guideline-based alerts in the electronic medical record did not significantly influence benzodiazepine and sedative-hypnotic prescribing practices for older adult outpatients at the point of order entry, based on high override rates. Based on free-text comments, a substantial number of alerts were overridden for clinician or patient factors. Research is ongoing to determine if the BPA had an impact on subsequent new benzodiazepine prescription patterns and factors that may increase BPA adherence.

D80 Student Presentation

Rural Older Adults' Intentions to Use Technology for Monitoring Mood States

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Background: Barriers encountered by older adults and their health care providers may be especially pronounced in rural and remote areas. Innovative solutions, such as text messaging, may facilitate access to providers in these areas. Little is known, however, about factors associated with older adults' decisions to use technology for health-related purposes. **Method:** The theory of planned behavior provided a framework to examine older adults' willingness to use text messaging to communicate with providers about mood states. Older adults (n=108, age 65-88) residing in rural Wyoming completed a paper-and-pencil questionnaire. **Results:** Results of a three-block hierarchical linear regression showed mixed results. At Block 1, age did not account for a significant proportion of variance in behavioral intention, $F(1)$=0.457, p=0.50. However, adding theory of planned behavior constructs (i.e., subjective norm, attitude toward the behavior, perceived behavioral control) to the model yielded both a significant model and a significant improvement to prediction of behavioral intention, $F(4)$=68.00, p<0.001; ΔR^2=0.72, p<0.001. The addition of the interaction between age and attitude toward the behavior in Block 3 yielded a significant model but did not further improve prediction of behavioral intention over Block 2, $F(5)$=53.90, p<0.001; ΔR^2<0.001, p=0.87. Subjective norm (B=0.35, p<0.001) and attitude toward the behavior (B=0.065, p<0.001) significantly predicted older adults' behavioral intentions; however, perceived behavioral control (B=0.006, p=0.29), age (B=0.01, p=0.61), and the interaction between age and attitude (B= -0.002, p=0.87) did not significantly predict behavioral intentions in older adults. **Conclusion:** These findings lend support to the contribution of social and attitudinal factors to older adults' decisions to use technology. However, the impact of age, the interaction of age and attitude toward the behavior, and beliefs about the ability to use technology in this context remain unclear.

D81 Student Presentation

Understanding caregiver burden risk factors versus objective and subjective caregiver health perception in a House Call program: a retrospective cohort study

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Background:

Previous research suggests that caregivers with better perceived self-health report less burden associated with caregiver stress.

Methods:

Retrospective observational cohort study of 163 dyads enrolled in our county hospital system-based academic house call program. Care recipients were 51-104 years old (average 80 years) with physically debilitating medical conditions (primarily dementia and diabetes). Caregivers completed the Zarit Burden Index (ZBI) and rated theirs and their care recipient's health status as poor, fair, good, or excellent.

Physicians and nurse practitioners completed objective assessments of function utilizing the Activities of Daily Living (ADL) Scale and Palliative Performance Scale (PPSv2). Outcomes were analyzed using generalized mixed logistic and linear models, controlled for baseline chronic medical illness.

Results:

Caregivers were more likely to be female adult children with an education level ranging from 4-16+ years in school (average 12.5). Zarit burden scores ranged from 0 to 78 (average 24.8). Care recipients could perform from 0 to 6 ADLs independently (average 0.69) and were assigned scores ranging from 10 to 80 on the PPSv2 (average 38.8). Caregivers tended to report their own health status as "good"

and the health status of their care recipient as "poor", regardless of scores on the objective assessments. There was no correlation between care recipient functional status, caregiver perception of his/her own health, and caregiver perception of care recipient health status with ZBI burden severity.

Conclusion:

We hypothesized that caregivers with greater burden severity have poorer subjective self-rated and care recipient health. However, we found no correlation between subjective measures of health and ZBI scores. Other factors likely contribute to caregiver burnout aside from traditionally reported variables: gender, age, living situation, and social support. Future research to better predict caregivers who are at high risk of burden is necessary, because caregiver burden leads to increased mortality and detrimental psychosocial factors such as suicide. We plan to collect ZBI scores at the initial house call visit and compare them to scores at one year of enrollment with the house call program to determine if the support network provided by house call programs helps to mitigate caregiver stress and burnout.

D82 Student Presentation
Development and Implementation of a Self-Administered Electronic Survey for Root Cause Analysis of 30-Day Rehospitalizations from Skilled Nursing Facilities
B. Heinz, C. Yuan, J. Fogel, J. Choi, N. Pirwani, G. Bono, K. Brooks, M. Dailey, K. Costello. *Albany Medical College, Albany, NY.*

Background: Rehospitalizations carry functional and health risks for skilled nursing facility (SNF) residents. Prior analysis of 30-day readmissions from 64 SNFs nation-wide found that 23% of readmissions were potentially preventable (1). Reducing such readmissions fulfills the Triple Aim (2). A community-based participatory research project was developed to identify process root causes of 30-day rehospitalizations within the Albany Care Transition Coalition (ACTC), a collaborative of regional SNFs and Albany Medical Center (AMC). ACTC has observed rates of readmission from SNFs to AMC ~5% above the national and statewide rates. The ultimate purpose of this ongoing study is to identify specific targets for intervention.

Methods: SNF, EMS, ED, hospital providers, and patients/family are asked to complete semi-structured self-administered surveys on an electronic (Qualtrics®) data collection platform, responses linked to specific cases by patient identifiers and admission date, to obtain perspectives around individual rehospitalizations. Administrative data regarding complexity, length of stay and others are compared between described events versus all ACTC-AMC readmission events to assess the representativeness of findings.

Results: Ten responses have been received in the first 3 weeks (median of 7.5 days to readmission). Common themes from provider responses include lack of resources, lapses of communication, social determinants and complications related to the index admission. The median survey completion time was 6.6 minutes.

Conclusions: This community-based participatory research project uses a brief semi-structured self-administered interview to gain a full spectrum of perspectives on SNF rehospitalizations. Preliminary responses suggest good feasibility and participant acceptance.

(1) Ouslander et. al. (2016). Lessons Learned From Root Cause Analyses of Transfers of Skilled Nursing Facility Patients to Acute Hospitals: Transfers Rated as Preventable Versus Nonpreventable by SNF Staff. Journal of the American Medical Directors Association, 17(7), 596–601.

(2) Berwick, D. M., Nolan, T. W., & Whittington, J. (2008). The triple aim: care, health and cost. Health Affairs (Project Hope),27(3), 759–769.

D83 Student Presentation
The feasibility and acceptability of healthcare video visits for home-limited adults, a pilot program
B. M. Bakke, A. Eaton, B. Calton, J. Harrison, S. Rogers. *UCSF, San Francisco, CA.*

Background

Home-limited patients face challenges in accessing healthcare resources. The ubiquity of internet-connected technologies at home presents new opportunities to address these challenges, especially in geriatric and palliative patients. Video visits may expand the reach of clinical care into the home. We assessed the acceptability and feasibility of video visits for home-limited patients.

Methods

We developed a video visit pilot program for home-limited patients in the UCSF Care at Home Practice, which delivers home-based geriatric and palliative care. 20 patients (14 female, 6 male) completed a phone accessibility survey about their interest in participating in a video visit with their clinician. The survey gathered information about the capability of patients and caregivers to utilize the technology. 14 home-limited patients who participated in a video visit completed a phone feasibility survey about their experience.

Results

Our study found that 65% (13/20) of home-limited patients surveyed were interested in participating in video visits. Our accessibility survey found the majority of interested patients had the technology necessary to participate in video visits, however most patients would need caregiver assistance. The post-visit feasibility survey found that most patients had a positive experience with their video visit and would use the service again (**Figure 1**).

Conclusion

Our pilot program has demonstrated that geriatric and palliative home-limited patients are interested in participating in video visits, and that many have the logistical capabilities to do so. More studies are needed to evaluate the challenges and benefits of expanding video visits in this patient population.
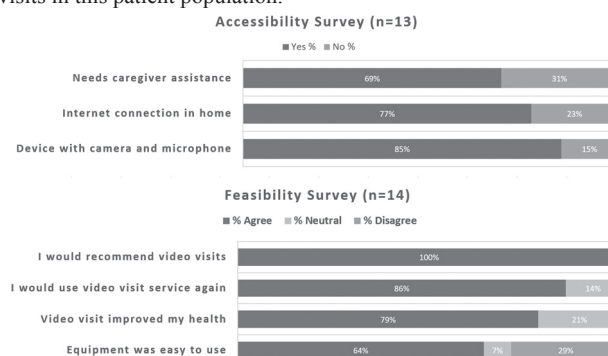
Figure 1: Accessibility and Feasibility Patient Surveys

D84 Resident Presentation
Novel Artificial Intelligence Methodology Identifies Significant Variation in Care Preference Documention Among Older ICU Patients
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Background: Documentation of care preferences within 48 hours of admission to an intensive care unit (ICU) is a National Quality Forum endorsed quality metric for older adults. Care preference documentation is poorly captured by administrative data and compliance is unknown. Using artificial intelligence (AI), we aimed

to determine the rate of care preference documentation and factors associated with performance.

Methods: Analysis of physician notes for patients aged ≥75 who were admitted to a tertiary care center ICU from 2008 to 2012. We excluded patients with an ICU stay <48 hours. Care preferences in free-text notes were identified (yes/no) using validated computer based AI. We used logistic regression to assess the association of demographics, sequential organ failure assessment (SOFA) score, type of ICU, and non-elective admission with documentation of care preferences within 48 hours.

Results: We studied 11,575 notes for 1,350 ICU admissions. Mean age was 84 and most patients were white (81.9%). In-hospital mortality was 20.4%, and 64.7% had documentation of care preferences. Patients with documentation were older (85 vs. 83 years; p<0.001) and had higher SOFA scores (4.88 vs. 4.45; p<0.01). In adjusted analyses, female sex, older age, non-elective admission, and admission to a medical ICU were associated with care preference documentation (Table).

Conclusions: Despite a high associated mortality, adherence to communication quality metrics is poor and less likely to occur within a surgical ICU. AI can pinpoint areas for improvement and help in delivery of patient centered care.

Logistic Regression for Documentation of Patient Care Preferences During ICU Admission

	Odds Ratio (95% CI)	p-value
Male	0.67 (0.52 – 0.87)	<0.01
Age	1.05 (1.03 – 1.08)	<0.001
Non-Hispanic White	1.32 (0.95 - 1.86)	0.10
Non-English Speaking	0.84 (0.59 – 1.22)	0.35
Single or Widowed	1.24 (0.95 – 1.61)	0.11
Sequential Organ Failure Assessment Score	1.06 (1.01 – 1.11)	0.02
Mechanical Ventilation	0.87 (0.66 – 1.15)	0.33
Non-Elective Admission	11.93 (5.34 – 31.89)	<0.001
Admission to Surgical ICU*	0.29 (0.22 – 0.37)	<0.001

*Admission to medical ICU is the reference group

D85 Resident Presentation, Encore Presentation
A Quality Improvement Checklist Initiative and Better Outcomes on an Academic Center Geriatrics Unit
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2. Yale University School of Medicine, New Haven, CT; 3. Department of Geriatrics, Yale New Haven Hospital, New Haven, CT.

Background: Hospitalized elderly patients are at high risk for adverse events and functional decline due to preventable causes. Studies have shown improved outcomes with geriatrics-focused care initiatives. We designed this study to evaluate the effects of a checklist on patient care, nursing-medical team communication, and hospitalization outcomes on a geriatrics unit.

Methods: We implemented a daily 'Geriatric Vital Signs' checklist to address easily overlooked factors such as bowel movement regularity, frequency of family visits, open blinds, bed tethers, etc. We surveyed nurses and providers during pre- and post-checklist implementation periods. We performed a review of electronic medical records before and after checklist implementation. Outcomes were compiled and analyzed using unpaired t-tests in GraphPad Prism.

Results: The surveys demonstrated a statistically significant difference (p<0.005 by unpaired t-test) between perceived effectiveness of resident team communication (3.8/5) relative to hospitalist team communication (2.6/5). Chart review data revealed trends towards improved average outcomes after checklist implementation, including shorter hospitals stays (5.96 vs 7.21 days), less Ativan and Haldol usage (0.09 vs 0.22 mg and 0.30 vs 0.64 mg, respectively), fewer use of restraints (3% vs 14%), more discharges home (48% vs 41%), fewer days with a Foley catheter (0.26 vs 0.28), fewer Rapid Responses (0 vs 2 cases) and fewer days with hypernatremia

(0.17 vs 0.20). Unfortunately, given our small sample size and low rate of adverse events, our data failed to achieve statistical significance.

Conclusions: Our checklist improved outcomes on our inpatient geriatrics service. Limitations include the single-unit nature and small sample size. Future aims include expanding the checklist to include more high-risk patients, such as those seen by the Geriatrics Consult Service. By increasing both sample size and power we hope to reveal additional findings supporting the above-mentioned trends, leading to improvements in the clinical care of a vulnerable geriatrics population.

D86 Student Presentation
Infectious Diseases Provider Opinions on Care Models for Older Adults Living with HIV
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Background
Advancements in Highly Active Antiretroviral Therapy (HAART) have improved the life expectancy of adults living with the Human Immunodeficiency Virus (HIV). Additionally, research has found that individuals living with HIV develop geriatric syndromes at earlier ages [1,2]. This project surveys Infectious Diseases (ID) providers in order to optimize future care for this growing population.

Methods
A self-designed questionnaire was distributed to the North Carolina AIDS Training and Education Center (NC ATEC) list-serv. The survey asked about provider 1) interest in help with geriatric conditions, 2) priorities regarding preventive medicine recommendations, and 3) opinions about potential care models. Only North Carolina ID providers who are able to prescribe and currently care for older (age ≥ 50) people living with HIV were included.

Results
Analysis included 27 participants. These ID providers prioritized recommendations on screening for blood pressure (58%), diabetes (46%), and depression (46%). Participants were most interested in help with multiple comorbid conditions (median: 85, IQR: 65-100), polypharmacy (83, 51-100), cognitive impairment (80, 68.5-96), and mood disorders (80, 67-92). Respondents most frequently endorsed the following care models: development of formal guidelines (68%), creation of training sessions (60%), and incorporation of allied health professionals (60%).

Conclusion
ID providers are already thinking about important geriatrics preventive care; however, they also recognize a need for help with geriatric syndromes. Future efforts to address the aging HIV population should focus on developing guidelines, creating training sessions for ID providers, and increasing the role of allied health providers.

References
1. Chirch LM, Hasham M, Kuchel GA. HIV and aging: A clinical journey from Koch's postulate to the chronic disease model and the contribution of geriatric syndromes. *Curr Opin HIV AIDS*. 2014;9(4):405-411. doi:10.1097/COH.0000000000000074
2. Smit M, Brinkman K, Geerlings S, et al. Future challenges for clinical care of an ageing population infected with HIV: A modelling study. *Lancet Infect Dis*. 2015;15(7):810-818. doi:10.1016/S1473-3099(15)00056-0

D87 Resident Presentation

Patient and Prescriber Perspectives on Proton Pump Inhibitor (PPI) Use and Deprescribingin Older Adults

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Background: In the United States, approximately 27% of Medicare beneficiaries and 79% of skilled nursing facility residents use Proton Pump Inhibitors (PPIs). Despite adverse events associated with long-term PPI use, the number of prescriptions continues to rise. Deprescribing is structured approach to optimize medications. The aim of this study is to describe the PPI prescribing trends in a geriatric patient population and elucidate patient, caregiver and provider perspectives regarding PPI deprescribing.

Methods: A retrospective chart review of patients 65 years and older at the Center for Successful Aging, Baltimore, MD was completed to identify those on PPI therapy. These charts were reviewed for indication, length of use, and type of PPI therapy. Patients on PPI therapy and their caregivers at the Center for Successful Aging were asked to complete a 14 question deprescribing survey following their office visit. Survey questions were developed and modified from the validated Revised Patients' Attitudes Toward Deprescribing (rPATD). Providers at MedStar Health hospitals were emailed an online survey of 10 questions, which was modified from an existing measures of practitioner deprescribing perspectives.

Results: Chart review identified 107 patients taking a PPI. Seventy-four (74%) of the patients had GERD or heartburn and 84% had been taking a PPI for more than one year. Only a small number of patients had an indication for long term PPI use documented in the problem list. The survey was completed by 22 patients and caregivers to assess the perceived appropriateness of medication use (harms and benefits), concerns about stopping the medication, and level of involvement/knowledge of medications. A total of 74 providers completed the survey. Identified barriers to deprescribing included: uncertainty about medication indication, fear of consequences, access to documentations, and lack of knowledge of current guidelines.

Conclusion: The study identified prevalent long-term use of PPIs among patients without a documented long-term clinical indication. It also identified perceived barriers among patients and providers impacting deprescribing. Long-term PPI use is associated with significant side effects, successful deprescribing must address these perceived barriers.

D88 Resident Presentation

Improving Documentation of Advance Care Directives by Healthcare Providers

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Background: In a recent patient survey of Carolinas Health Care System Blueridge, a small community hospital in rural western North Carolina, 80% of patients wanted to discuss Advance Care Directives (ACD) with healthcare providers, but only 7% had done so. these results are consistent with national data (1,2). The hospital started a system wide initiative to promote ACD conversations with patients and families. We detected incorrect documentation of ACD in the electronic medical record system (EMR) leading to poor outcomes. The objective of this study was to understand health care employee (HCE) knowledge of proper documentation of ACD. More importantly we were interested to know if this was a system problem, with the goal to educate HCEs and reassess their knowledge.

Methods: 700 HCEs within the clinic and hospital system were surveyed on their understanding of ACD. HCEs were offered a two minute education video after completion of the initial survey on proper ACD documentation. Two weeks after the initial survey, a post survey was sent to reassess understanding.

Results: 170 HCEs responded to the initial survey, 50% (n=85) were physicians, physician assistants and nurse practitioners. 58% (n=98) rarely or never documented ACD. 80% (n=136) of HCEs were not familiar with locating ACD within the EMR. 67% (n=114) had poor knowledge of how to document properly in the EMR.

Conclusion: Knowledge of proper ACD documentation is a system problem and needs further attention. Addressing this problem could prevent patient suffering, unnecessary testing, and decrease system costs. We were unable to evaluate for statistical significance between pre and post education surveys due to the small number of post survey respondents (n=29). Unfortunately, we suspect that most HCEs did not watch the educational video. However of the small number of HCEs who watched the video, 96% (n=28) were more confident in navigating ACD. To improve quality outcomes, we are addressing this problem by attempting to add the education to the HCE mandatory annual learning modules.

Health Care Employee Data Advance Care Directive Documentation (ACD)

Health Care Employees n=168
Physician, Physician assistant, Nurse practitioner n=85 50%
Nurse n=65 39%
Medical office staff n=18 26%
Work Setting n=169
Outpatient clinic n=57 34%
Hospital n=92 54%
Both Hospital and Clinic n=20 12%
Frequency of ACD Documentation n=170
Daily n=30 18%
Weekly n=32 19%
Monthly n=10 6%
Rarely or never n=98 58%

D89 Resident Presentation

Watch Your Step: Development and Dissemination of a Falls Prevention Tool

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Introduction:

An estimated 25% of older adults fall per year, costing billions of dollars annually. This collaborative quality innovation project between the Kaiser Permanente (KP) Care Management Institute (CMI) and the KP Oakland Internal Medicine (IM) Residency Program aims to improve falls prevention through the adaptation and implementation of a falls prevention tip sheet.

Methods:

A KP patient tip sheet highlighting "10 Easy Steps to Prevent Falls" was previously developed based on geriatrician advice and evidence-based sources, including a JAMA publication comparing falls prevention interventions. A quality improvement partnership was formed between CMI and the IM residency program to adapt and disseminate a tip sheet after obtaining direct feedback from local stakeholders (Patient Advisory Council and healthcare providers). Subsequent outreach to improve falls education was conducted through distribution to members with medium or high fall risk.

Results:

Adaptation and implementation at KP Oakland was supported by graduate medical education efforts to promote quality improvement and patient safety in internal medicine training. An assessment of available resources showed the need for an easy to follow handout. In collaboration with CMI, "10 Easy Steps to Prevent Falls" was chosen for local use. For direct patient feedback, this tip sheet was taken to the Oakland Patient Advisory Council, a group of volunteer senior patients who provide advice on quality concerns, and changes to the tip sheet were made including font size and simplifying phrasing and imagery. Further feedback was obtained from Oakland healthcare providers, and the handout was then disseminated on the KP website (https://kp.org/healthyaging), to healthcare providers in English, Spanish, and Chinese, in the electronic health record as a direct file, and as printouts

in the clinic and waiting areas. The tip sheet was also mailed and emailed to members with the goal of performing a follow up survey.

Conclusion:

Falls prevention remains a national and regional priority. This quality innovation project created a partnership to integrate local support in the form of an IM residency program to adapt and implement falls prevention education at KP Oakland. This tip sheet is easy to understand for patients and providers and can be used by other organizations to improve falls prevention education.

D90 Student Presentation
Healthgrades: What Can 53,270 Online Physician Reviews Tell Us About Geriatrics?

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Background: To find correlations within evaluations of Gerontologists on Healthgrades.com (HG) and ultimately improve the quality of care delivered in the field of Geriatrics.

Materials & Methods: Data was collected on 6,631 "geriatric medicine" physicians with reviews on HG, the most popular website focused on physician reviews. Factors such as wait time, insurances accepted, malpractice information, and gender were compared to rating scores. Using 2010 census data, we compared the ethnic breakdown of the providers' last name. As anyone can post reviews on HG, many advocate for hospitals to compile "verified" reviews. We looked at the 93 medical schools ranked in primary care by the US News and World Report to make comparisons between verified reviews and HG.

Results: A total of 53,270 reviews on HG were analyzed. Physicians with more common last names among self-identified Caucasians had higher ratings (Pearson coefficient .262, p<0.01) and providers with names more common among Asians and Hispanics had lower ratings (-.209, -.093; p<0.01). Wait times were correlated with a worse score, with every additional 10-15 minutes resulting in roughly a .5 star decrease (p<.01). We found much lower ratings for doctors with board sanctions and malpractice history (p<0.04) and no significant difference in years practicing, gender, specialty, personal picture, or care philosophy posted. There was a significant difference between scores for PA/NPs vs. MD/DO vs. foreign graduates; highest to lowest reviews respectively (P<0.001). Nearly 27% of medical schools had verified physician reviews and 82 geriatricians appeared on both the verified sites and HG. Average scores on verified reviews were much higher at 4.77/5 stars compared to 3.95/5 on HG.

Conclusions: Online physician rating websites suggest that we can improve patient experience by limiting wait times, including mid-level providers, and avoiding malpractice. We found some evidence of racism in geriatric physician reviews. With such a large discrepancy between each verified review and HG, there is concern that verified patient reviews may be inflated.

D91 Student Presentation
Obstructive Sleep Apnea Presenting as Cognitive Impairment: An Evaluation of Clinical Patterns In Memory Clinic

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Background: As our nation's population ages, health practitioners will become faced with an increasing need to manage the memory concerns of their older patients. While cognitive impairment is well recognized in obstructive sleep apnea (OSA), the literature is limited on impaired cognition as an initial presentation for OSA (1).

We sought to identify clinical patterns associated with a referral for sleep study in patients presenting with cognitive concerns.

Methods: We abstracted data on 119 consecutive patients evaluated for initial consultation for memory loss in the GWU Geriatric Memory Clinic from 1/7/16 to 2/16/17. Patients referred for management of dementia were not included in this review. Excluded patients included 3 deceased, 1 patient seen for a non-memory concern, 2 patients who exhibited parkinsonian signs and one patient without sleep referral data leaving 112 patients in the analytical sample. Demographic and clinical characteristics were tabulated overall and by whether the patients were referred for a sleep study.

Results: Patients referred for sleep study tended to have a higher BMI, and had a higher incidence of reported perceived difficulty with word finding, impaired concentration and difficulty with thinking. Referred patients had a higher total MOCA score and were given a working diagnosis of mild cognitive impairment. Importantly, of the 15 patients who were referred to and completed a sleep study, 100% were diagnosed with OSA.

Conclusion: In this cohort, distinct symptoms and clinical findings characterized patients with memory concerns who were subsequently suspected and confirmed to have undiagnosed OSA. Replication of these patterns in a larger cohort has potential implications for evaluation of patients presenting with memory concerns and for older adults with disordered sleep.

1. Olaithe, M. Cognitive deficits in obstructive sleep apnea: Insights from a meta-review and comparison with deficits observed in COPD, insomnia, and sleep deprivation. Sleep medicine reviews 1087-0792: 2018: 38 39 10.1016

	Patients Referred for Sleep Study (N 27, 24%)	Patients Not Referred for Sleep Study (N 85, 76%)
Average BMI (kg/m<2>)	31.4	26.1
Domain of Patient's Cognitive Concern	Word Finding: N 6, 22.2% Thinking/Functional: N 7, 25.9% Concentration: N 3, 11.1% Memory: N 10, 37%	Word Finding: N 3, 3.53% Thinking/Functional: N 9, 10.6% Concentration: N 4, 4.7% Memory: N 49, 57.7%
MOCA Score (Mean of Total)	23.0	20.7
Initial Working Diagnosis of Mild Cognitive Impairment	N 11, 40.7%	N 23, 26.1%

D92 Resident Presentation
Evaluation of a Geriatric Correctional Insulin Scale in Patients with Diabetes

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Background:

Hypoglycemia is a serious adverse event of insulin therapy in hospitalized older adults ($\geq$65 years-old). This age group is especially vulnerable due to the increased prevalence of multiple comorbidities, polypharmacy, malnutrition, and frailty. Therefore, cautious dosing of insulin is warranted in older adults. In the hospital setting, insulin correctional scale is often used in combination with scheduled basal insulin to manage hyperglycemia. Correctional scale can also be used as insulin monotherapy for a short period of time in hyperglycemic patients whose insulin requirements are unknown. Given increased susceptibility of older adults to hypoglycemia, our hospital has an order set for a lower intensity, geriatric-specific correctional insulin scale in addition to an order set for standard adult low, moderate, and high intensity scales. The goal of this quality improvement project was to assess our standardized geriatric correctional insulin protocol in hospitalized older adults with diabetes.

Methods:

Patients admitted to the hospital's geriatrics service with diabetes ordered the geriatric correctional insulin scale were retrospectively identified over a 12-month period. The geriatric correctional scale has a higher threshold for treatment of elevated blood glucose levels, delaying insulin doses until blood glucose is greater than 200 mg/dL. Patient demographics including age, comorbid conditions, concurrent use of basal or premix insulin, pre-admission diabetes regimen (if any), and reason for admission will be collected. Prevalence of hypoglycemia (blood glucose (BG) <70 mg/dL), severe hypoglycemia

(BG <54 mg/dL), hyperglycemia (BG >180 mg/dL), severe hyperglycemia (BG >300), rate of initiation or escalation of basal insulin dose, and need to switch scales will be analyzed.

Results:

We anticipate low rates of hypoglycemia with the geriatric scale; however, we suspect that many patients may be switched from the geriatric to a standard scale for escalation in therapy. We anticipate determining the prevalence of hypoglycemia and hyperglycemia in this population.

Conclusions:

There is a need for careful use of insulin in older adults. Next steps could include determining which older adults are most likely to benefit from use of the geriatric scale.

D93 Resident Presentation, Encore Presentation
Antibiogram-Based Antibiotic Algorithm for Treatment of Cystitis in a Nursing Facility
E. Wilson, E. Kryger, A. Pickering, F. D'Amico, A. Haver. *UPMC St. Margaret, Pittsburgh, PA.*

Background

Urinary tract infections are the most common infection in nursing homes, and while antibiograms are frequently used in hospital settings to guide empiric therapy, there is limited research in the use of these reports in nursing homes to guide therapy. This study aimed to evaluate a facility-specific antibiogram-based antibiotic algorithm in place for empiric treatment of cystitis by characterizing prescribed empiric antibiotics.

Methods

This was a retrospective, cross-sectional study that included patients from a skilled nursing facility who received antibiotic therapy for cystitis. An algorithm for empiric treatment of cystitis was previously implemented at the facility in conjunction with an antimicrobial stewardship program. This algorithm used a facility-specific antibiogram in addition to the IDSA guidelines to recommend first and second line empiric antibiotics for patients with suspected cystitis. The culture and susceptibility report for each patient was compared to the empiric antibiotic prescribed to determine if the antibiotic was effective or ineffective.

Results

During the study period of 11 weeks, 39 urine cultures were performed and 26 patients had positive urine cultures. Fourteen patients were excluded, mostly attributed to not receiving antibiotics and receiving antibiotics after culture resulted, and 12 patients were included in the analysis. The prevalence rate of effective empiric antibiotic prescribing was 67% (95% CI 42%-92%). 58.3% of patients received either first or second-line antibiotics according to the algorithm. None of the patients' empiric antibiotics were changed after the culture resulted.

Conclusions

This exploratory analysis shows that while the majority of patients are receiving antibiotics that are effective for their cystitis, many patients' urine cultures result in resistant organisms. Despite a facility specific algorithm for empiric antibiotics being in place, antibiotics not included in the algorithm continue to be prescribed.

D94 Resident Presentation
Orthostatic Hypotension in the Outpatient Setting After a Fall
E. Wilson, K. Leman, F. D'Amico, H. Sakely. *UPMC St. Margaret, Pittsburgh, PA.*

Background

Orthostatic hypotension (OH) causes symptoms such as dizziness, lightheadedness, and syncope which all increase risk of falls and injury. Older adults have a higher prevalence of orthostatic hypotension; upwards of 20% of the population over age 65 have OH. Risk factors for OH include medications such as antihypertensives. OH has been shown to be an independent risk factor for falls in older adults.

Injurious falls such as falls leading to hip fractures are devastating and significantly impact patients' quality of life.

This project aims to describe how the interprofessional team in the geriatric outpatient setting is treating patients with a history of a fall who also have orthostatic hypotension. By understanding our current practice, we will be able to better serve these patients at a critical point in their care (after a hospitalization or ED visit) and aim to prevent future falls by addressing a possible cause of the initial fall: orthostatic hypotension.

Methods

This was a retrospective, observational study. Patients were included if they had an emergency department (ED) visit or hospitalization secondary to a fall from October 2014 to October 2017 within the health system, identified through ICD-10 billing codes, and also had an outpatient office visit with their primary care physician within 12 months of the initial fall. At the time of the office visit, parameters of orthostatic vitals, medications, and comorbidities were collected. Objectives of the study are to determine the prevalence of orthostasis at the time of the office as well as the prevalence of medication changes in patients who have positive orthostatics. The primary safety outcome was the rate of recurrent falls within 12 months of outpatient follow-up visit. Descriptive statistics will be used to describe patient demographics and comorbidities.

Results

We anticipate that the interprofessional team including physicians and clinical pharmacists will have appropriately made medication regimen changes in patients who present with positive orthostatic vitals after a hospitalization for a fall. The prevalence of orthostasis and the prevalence of medication changes in this population will be determined, as well as the rate of recurrent falls.

Conclusions

Describing the current practice of reacting to orthostatic hypotension after a fall will enhance our understanding of our patient population and will lead to identification of gaps of care that may be addressed in the future.

D95 Student Presentation
This is the End…I think": Analysis of Medicine Residents' Complex Care Communication Strategies
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Background:

Communication skills (CS) are vital in complex medical discussions as it impacts decision-making and quality-of-life. Studies show residents do not receive adequate training in end-of-life communication and standardized curriculum surrounding complex discussions have not been established. The objective of the study is to evaluate the impact of a palliative care complex communication strategies curriculum among internal medicine (IM) residents.

Methods:

A 16-hour, 4 month-long geriatric palliative communication curricula was implemented to teach IM residents (2017-2018). Residents underwent an objective structured clinical examination (OSCE) using standardized patients/family members with immediate feedback from faculty. Two OSCE situations evaluated were Breaking Bad News encounter (BBN) and conducting Family Meeting (FM) to make multiple decisions about complex care of patients. OSCEs were video-recorded, investigator watched the videos, and scored residents with a forty-point SPIKES model-based checklist.

Results:

N=29. Female residents had a tendency of scoring higher overall (p=NS). Residents showed significant difficulty in naming emotions in BBN over FM situation (p<0.0003). During FM, residents demonstrated significant ease in including interdisciplinary team members

vs. BBN (p=0.017). Residents asked what patient/family want to know about medical condition during the BBN encounter vs. FM (p=0.0005). Warning shots were used more often in BBN than FM (P=0.0016). Interestingly, 79.31% BBN and 82.76% FM did not ask about spiritual, religious, or cultural concerns (p=NS). Qualitatively, residents often used euphemisms to replace the term dying such as "we are at the end" and "pass away". Lastly, residents felt uncomfortable discussing prognosis, being direct about the patient's condition, and struggled using silence.

Conclusions: should state the implications of the findings for clinical practice, research, education, or policy.

Palliative care communication skills vary depending on the given situation whether it is conducting a family meeting (multiple complex decisions) or breaking bad news only. Standardized complex communication encounters are useful in improving communication skills, quality-of-life and impacting decision-making processes.

D96 Resident Presentation
The Prognostic Accuracy of the "Surprise Question" in Geriatric Patients at a Large New York City Hospital

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Background:

The surprise question (SQ) is an assessment tool used to identify hospitalized patients with poor prognoses by asking providers the following question: "Would you be surprised if this patient died within the next 6 months?" We sought to describe the prognostic utility of the SQ as well as the impact of age and gender on the accuracy of the SQ in elderly patients.

Methods:

We identified patients hospitalized between March and April of 2018 seen by the geriatric consultation service at our hospital. Responses to the SQ on admission and patient demographic data were recorded. We queried the New York State death registry and the hospital's internal medical record 6 months after each SQ response was filed. This data was then used to assess the accuracy of providers' responses. The accuracy of the SQ was compared across gender and age groups using chi-square tests with statistical significance defined as $p<0.05$.

Results:

A total of 163 cases were studied. The mean age of the patients analyzed was 85.7 years. 55.8% of the patients were female. The overall accuracy of the SQ was 54.6% (95% CI 46.6%-62.4%). The sensitivity and specificity of the SQ for death within 6 months were 66.7% (95% CI 44.7%-84.4%) and 53% (95% CI 43.9%-61.1%), respectively. The positive predictive value and negative predictive value of the SQ for death within 6 months were 19.5% (95% CI 14.8%-25.3%) and 90.1% (95% CI 83.5%-94.3%), respectively. There was no significant difference in the accuracy of the SQ between male and female patients (56.3% vs. 53.3%, $p = 0.70$). The SQ was more accurate in patients under 90 years of age compared to patients 90 years of age and older (60.6% vs. 44.1%, $p = 0.04$)

Conclusions:

In this single institution study, we found the SQ to be neither sensitive nor specific for predicting death within 6 months of hospital admission. The SQ is more accurate in patients under 90 years of age compared to older patients. Future investigation into both patient and provider characteristics that contribute to the limited accuracy of this simple assessment tool may further illustrate potential biases that impact successful prognostication.

D97 Resident Presentation, Encore Presentation
An Evaluation of Potentially Inappropriate Medications for Patients in Bundled Payment Episodes in a Skilled Nursing Facility

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Background: Medicare value-based healthcare reimbursement models seek to provide cost-effective, high-quality, coordinated care through use of healthcare teams, however, the role of a clinical pharmacist on the team is not clearly defined in current literature. This work aims to describe the prevalence of potentially inappropriate medication prescribing during the transition from hospital to skilled nursing facility in patients in bundled payment episodes.

Methods: A retrospective chart review was conducted. Patients discharged from a 250-bed hospital that is part of a larger health-system to one SNF with a geriatric trained pharmacist as part of the care team were reviewed. Patients were enrolled in the Comprehensive Care Joint Replacement (CJR) or Bundled Payments for Care Improvement (BPCI) reimbursement models during the study period. The Medication Appropriateness Index (MAI), a validated tool, measured potentially inappropriate medication prescribing at the time of SNF admission. The primary outcome is to determine the prevalence of inappropriate medication prescribing. The secondary outcomes are to descriptively analyze inappropriate prescribing and describe the population in these alternative payment models.

Results: Sixty-seven patients were identified as being in bundled payment episodes from the study period of April 1, 2015 to April 30, 2017. Forty-eight patients met inclusion criteria. Most patients (81%; n=39) were female. The average age of patients was 84 years old. The mean Charlson Co-morbidity index score was 5.4 and patients had an average of 13 medications ordered at admission. Eighty-five percent of patients (41 out of 48 patients; 95% CI [72%, 94%]) had instances of potentially inappropriate medication prescribing. The mean MAI score was three.

Conclusion: The bundled payment patient population is complex due to age, co-morbid conditions, and polypharmacy. The MAI detected potentially inappropriate medication prescribing in post-acute care geriatric patients in bundled payment episodes illustrating that pharmacists may have a role in identifying inappropriate prescribing.

D98 Student Presentation
Improving Pain Control by Increasing Offering of Non-Pharmacological Interventions

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BACKGROUND

Chronic pain management is a key issue among residents in skilled nursing facilities (SNFs). The Community Living Center (CLC) at San Francisco's VA Medical Center (SFVAMC), a SNF for veterans, scored in the lowest 30th percentile for long-stay residents with moderate to severe pain compared to other CLCs and was cited for not including non-pharmacological interventions (NPI) by the SNF surveyors. The authors aimed to increase the use of pain note from its current level of 22% to 50% for long-stay veterans at the CLC with moderate to severe pain and to improve the use and documentation of NPI for treatment of pain.

METHODS

In a multidisciplinary process mapping meeting, ineffective documentation of pain management practices and underutilization of NPI were identified as barriers to successful management of chronic pain in the CLC. The authors ran two in-person provider trainings to review the current state of provider adherence to pain documentation and NPI

available to CLC residents. The electronic health record (EHR) pain note template was updated to include NPI (PT/OT, massage, acupuncture), and Cognitive Behavior Therapy was established as a new NPI. We performed pre- and post-intervention chart reviews which focused on the provider monthly note closest to a reported incident of moderate to severe pain in our target population. The pre-intervention period spanned November-January 2018, and the post-intervention period spanned May-July 2018.

RESULTS

The CLC has 10 providers and average of 54 long-stay, verbal, non-hospice veterans. In the pre-intervention period, use of the pain note template was 22% (2 out of 9 provider notes), and documentation of the offering of NPI was 67% (6 out of 9 providers notes). In the post-intervention period, use of the pain note template was 47% (7 out of 15 provider notes), and documentation of the offering of NPI was 73% (11 out of 15 providers notes).

CONCLUSIONS

The increase in the use of the pain note template and modest increase in offering of NPI suggest that the implementation of provider education, EHR modification, and adoption of new treatment modalities can help to improve documentation of NPI for residents of SNFs. In addition, the SFVAMC CLC was no longer cited for poor chronic pain management by the SNF annual surveyors following these interventions.

D99 Student Presentation

A Retrospective Cohort Study of Narrow Band UVB Phototherapy for the Treatment of Uremic Pruritus in Aging Patients at an Academic Tertiary Care Center

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Introduction: Elderly people with End Stage Renal Disease (ESRD) frequently suffer from Uremic Pruritus, which is often severe and difficult to treat in this population due to their many medication intolerances. Narrowband UVB (NBUVB) phototherapy is a feasible treatment for pruritus that has minimal side effects, however, a standardized treatment has not been established. This study examines the characteristics and treatment responses of younger versus older adults with ESRD receiving NBUVB phototherapy for uremic pruritus.

Methods: This was a retrospective chart review of ESRD patients with uremic pruritus treated with phototherapy at Johns Hopkins (JH) from 2009 to 2017. Patients were identified by screening the physician billing database (IDX) for CPT codes 96900, 96910 and 96912. Of the phototherapy patients, those with chronic kidney disease (CKD) and pruritus were identified by the associated International Classification of Diseases codes (ICD-9 and ICD-10). Patient demographics and medications were extracted from EPIC electronic medical records. The data was stratified by age group ("younger": ages 30-59 versus "older": 60-89) and compared.

Results: 153 of 833 patients received NBUVB for pruritus, excluding primary diagnoses of eczema, vitiligo, or psoriasis. Twenty-two of the 153 patients (14.4%) had chronic kidney disease (CKD), of which 8 had ESRD, and 10 were on dialysis. Majority of the CKD patients were African-American (68.2%) and female (63.6%), with an average age of 57.6 and BMI of 27.9. Eight CKD patients completed phototherapy treatment and reported their results. They were divided into 4 "younger" and 4 "older" patients. Both groups had 100% completion of phototherapy treatment. "Younger" had 100% improvement of pruritus compared to 75% in "older" patients. No adverse reactions were reported. Travel and scheduling were documented causes of incomplete treatments.

Conclusion: NBUVB Phototherapy is used infrequently for treatment of uremic pruritus, however, treated patients derive significant improvement with older adults showing slightly lower improvement

rates than younger adults. Further research involving larger sample sizes would support these findings and help explore factors that best predict treatment responses.

D100 Resident Presentation

Early Outcomes of Geriatric Co-Management in a Multidisciplinary Hip Fracture Program

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Background: Studies of geriatric co-management show promise in improving care of older adults with hip fractures, including reduced in-hospital complications and length of stay. We aim to examine early outcomes of a geriatric co-management intervention within a multidisciplinary care pathway for older patients hospitalized with hip fracture.

Methods: The University of California San Francisco (UCSF) Hip Fracture Program was designed by representatives from Geriatrics, Orthopedics, Anesthesia, Emergency Medicine, and Nursing based on review of literature and AGS CoCare recommendations. In this program, all patients ≥65 years old hospitalized with a hip fracture received clinical care based on a multidisciplinary hip fracture management protocol and geriatric co-management, which included geriatric assessment, rapid pre-operative optimization, and daily multidisciplinary rounds to discuss management and early discharge planning. Retrospective analysis was done via chart reviews of patients ≥65 years old admitted with a hip fracture between January and December 2017. Outcomes of delirium (using NuDESC), length of stay adjusted by case mix index (CMI-adjusted LOS), and 30- and 90-day non-admission emergency department (ED) visits and readmissions were compared between patients admitted before and after implementation of the program. Continuous variables were compared with the Mann-Whitney U test and categorical variables were compared with the Fisher's exact test.

Results: Of the 103 patients ≥65 years old hospitalized with hip fracture, one-third (n=34) were admitted after the UCSF Hip Fracture Program was initiated. Those admitted after program implementation exhibited trends toward decreased rates of delirium (62% vs. 80%, p=0.08) and lower CMI-adjusted LOS (2.2 vs. 2.4 days, p=0.52), compared to patients admitted before program implementation. They also had lower rates of any non-admission ED visits in both 30 (0% vs. 6%, p=0.30) and 90 days (3% vs. 12%, p=0.27), and lower rates of any readmissions in both 30 (9% vs. 16%, p=0.38) and 90 days (15% vs. 19%, p=0.78).

Conclusions: Early results of geriatric co-management in a multidisciplinary hip fracture program during the first four months of implementation show statistically insignificant differences but trends toward reduced rates of delirium, length of stay, and health care utilization among older patients with hip fractures. Future analysis is needed to see if these trends sustain over time.

D101 Student Presentation

Interventions to Improve Hospital Visitor Hand Hygiene Compliance in an Acute Care Hospital

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Background: Healthcare-associated infections are a major source of morbidity and mortality among hospitalized patients and represent a threat to public health via transmission of multidrug-resistant organisms (MDROs) between hospitals and the community. Despite a recent emphasis on improving healthcare worker hand hygiene (HH), failure of hospital visitors to perform HH has been overlooked as an opportunity to intervene and prevent the transmission of MDROs. The objective of this study was to create and implement effective practices for improving hospital visitor hand hygiene compliance (HHC).

Methods: We developed a HH promotional intervention using visual and verbal cues for visitors to a medicine unit in an acute care hospital. The control and two intervention groups consisted of visitors that were directly observed for two weeks each. Visitors in Intervention 1 received a promotional sticker and a verbal reminder to practice HH, and two HH promoting posters were posted by each patient room. Intervention 2 included the interventions in Intervention 1, but also the involvement of a nurse and volunteer who were positioned at the central nursing station. Their role was to inform new visitors about the requirement for HH upon entering and exiting patient rooms. The results were compared by Pearson's chi-squared test.

Results: Baseline visitor HHC rate on the observed unit was 0% (n=20). Intervention 1 increased HHC rate from baseline to 18.2% (n=88, p=0.039). Intervention 2 further increased the HHC rate from baseline to 43.5% (n=46, p<0.001).

Conclusions: The response to signage and stickers to remind visitors to clean their hands and significant response after nursing intervention suggests that direct personal contact is effective in changing visitor behavior. While there is clearly a benefit to the subsequent intervention, questions remain regarding how to feasibly implement directed interactive education to visitors coming into the hospital. In the future, dedicated research using a human factors approach will provide a better understanding of the specific barriers which prevent visitors from HHC. Additional efforts are needed to identify feasible and generalized interventions to educate visitors on the need for HH.

D102 Student Presentation
Dynamic Sleep Patterns in Older Adults Living in Residential Memory Care: An Exploratory Case Study
K. Wuestney, C. Van Son, R. Fritz. *College of Nursing, Washington State University, Seattle, WA.*

BACKGROUND

Older adults with dementia frequently exhibit neuropsychiatric symptoms including sleep disturbances. Evidence suggests that sleep disturbances can be a part of a neurological degeneration cycle as both a symptom and a contributing factor. Furthermore, sleep disturbances are dynamic behaviors with periodic and nonlinear changes over time. Ubiquitous passive sensor technology offers a new way of capturing these changes and describing their underlying patterns and structures. This case study explored the dynamics between sensor-derived measures of sleep and agitation in an older adult with dementia.

METHOD

Motion sensors were placed in the private room of a resident of a specialized memory care unit. The sensors measured motions as frequently as every second. The sensor data was recorded by an off-site remote server, capturing a continuous series of sensor events (approximately 5000/24 hours) representing motions occurring in the resident's room. Using the Fritz Method, 6 weeks of sensor data was analyzed qualitatively to identify the resident's patterns and routines. To guide the sensor analysis, data on agitated behaviors were obtained from nurse manager interviews using the Cohen Mansfield Agitation Index short form and from the resident's chart. Sleep episodes were designated by periods of 5 minutes or more where the resident and all sensors were inactive. This data was used to calculate numerous variables including nighttime duration (time between going to bed and arising the next morning), number of sleep episodes per time of day (i.e. night or day), number of sensor events per time of day, total sleep time (TST), and sleep efficiency (SE).

RESULTS

Formative findings suggest that nighttime duration, number of sleep episodes per night, total daytime bed sensor events may offer the most information for predicting changes in levels of agitation as well as changes in sleep disturbance. Additionally, there does not appear to be a link between total amount of sleep per night and daytime sleep measures or agitation.

CONCLUSIONS

These findings suggest that variation in sleep fragmentation, more so than sleep quantity, may have a stronger influence on behavior in persons with dementia. Results from this investigation will be used to design variables measured by passive sensors to better assist clinicians to identify sleep symptoms and judge when they warrant intervention.

D103 Student Presentation
Screening for Depression and Anxiety as Predictors of Readmissions in Hospitalized Elderly Patient
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Background

Previous research has suggested that 20% of Medicare beneficiaries are readmitted to the hospital within 30 days of discharge. Risk factors for readmission include older age, male sex, recent previous hospital admission, longer hospital stay, and greater comorbidity. Emotional disorders such as depression and anxiety may also affect hospital readmissions in Medicare beneficiaries.

Screening tools for depression and anxiety include Patient Health Questionnaire-4 (PHQ-4) and the Hospital Anxiety and Depression Scale (HADS). The PHQ-4 has been found to be a valid screening tool for major depression. The HADS, developed in the early 1980s, is one of the most commonly used self-report screening instruments developed specifically for hospitalized patients.

This study aimed to compare the PHQ-4 and the HADS in each tool's ability to predict 30-day readmissions.

Method

Data were collected utilizing a survey and chart review of hospitalized adults (≥65 years) admitted to the medicine service. In addition to the primary outcome, data were also collected on the following: Katz ADL; Lubben Social Network Scale (LSNS-6); Self Rated Health (SRH); Charlson index; LACE scores; length of stay (LOS); and, number of hospital admissions in the last year.

Results

A total of 80 patients (M=78.8 years, Range: 65-95) participated in the study; 55% were female; and, the majority (77.5%) identified as white. Twenty-two patients (27.5%) had a 30-day readmission.

Using logistic regression, data were analyzed to determine significant predictors of readmission. Results indicated the Katz ADL (OR:0.57, p=.03) and the LACE (OR:1.47, p=.02) were significant.

Using regression, data were analyzed to determine significant predictors of LOS. Results indicated the Charlson index (β=-0.23, p=.004) and the LACE (β=0.24, p< .001) were significant.

Finally, using regression, data were analyzed to determine significant predictors of number of yearly admissions. Results indicated only the LACE (β =0.50, p<.001) was significant.

Conclusion

Interestingly, neither the PHQ-4 nor the HADS predicted short term clinical outcomes (LOS and 30-day readmission). It is plausible that neither tool is adequately adapted for use in hospitalized older adults. Further studies are needed to address the screening and management of emotional disorders in the hospital setting.

D104 Resident Presentation
Prevalence of geriatric syndromes in a dementia practice
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Background: In older adults with cognitive impairment and dementia (CID), common geriatric syndromes contribute to morbidity and mortality. Comprehensive geriatric assessment (CGA) can identify and manage these clinical challenges. This cross-sectional study

determined the prevalence of geriatric syndromes across cognitive states and specific dementia subtypes.

Methods: The Montefiore-Einstein Center for the Aging Brain provides a multidisciplinary (geriatrics, neuropsychiatry, and neurology) evaluation for patients with cognitive complaints. Charts of patients seen over a 2-year period were reviewed for cognitive state (dementia, mild cognitive impairment (MCI) syndrome, or subjective cognitive complaints (SCC); dementia subtype (Alzheimer's (AD), Vascular (VaD), mixed, Lewy Body (LBD), frontotemporal (FTD)); and presence of geriatric syndromes - falls, unsteady gait, and weight loss - over the prior year. Chi-squared analysis was performed to assess for significance of associations between the cognitive states and specific dementia diagnoses with the three geriatric syndromes.

Results: 518 charts with a geriatric assessment were reviewed (mean age 77 ± 9 years, 70% females, 35% Hispanic, 28% African American, 28% white). The prevalence of falls (43%) and unsteady gait (65%) in dementia was higher than in MCI and SCC (p<0.05). Across specific dementia diagnoses, falls were most prevalent in LBD (73%), and unsteady gait was most prevalent in VaD (80%) (p<0.05). Weight loss was common in dementia (48%) but not significantly different across cognitive states or dementia subtypes.

Conclusions: Unsteady gait, a major risk factor for falls, was highly prevalent in patients with dementia and approximately twice as prevalent as an actual history of fall. Clinicians should assess for unsteady gait in patients with cognitive complaints and initiate comprehensive fall risk reduction interventions. Nearly 1 of every 2 older adults with dementia had weight loss, which also confers increased mortality risk, and requires targeted assessment and intervention.

D105 Resident Presentation
Are geriatric screening tools too time consuming for the Emergency Department? A workflow time study

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Background: Geriatric Emergency Department (ED) Guidelines recommend that all older ED patients be screened for geriatric syndromes such as delirium, fall risk, frailty, and cognitive impairment. Our ED nurses were educated to perform three geriatric screening tools for patients ≥65 years old: the Brief Delirium Triage Screen (BDTS), the 4 Stage Balance Test (4SBT), and the Identifying Seniors at Risk (ISAR). However, from January 2018 to August 2018, <5% of qualifying patients underwent these screens. We conducted a workflow time study to examine potential barriers.

Methods: A standardized observational protocol was developed to assess timing and interruptions. This was trialed with two nurses and feedback was used to adjust the protocol. Two trained observers then used this revised protocol with a standardized data collection sheet. ED nurses caring for a patient ≥65 years old were asked to perform the screening assessments within view of the observer. Data included starting and stopping times (measured via stopwatch) for each assessment, getting the patient out of bed for the 4SBT, and documentation. We noted any interruptions or barriers to performing the assessments.

Results: We observed 18 nurses performing 20 separate assessments. The time to complete all assessments was 183±77 (mean±SD) seconds [range 107-297]. The BDTS took 14±17 seconds [range 5-76] to complete. The time to stand the patient for the 4SBT was 16±28 seconds while the time to complete the 4SBT was 61±30 seconds [range 6-142]. The ISAR took 87±43 seconds [range 60-216]. Interruptions occurred in 3 observations and were all patients asking questions about their medical care. The majority of nurses (11/18) documented concurrently while doing the assessments. ED physicians/nurse practitioners were unaware of how to locate the screening results in the electronic medical record (EMR) 85% of the time.

Conclusions: Performing 3 geriatric screening tools took ED nurses 3 minutes of real clinical time, including interruptions and documentation. Most providers were unaware of where to locate assessment results, suggesting that further education or EMR adjustments are needed. Performing these screenings appears to be feasible in a busy ED setting, but more training is needed on how to access results and incorporate them into clinical practice.

D106 Student Presentation
Evaluating the effect of mobilizing geriatric inpatients on length of stay

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Reduced mobility during inpatient admissions can result in development of significant functional disabilities during admission and extended use of additional healthcare resources after discharge. We hypothesized increasing the mobility of older adults during admission to the hospital will reduce their length of stay and preserve their functional abilities. We implemented a mobility intervention consisting of walking up to 20 minutes per day during admission in a randomized group of inpatients with ages ≥ 65 years.

Patients ≥ 65 years of age were randomized into either the control or intervention group. Patients were excluded if their ambulation or modified early warning scores were > 2, or demonstrated cognitive impairment on a 6-item screener. Each day of admission, the patients in the intervention group were offered supervised walking encounters with a patient care technician (PCT) for up to 20 minutes Monday - Friday. After each encounter, the PCT recorded the distance walked, number of steps taken, and total walking time.

To date, 86 patients have been approached, 25 patients declined to participate, 18 have completed the mobility intervention, 28 have been randomized into the control group, and 15 excluded from the analysis because they were classified as observation patients. The analysis of the intervention was completed under an Intention to Treat model although 7 patients were unable to attain at least 50% participation (average participation = 53%). The lengths of stay in days for the intervention and control groups with 95% confidence intervals are 4.61 ± 1.36 and 3.25 ± 0.54 respectively. These lengths of stay have been compared using a Wilcoxon Rank Sum Test. The result of this test indicates no significant difference in average length of stay between the groups (W = 305, p-value = 0.225, power = 0.57). The average distance walked in feet of the intervention group was 1861.36 ± 1464.76 (range = 0 to 7125). The average number of steps taken was 1036 ± 605 (range = 0 to 4254). The average total time participated in minutes was 22.93 ± 13.27 (range = 0 to 94).

The preliminary data indicate a mobility intervention for inpatients has no significant effect on the length of stay. However, the statistical analysis of the data has been limited due to the low enrollment rate. As this is an ongoing MSTAR project, we plan to enroll additional patients to ascertain if this intervention makes a difference.

D107 Resident Presentation
Implementation of a self-administration medication program in a Veteran Affairs community living center (CLC)

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BACKGROUND: The elderly are at increased risk of medication non-adherence after hospital discharge, increasing hospital readmissions.[1] Self-administration medication programs (SAMPs) allow patients to self-administer medications in supervised settings, facilitating independent medication management prior to discharge. Veterans Affairs directives guide implementation of SAMPs. Due to barriers, this clinical program had not been implemented at the VA Sierra Nevada Healthcare System (VASNHCS). This quality improvement project focused on implementing a SAMP by defining roles and responsibilities

of staff, developing veteran assessment tools, and performing a rapid experiment on select veterans to assess effectiveness of tools and processes, and identify and overcome barriers. **METHODS:** Two veterans selected for rapid experiment were assessed for appropriateness of SAMP using the validated Patient Self-Administration of Medication (SAM) tool, which assesses medication competence, with a maximum of 96 points. Based on SAM scores, each veteran was categorized by independence level: dependent, semi- or fully-independent. Clinical pharmacists provided medication education initially and weekly. Medications were dispensed as either unit doses or in vials based on independence level. Weekly pharmacist and nursing evaluations assessed improvement in SAM scores and medication adherence which determined appropriateness to increase or maintain independence level. Barriers discovered to proper self-administration were addressed and the solutions reported. **RESULTS:** Roles and responsibilities were defined for providers, pharmacy, nursing, and veterans. Barriers were identified and overcome by more thorough staff education, compliance aides, and manipulation of system operating tools. Both veterans' SAM scores improved more than 10 points from baseline, and obtained full independence prior to discharge. **CONCLUSIONS:** Through identifying and overcoming barriers via the rapid experiment, the SAMP was successfully implemented in the CLC at VASNHCS. Veterans achieved a clinically relevant increase in their medication knowledge and autonomy while inpatient which prepared them for a successful discharge.

D108 Student Presentation
Evaluation of an educational initiative to improve CMA medication review in primary care

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Background: Polypharmacy, defined as the use of 5 or more chronic medications, is common in the older adult population. As the number of medications a patient is taking increases, risk of adverse drug events also increases. One important step in preventing medication errors and ultimately adverse drug events is the medication review process, often done by certified medical assistants (CMA) in primary care. The medication review process compares what patients are taking to what is listed in the medical record and alerts discrepancies for provider reconciliation. Our goal was to assess the efficacy of an educational module for CMAs in improving the medication review process.

Methods: The educational module was implemented at three community-based primary care sites, with a total of 32 CMAs in attendance. Each module included a pre-assessment, an informational presentation and a post-assessment. The pre and post-assessment were exactly the same and consisted of 5 realistic patient medication scenarios. For each scenario, participants marked what they would have noted in the electronic medical record. After completion of training at the first site, a free response question was added to one of the assessment scenarios and this longer assessment was administered at the second and third sites.

Results: The average score for the 13 CMAs at the first primary care site was 84.6% for the pre-assessment and 96.2% for the post-assessment. The average score for the 19 CMAs at the last two sites was 97.6% for the pre-assessment and 97.4% for the post-assessment. The free response answers were similar between the pre and post-assessments.

Conclusion: Although the assessment results improved after the informational presentation at the first site, response accuracy was already high before the presentation at the other two sites, and in turn did not show any improvement. This highlights a potential variability in CMA education needs. Discussions during the modules with the CMAs at these sites revealed that they felt more often providers were not able to reconcile the medication discrepancies that they had

reviewed. Further studies could investigate the variability in CMA education as well as the provider medication reconciliation process in reducing medication list errors.

D109 Student Presentation
Older Adults' Intent to Utilize Apple Watch-Based Fall Detection Technology

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Introduction: Older adults are at significant risk for experiencing physical falls; research suggests one in four older adults experiences at least one fall every year. Falls often result in negative physiological and psychological consequences, and are associated with a reduction in daily and social activities, as well as an increase in caregiver burden. To mitigate fall-related outcomes, this population may utilize technology that can contact emergency services, professional caregivers, and/or family members in the event of a fall or emergency. It is not well understood how older adults perceive modern wearable fall detection technology and what factors may limit or encourage them to utilize such devices. The study described was conducted to understand the intents and preferences of older adults to utilize wearable technology for fall detection. **Methods:** Twenty-one older adults were recruited from an older adult participant pool to complete a fall detection device preference interview. All interviews were completed over the phone and recorded. Qualitative analysis was utilized to identify themes. **Results:** Participants were older adults with a mean age of 72.00 years (SD=6.83). A majority was Non-Hispanic White (n=19; 90.5%), female (n=15; 71.4%), and reported being in "very good" health (n=11; 52.4%). About 62% (n=13) reported experiencing a fall in the past year, and almost all participants (n=19; 90.5%) were concerned about future falls. A majority (n=19; 90.5%) reported being familiar with fall detection devices, but had not used one themselves. Most participants indicated that perceived vulnerability (*i.e.,* poor health, living alone; n=7; 33.3%) and ease of use (n=4; 19.0%) would facilitate use. A majority reported preferring the Apple Watch over other devices (n=14; 70.0%), primarily due to existing habits (n=8; 40.0%); participants identified quick response time as a primary advantage of the technology (n=7; 33.3%). A majority reported preferring fall detection technology that consults with the wearer before contacting emergency services (n=17; 81.0%). **Conclusions:** Results suggest older adults view Apple Watch-based fall detection favorably. Quick response time and ease of use may encourage older adults to use modern fall detection devices. Future directions include cross-sectional quantitative studies to examine behavioral intentions to use such technology.

D110 Student Presentation
HELP On The Gridiron

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Background: The Hospital Elder Life Program (HELP) launched in June 2016 at Miami Valley Hospital, in Dayton, Ohio. Program volunteers are from surrounding universities. Volunteer feedback is essential for sustaining HELP. The aim of this project is to reveal volunteers' view of program benefits for volunteer, patient, universities, hospital, and the community.

Methods: Volunteers participating in year one and two were emailed a ten-question survey. Themes emerged, inspiring football related labels to contextualize the intent of the respondents.

Results: Similar themes from the groups identify qualities of a coach, team, quarterback, cheering section, hospital and community. Volunteers indicate they benefit when staff provide a clear handoff of patient's needs, explain expectations and role model professional

behaviors. Volunteers see their role as team members who execute plays: physical, cognitive and emotional, to assist the quarterback in reaching the goal.

Volunteers identify the older adult as the quarterback of the team, trying to maintain personal integrity and moving towards life goals. Likewise, the volunteer role was validated when the quarterback saw them as sources of encouragement. With improved morale, the quarterback reports greater confidence and fewer fumbles.

Volunteers claim to be motivated by the cheering section (university) and thankful for the opportunity to view their chosen profession through the university-hospital relationship. HELP provides volunteers the chance to live out service values within a reciprocal volunteer-patient experience.

Volunteers state the hospital benefits in effective care and resource stewardship. Communities benefit from responsiveness to the needs of older adults. Volunteers consider intergenerational exposure to be a link that strengthens the bond between all involved. The sense of connectedness is like a season ticket holder's sense of "belonging."

Conclusion: The viewpoints of the two groups highlight the differences between, doing for and being with, an older adult. The first group stresses the value of getting to know "the patient's story." The second group focuses on the role as "fans" of the older adult. Lastly, the second group believes building their resume as a personal benefit of the HELP experience. Volunteers recognize that strategizing with a team prevents delirium, ensures patient functionality, and improves quality of life.

D111 Resident Presentation
Impact of pharmacist-led medication reconciliation on drug-related problems and potentially avoidable reutilizations in Medicare Advantage patients discharged from the emergency department
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Background

Drug-related problems (DRPs) are a major cause of emergency department (ED) visits, resulting in higher healthcare resource utilization. The ED stands as an important link between inpatient and outpatient care, especially for the geriatric population. Discharge from the ED to the community can be challenging for elderly patients, who often have high medication burden and multiple comorbidities. Since a growing number of elderly patients are enrolling in Medicare Advantage (MA) plans, it's critical for health systems at full financial risk for MA patients to explore effective transition of care strategies to prevent ED reutilizations. This study investigates the impact of pharmacist-led medication reconciliation (med rec) on resolving DRPs and preventing reutilizations among MA beneficiaries discharged from the ED.

Methods

During a pilot from November to December 2017, a clinical pharmacist called MA patients within 72 hours of ED discharge to identify and resolve DRPs. DRP types were categorized as patient discrepancies or prescribing errors and harm levels were categorized as non significant or serious. If appropriate, serious DRPs were categorized as potentially avoidable reutilizations by a geriatrician. Data was collected and descriptive analysis was performed using Excel. Based on the results of the pilot, the organization implemented a new workflow for clinical pharmacists to call a subset of MA patients discharged from the ED from January 2018 to October 2018.

Results

Out of 203 completed med recs from the pilot and new workflow, there were 42 (20.7%) serious DRPs. The majority of serious DRPs were identified as patient discrepancies, with most patients not taking medication as prescribed. A geriatrician determined that 13 (6.4%)

DRPs were potentially avoided reutilizations. All patients identified with potentially avoidable reutilizations did not return to the ED within 30 days post-discharge.

Conclusion

Polypharmacy is common among geriatric patients with multiple comorbidities, putting them at a higher risk for clinically significant DRPs after discharge from the ED. This study demonstrates the value of medication reconciliation in resolving DRPs and preventing avoidable reutilizations for MA patients discharged from the ED.

D112 Resident Presentation, Encore Presentation
Use of hold parameters with antihypertensive administration in a community living center (CLC) at a Veterans Affairs Hospital
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Background: The use of hold parameters with antihypertensive administration is a common method to reduce fall risk in the inpatient setting, however despite the commonality of this practice, there is no evidence to support its use. The objective of this study was to assess the practice of using hold parameters with antihypertensive medications and evaluate its effect on fall risk on the Community Living Center (CLC) at Veterans Affairs Connecticut Healthcare System.

Methods: A retrospective analysis identified patients who received antihypertensive medications during a 3-month period from May 1 to July 30, 2018. The following data was collected from the electronic medical record: patient sex, age, treating specialty, number of medications, hold parameters, given doses, held doses, number of blood pressure checks, as well as, hold parameters and patient outcomes related to orthostasis and falls. All data was recorded without patient identifiers and maintained confidentially. Retrospective analysis included patients with antihypertensive orders both with and without hold parameters while admitted to the CLC. Patients were excluded if they were admitted for respite or hospice care. Each patient's care was reviewed for falls, frequency of blood pressure monitoring and held antihypertensive doses to determine the utility of hold parameters in this setting.

Results: Overall, 51 patient cases were identified for retrospective analysis during the three-month period. Twenty-five patients met exclusion criteria. Fifteen patients had at least one antihypertensive with hold parameters and 11 patients did not. Baseline characteristics were not statistically different between groups, with the exception of average length of stay (44.2 vs. 29.6 p= 0.0024). Fall rate, frequency of blood pressure monitoring and held antihypertensive doses were not statistically different between groups.

Conclusion: Despite the prespecified monitoring required with hold parameters, fall rate, frequency of blood pressure monitoring and held antihypertensive doses were similar between groups. Overall, it does not appear that the use of hold parameters contributes to more intensive monitoring or amelioration of fall risk in this population, however, longer follow-up is likely required to draw definitive conclusions.

D113 Student Presentation
Physician factors associated with prioritization and implementation of Acute Care for Elders (ACE) consult recommendations
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Background: To achieve known clinical and cost outcomes described in the literature, Acute Care for Elders (ACE) consult teams require cooperation from primary hospital teams. We aim to describe how often hospital physicians prioritize and implement ACE recommendations and the physician factors associated with prioritization and implementation.

Methods: This cross-sectional study surveyed hospital physicians who had admitted patients to the UCSF ACE Unit. The main

outcomes were whether physicians prioritized ACE recommendations equally with recommendations from other services and whether physicians implemented the recommendations "every time," as measured on 5-point Likert scales. Predictors, composed of the average of multiple 5-point Likert scales, included: geriatrics knowledge (6-items), e.g. "I am familiar with the Beers criteria," (α=.86); geriatrics attitudes (4-items), e.g. "I would rather see younger patients than older ones" (α=.64); and experience of the ACE team (10-items), e.g. "The ACE team changed care for my patients in a positive way" (α=.87). We also assessed level of respondent training. Our analysis included descriptive statistics and multivariate linear regression.

Results: Thirty-five physicians completed surveys. In response to the statement, "I consider ACE recommendations to be of equal priority as recommendations from other services," 42% strongly agreed, 30% somewhat agreed, 22% neither agreed nor disagreed, and 6% disagreed. In response to the statement, "I implement ACE recommendations every time," 6% strongly agreed, 72% somewhat agreed, 16% neither agreed nor disagreed, and 6% disagreed.

In multivariate linear regression, higher geriatrics knowledge (p=0.02) and positive ACE experience (p=0.02) were associated with higher prioritization of ACE recommendations, while geriatrics attitudes (p=0.50) and level of training (p=0.47) were not. In contrast, higher positive ACE experience (p=0.001) was associated with higher implementation of ACE recommendations, while geriatrics knowledge (p=0.09) and attitudes (p=0.16) and level of training (p=0.06) were not.

Conclusions: Our findings suggest that efforts to increase prioritization and implementation of ACE recommendations by primary hospital team physicians should focus on improving the consultation experience and geriatrics knowledge rather than geriatrics attitudes.

D114 Resident Presentation
Beers Criteria as an Educational and Quality Improvement tool in hospitalized elderly patients
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Introduction:
Beers Criteria is a list of medications that was created to aid physicians in safely prescribing medications in the geriatric population. The goal was to educate the medical team about potentially inappropriate and hazardous medications in older adults. Our aim is to bring sensitivity and awareness in identifying Beers listed medications and polypharmacy in the inpatient setting. These two major domains of Geriatric Medicine have been shown to have a direct impact on morbidity and length of hospital stay as well as promoting patient safety by reducing falls in the community after hospital discharge. This project was designed for both quality improvement as well as for educational purposes.

Methods:
Data was collected from patients aged 60 years or older in an internal medicine inpatient setting in Dallas, Texas. The outpatient medication list of each patient was elicited from the patient. All medications included in Beer's Criteria were noted.

Results:
A total of 27 patient medication history was reviewed on admission. Only 3 of the 27 patients were admitted on zero medications, while over 13 were admitted with 10 or more medications. 11 out of the 27 patients were on 1 or more medication(s) under the beers criteria, while 16 were not. 17 of the 27 patients were admitted with polypharmacy, defined in this project as 5 or more medications. Therefore, 100% of patients on PIM's (potentially inappropriate medications) were also on polypharmacy.

Limitations
1. Small sample size with only 27 enrolled patients.
2. Study was conducted at a single center.
3. The short duration of the project as a cross sectional study without ongoing follow up.

Conclusion:
From the results, it is evident that there is an association between polypharmacy and prescription of PIMs. These medications could potentially lead to age-associated side effects and avoidable drug interactions that could increase morbidity and adverse patient outcomes.

Physicians should be alerted and made aware of medications that can harm these patients in the long run. Our hope is that this brief study will create an awareness in the medical community about the need for further research, active surveillance, safe prescribing and intentional medication reconciliation during inpatient and outpatient encounters

D115 Student Presentation
Integrating Occupational Therapy Services into a Geriatric Primary Care Setting
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As the older adult population expands, the prevalence of those living with one or more chronic conditions is expected to increase.[1,2] In primary care, older adults report on average 3.88 problems per visit, with physicians able to manage 3.05 due to factors such as overscheduling.[3] Occupational therapy has been found effective in primary care due to the profession's unique understanding of the impact of roles and routines on health and wellness.[4] This project aims to increase the knowledge surrounding feasibility of occupational therapy services in primary care in order to develop an innovative model of geriatric care.

Two occupational therapy students educated staff at Jefferson Geriatrics, a primary care practice devoted to older adults, about their role within this setting. Staff was interviewed regarding their perceived needs within the site. Using a convenience sample of patients from physician recommendation, occupational therapy standardized assessments were performed in the clinic.

Functional cognition, caregiver support, and chronic disease management for older adults were identified as the greatest areas of need for intervention. Physicians and office administration reported receptivity to occupational therapy services. 100% of patients were willing to collaborate and participate. Occupational therapy students reported that the primary care setting was a relevant and feasible practice area.

Perceptions of occupational therapy services were positive among staff and patients. Occupational therapy can serve as added-value within primary care and has the potential to improve outcomes for older adults with chronic conditions.

REFERENCES
An Aging Nation: Projected Number of Children and Older Adults. US Census Bureau. Published March 13, 2018. Accessed November 26, 2018.

Chronic disease in America. Centers for Disease Control. Published October 24, 2018. Accessed November 26, 2018.

Beasley JW, Hankey TH, Erickson R, Stange KC, Mundt M, Elliott M, et al. How many problems do family physicians manage at each encounter? Ann Fam Med. 2004; 2:405–10.

Hart EC, Parson H. Occupational therapy: Cost-effective solutions for a changing health system. AOTA. Published 2015. Accessed November 26, 2018.

D116 Student Presentation
Utilizing Machine Learning Techniques to Rapidly Identify MUC2 Expression in Colon Cancer Tissues

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Ninety percent of colorectal cancer cases occur in ages 50 or older. The average age of colorectal cancer diagnosis is 68 years for men and 72 years for women, and it is the third most common form of cancer in the United Sates. Like most tumors, colon cancer is sustained by a subpopulation of "cancer stem-cells" that possess the ability to self-renew and differentiate into more specialized cell types. Early detection of stem cells in colon cancer tissue images will lead to very early diagnoses of cancer when it is completely curable. The first step is to identify the specific genes expressed in cancer stem cells and by detecting their expression pattern in colon cancer tissue images. Machine learning (ML) is a powerful tool that is that can be utilized to rapidly analyze massive data on colon cancer. The current study was conducted to test the effectiveness of using ML techniques to rapidly detect the expression of the gene MUC2 (mucin 2) in colon cancer tissue images. Using computer vision technology, we analyzed histological images of colon cancer and segmented the nuclei to determine specific features (area, perimeter, eccentricity, compactness, etc.) that correlated with high or low levels of MUC2. 'Grid-search' was utilized to tune the hyper-parameters and the following models were tested as potential classifiers: random forest, gradient boosting, decision trees with AdaBoost, and support vector machines. The random forest classifier (f1 score of 0.71) and the gradient boosting classifier (f1 score of 0.72) were able to predict MUC2 gene expression most accurately. In colon cancer tissue images, ML-aided analyses of massive data of cellular images identified that nuclear area and 'equivalent diameter' can be used to predict MUC2 gene expression. This is a transformative finding that demonstrates that ML can aid in detecting genes that are specific to cancer stem cells in the very early stages of cancer. Improving ML algorithms to increase accuracy in predicting the expression of genes that are unique to cancer stem-cells will be a key step in curing colon cancer afflicting older adults.

D117 Student Presentation
Montreal Cognitive Assessment Performance among Community-Dwelling Residents of Panhandle Texas

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Montreal Cognitive Assessment (MoCA) is an effective screening tool designed to identify cognitive impairment. For the last 7 years, Texas Tech HSC-Amarillo has provided memory screenings using MoCA during its yearly memory screening events. We are reporting a descriptive and normative data of the MoCA from rural Panhandle area of West Texas.

Methods: The MoCA test results were collected from multiple memory screenings. After de-identification, the following data were collected; age, gender, education level and scores for each item. IBM-SPSS was used to analyze the data.

Results: Out of 345 participants, 69% were female. The cognitive scores were similar in both the genders (P=0.45). Interestingly, on the subgroup analysis females between the ages of 80 and 89 years had significantly lower scores of 18 Vs. 24 as compared to males. (p=0.001). A decline in cognitive scores was noted with advancing age (from 27.14 at age 50 Yr to 80 at age 90 Yr). Individuals with postgraduate education had higher scores (26.46) compared to individuals with less than high school education (19.78). A frequency of incorrect responses are described below (Figure:1) for individuals with MoCA scores below 26.

Conclusions: This is the first study in rural Panhandle area of Texas to examine the performance of MoCA in the community-dwelling residents. As expected, increasing age and lower education levels have a significant effect with lower MoCA scores. Although females have a higher prevalence of Alzheimer's disease, our results show that the difference was only seen in the age group of 80-89 years. Results also show the performance of individual questions of MoCA test in a population with scores less than 26.
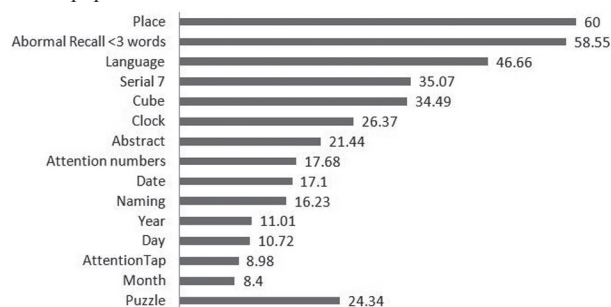
Frequency of incorrect responses (%) for those who scored less than 26 on MoCA test; n=345

D118 Student Presentation
Mood in Geriatric Post-Myocardial Infarction Patients using Novel Real-Time Data Collection Through a Smartphone App

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Patients who have had a myocardial infarction (MI) are at elevated risk of developing depression and geriatric patients may be particularly vulnerable. This, in turn, may be associated with increased morbidity and mortality. However, in clinical practice patients who have suffered MIs have not been closely monitored for mood. Advancements in smartphone technology allow mood data to be captured in real time. Data collection through a smartphone app may be a new way of monitoring mood for early recognition and treatment of depression. In this study, we aimed to identify the prevalence of low mood in geriatric patients 30-days post-MI who were enrolled in a clinical trial assessing the Corrie Health Digital Platform including a smartphone app, designed to guide patients through MI recovery. Mood data were collected through the Corrie smartphone app via a mood scale ranging from 1=extremely unhappy to 10=extremely happy with emojis associated with each integer. We defined low mood as <5 after correlating our mood scale with the Patient Health Questionnaire-9 and Hospital Anxiety and Depression Scale. We assessed the prevalence of Corrie users with low median mood over 30 days by age. Mood data were available for 29 patients, who entered a total of 542 mood values, with an overall median mood of 9. Nine patients were ≥65 years and 1/9 (11%) had low median mood. Twenty patients were <65 years and 2/20 (10%) had low median mood. Mood values for individual patients remained mostly steady over the 30-day study period, with individual interquartile ranges for mood values ranging from 0 to 3. In conclusion, in MI patients who used the Corrie platform during their recovery, low mood was uncommon. These patients generally had a consistently high mood, whether they were geriatric or younger. Collection of mood data in the elderly after MI is important, and is now more practical with real-time data collection through the Corrie app.

D119 Student Presentation
Development of a Premedical Student Volunteering/Mentorship Program Designed to Address the Economic Problem of the Caregiver-Patient Ratio in Skilled-Care Geriatric Memory Units
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Unpaid caregivers provided 18.4 billion hours of care to patients with age-related dementias in 2017.[1] Despite this, the lifetime cost to a patient diagnosed with dementia for skilled care, medical attention, and housing is crippling, at approximately $341,840.[1] Our objective was to develop an innovative way to provide supportive care for dementia patients without increasing the financial burden. We created a platform at a nursing home for premedical students to perform dementia caregiving tasks including emotional support, providing respite for paid caregivers, managing behavioral symptoms (aggressive behavior, feeling lost), feeding, and entertainment. Students also implemented a wheelchair exercise program and a music therapy project. We recorded the number of volunteers who attended each week through photography and an online database, documented custom project outcomes, and recorded time spent on leadership outside of volunteer events. Premedical students received "pay" for their work through improvements to their applications to medical school (volunteer hours in a healthcare setting). We calculated the estimated value of the care provided to patients and documented the benefits for the premedical students. Over the past three years, our group contributed ~1200 hours of unpaid care to dementia patients. We estimated the value of this care to be about $5046 per year. If similar groups were established at every US university, the value of this care would be $20,889,000 per year. The sustainability of our work was made possible by a mutually beneficial relationship between pre-health students, members of the American Geriatrics Society Student Interest Group, memory care staff, and dementia patients. Memory patients need supportive care, and pre-health students benefit from providing supportive care. Therefore, pre-health students are a currently untapped resource that if appropriately mobilized, could contribute 1,656,000 hours per year paid for in professional development, which does not increase the financial burden on either patients or the US economy.

1. Alzheimer's Association. "2018 Alzheimer's disease facts and figures." Alzheimer's & Dementia 14.3 (2018): 367-429.

D120 Student Presentation
Identifying Eligibility for Community-Based Services Among Older Emergency Department Patients Using Malnutrition and Food Insecurity Screeners: A Prospective Study
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BACKGROUND: Older adults presenting to the emergency department (ED) often have unmet social needs. Although access to community-based services can significantly improve outcomes for this population, older ED patients are rarely connected to these resources. This study assessed the ability of an ED-based screener that combines the Malnutrition Screening Tool (MST) + Hunger Vital Signs (HVS) to identify older adults eligible for community-based services.

METHODS: We conducted a prospective study of patients aged 60 years or older presenting to a single academic ED. Exclusion criterion included critically ill patients with an ESI Level 1, altered mental status, skilled nursing residents and non-English speakers. Eligible patients completed the MST + HVS screeners and were then interviewed to assess eligibility and need for three community-based services: home-delivered meals; transportation; and in-home care. Eligibility for each of these services was determined using criteria commonly used among local community services and the local Area Agencies on Aging.

RESULTS: Of 39 patients who completed the interview, 13 (33.3%) were MST positive, 6 (15.4%) HVS positive and 2 (5.1%) were MST+HVS positive. The MST+HVS screener's sensitivity and specificity sensitivity (Ss) and specificity (Sp) for identifying eligibility for each service was determined: home meal delivery (0% Ss (95% CI 0-71), 94% Sp (95% CI 81-99)), transportation (11% Ss (95% CI 0-48), 97% Sp (95% CI 83-100)), and in-home care (0% Ss (95% CI 0-46), 94% Sp (95% CI 80-99)).

CONCLUSION: The MST+HVS combined screener demonstrated high specificity and low sensitivity. Further adjustments are required to improve the sensitivity before the screener can be deployed in an ED setting.

D121 Student Presentation
Addressing Medical-Legal Needs: Team Experiences across the Continuum of Care
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Background: Older adults disproportionately experience more social, medical, and legal needs which when unaddressed, can have significant impact on healthcare delivery, outcomes, and cost. Integrating civil legal advocacy into medical care is an increasingly-recognized strategy in addressing social determinants of health in vulnerable populations such as children, and has been shown to improve housing stability and access to public benefits, as well as reduce psychosocial distress. The objective of this qualitative study is to describe provider experiences with medical-legal partnerships for seniors (MLPS) and its impact on provider satisfaction and patient care.

Methods: We conducted semi-structured interviews with health professionals in an urban academic geriatric clinic. Questions started with the individual's experience and utilization of medical-legal services, their attitudes towards the service, as well as what they felt were areas for improvement. Interview notes were iteratively reviewed individually by 5 evaluation team members, using thematic content analysis to generate and reach consensus on themes.

Results: Team members interviewed five health professionals, two geriatrician and three medical social worker (MSW), and identified five main themes. Through MLPS services, interviewees expressed less burnout and greater satisfaction in their ability to provide patient-centered care. There was also a recognition that the scope of a lawyer was unique and distinct from that of a MSW. Interviewees additionally expressed MLPS ability to increase access for patient to public benefits in a cost-effective and efficient manner.

Conclusion: Without holistic medical-legal support integrated into patient care, older veterans are at risk of preventable conservatorship, early nursing home placement, homelessness, elder neglect and abuse. MLPS addresses socioeconomic barriers to veteran's health and access to care, and also supports clinicians in providing high-quality, efficient care for medically complex patients. Further study is needed to determine whether addressing these socioeconomic barriers decrease acute care utilization and institutionalization and, therefore, decrease health care costs.

D122 Student Presentation
Pharmacist-led pilot targeting high-risk older adults after emergency department discharge in an academic medical center
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Background: After an emergency department (ED) visit, older adults are at high risk for adverse outcomes. A recent nursing-directed, phone-based intervention was unsuccessful at reducing rates of these negative outcomes, perhaps because the investigators did not focus

on high-risk patients.[1] The objective of this study was to evaluate the impact of a pharmacist-led transitional care intervention targeting high-risk older adults after an ED visit.

Methods: A pharmacist-led intervention (including telephonic comprehensive medication review, therapeutic recommendations and facilitation of follow-up care) was implemented for UCHealth Seniors Clinic patients with an ED or <24-hour observation stay between 8/18/18-10/17/18. Outcomes for these patients were retrospectively compared to a pre-intervention group with ED stays between 8/18/17-10/17/17. Included patients were at high risk for readmission, defined as presence of chronic obstructive pulmonary disease, heart failure or at least one additional ED visit in the previous 6 months. The composite primary outcome was the proportion of patients with at least 1 repeat ED visit, hospitalization or death within 30 days of discharge.

Results: There were 85 high-risk patients identified during the intervention period compared with 104 patients in the historical group. The incidence of the primary outcome was 20% in the intervention group compared to 25% in the historical control group (p=0.42). A return ED visit within 30 days occurred in 16% of intervention patients versus 18% in the control group (p=0.75); 5% of intervention patients were hospitalized within 30 days compared to 9% in the control group (p=0.29); and death at 30 days was uncommon and did not differ between groups.

Conclusion: The primary outcome occurred at a lower, but non-significant, rate in the intervention group compared to the control group. A longer intervention timeframe is needed to fully assess the impact of the intervention.

References:

1. Biese KJ, Busby-whitehead J, Cai J, et al. Telephone Follow-Up for Older Adults Discharged to Home from the Emergency Department: A Pragmatic Randomized Controlled Trial. *J Am Geriatr Soc*. 2018;66(3):452-58.

D123 Student Presentation
Emergency Medicine Palliative Care Access (EMPallA): Preliminary Data from a Randomized Controlled Trial

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Background

Emergency department (ED)-initiated palliative care has been shown to improve patient-centered outcomes in patients with serious illnesses, but the optimal modality for providing such care is unknown. The EMPallA trial will compare nurse-led telephonic case management with specialty, outpatient palliative care for older adults with serious, life-limiting illnesses on: 1) patient quality of life (QOL); 2) healthcare utilization; 3) loneliness and symptom burden; and 4) caregiver strain, QOL, and bereavement. This abstract reports preliminary demographic and QOL data for the trial cohort.

Methods

A pragmatic, parallel, 2-arm randomized controlled trial is enrolling ED patients to compare the effectiveness of 2 palliative care models. Over 3 years, 1350 patients aged 50+ years will enroll from 9 EDs. Eligible patients have advanced cancer or end-stage heart failure, renal disease, or chronic obstructive pulmonary disease. A survey is conducted at bedside to document baseline data. This abstract summarizes baseline patient demographic and QOL data for patients enrolled in the first 6 months of the trial. QOL was measured with the Functional Assessment of Cancer Therapy - General (FACT-G), and raw FACT-G scores were rescaled into T-scores based on general US and cancer patient samples, standardized with a mean of 50 and a standard deviation of 10.

Results

138 patients and 44 caregivers were enrolled from April 16 to October 16, 2018. Table 1 shows baseline patient demographics and QOL. Participants are receiving trial interventions.

Conclusions

In the EMPallA cohort, FACT-G QOL T-scores are below the general US and US cancer patient means of 50 by more than a clinically meaningful difference (5 points), suggesting this gender-balanced, racially-diverse cohort of older adults with serious illnesses has potential to benefit in QOL from palliative care. When trial enrollment and 6-month follow-up is complete, the comparative impact of interventions on QOL can be assessed.

Baseline Patient Characteristics

Demographics	.
Age (years), mean (SD)	69 (10)
Gender (female), N (%)	76 (55%)
Ethnicity (Hispanic), N (%)	14 (10%)
Race (white), N (%)	76 (55%)
Born in United States, N (%)	123 (89%)
Illness, N (%)	.
Advanced Cancer	66 (48%)
Heart Failure	33 (24%)
End Stage Renal Disease	21 (15%)
Chronic Obstructive Pulmonary Disease	15 (23%)
FACT-G Quality of Life T-score, mean (SD)	.
Relative to General US Population	41 (11)
Relative to US Cancer Patients	40 (12)

D124 Resident Presentation
Establishment of a specialized Geriatric Clinic providing Medical Cannabis

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Introduction: There is a substantial growth in the use of medical cannabis in recent years and with the aging of the population, medical cannabis (MC) is increasingly used by the elderly for a plethora of possible indications. In 2017, NiaMedic has established a specialized geriatric clinic providing MC therapy within the comprehensive geriatric platform. We aimed to assess the characteristics of elderly people treated with MC and to evaluate the safety and efficacy of the treatment.

Methods: A prospective study that included all patients above 65 years of age receiving MC from January 2017 to October 2018. Outcomes were pain intensity, changes in medicine regimens and adverse events at six months.

Results: We enrolled 184 patients above 65 years of age. The mean age of patients was 81.9±7.5 years and 63.6% were females. The most common indication for treatment was pain (76.9%). After six months of treatment, 93.8% of the respondents reported improvement in their condition, the reported pain level was reduced from a median of 10 on a scale of 0-10 to a median of 3 (p=0.001) and 34.8% reported an improvement in their appetite, while 27.1% of the patients stopped treatment with MC. Most common adverse events were: dizziness (14.1%), somnolence (13.0%) and dry mouth (6.5%). After six months, 46.9% stopped using opioid analgesics or reduced their dose.

Conclusion: Therapeutic use of cannabis is safe and efficacious in the elderly population. Cannabis use may decrease the use of other prescription medicines, including opioids. Gathering more evidence-based data, including data from double-blind randomized-controlled trials, in this special population, is imperative.

Scales of patients at treatment initiation

Scale	Median score (IQR)
Geriatric Depression scale (GDS), (N=48)	5.5 (2-9)
Montreal Cognitive Assessment (MoCA), (N=36)	27 (22-29)
Activities of Daily Living (ADL), (N=48)	16 (10.25-18)
Instrumental Activities of Daily Living (ADL), (N=54)	15 (10-23.25)
Visual analog scale (VAS) for pain, (N=128)	10 (7-10)

D125 Student Presentation

Effect of targeted transcranial magnetic stimulation on hippocampal-dependent declarative memory in older adults

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Background

Memory disorders lead to consequences for patients, caregivers, and the health care system. These consequences may be lessened by applying valuable non-invasive treatments that improve or restore memory. Transcranial magnetic stimulation (TMS) is a potential treatment modality for AD[1]. Research with targeted TMS has demonstrated improvements in memory abilities in healthy young adults. However, this specific approach to using TMS to benefit memory has not yet been applied to healthy older adults. Thus, this study will examine the effects of targeted repetitive TMS (rTMS) on healthy older adults with the goals of testing whether rTMS is associated with improvements in memory abilities and changes in stimulated brain networks.

Methods

We analyzed how memory performance and functional connectivity in brain networks change after administration of repetitive TMS (rTMS) in healthy older adults. Neuropsychological tests and MRI were used to analyze the relevant changes. Participants underwent testing of their hippocampal memory abilities and a MRI of the brain, followed by 5 days of rTMS or 5 days of a placebo stimulation. After brain stimulation, neuropsychological assessments were performed again to measure memory changes, and a second MRI scan conducted to measure changes in the brain due to the rTMS stimulation. 2 weeks later another memory assessment and MRI of the brain was done.

Data Analysis

Sample t tests will be used for analysis of memory performance before and after the rTMS administration. To determine if rTMS influenced memory performance more than the sham stimulus, a paired two-sample t-test will be calculated. For interpretation of the MRI data, AFNI software will be used. Functional MRI data will be used to measure the whole-brain voxelwise RSFC of a specific region in the left hippocampus (MNI XYZ = -24, -18, -18)[2]. Whole-brain RSFC maps will be analyzed in order to test for the differences due to rTMS.

References

1. Freitas, C., Mondragón-Llorca, H., & Pascual-Leone, A. (2011). Noninvasive brain stimulation in Alzheimer's disease: systematic review and perspectives for the future. *Experimental gerontology*, *46*(8), 611-627.

2. Wang, J.X., and Voss, J.L. (2015). Long-lasting enhancements of memory and hippocampal-cortical functional connectivity following multiple-day targeted noninvasive stimulation. Hippocampus 25, 877–883.

D126 Student Presentation

Acceptability of Telephone-Based Pain Coping Skills Training among African Americans with Osteoarthritis

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Background: Osteoarthritis (OA) disproportionately impacts African Americans compared to Caucasians including greater pain severity. The completed Pain Coping Skills Training for African Americans with Osteoarthritis (STAART) study addressed this disparity by examining a culturally enhanced Pain Coping Skills Training (CST) program among African Americans with OA. This current mixed methods study evaluated participant experiences with and perceptions of the Pain CST program in the STAART study.

Methods: STAART was a randomized controlled trial comparing a 3-month, 11-session, telephone-based pain CST program to a wait list control group; 8 different skills were taught. Participants were from the University of North Carolina and Durham Veterans Affairs Healthcare Systems. These analyses included n=93 participants in the pain CST group who completed a questionnaire regarding the program. Participants rated the helpfulness of each skill and the overall program on scales of 0 ("not helpful at all") to 10 ("very helpful"). Participants also answered open-response items regarding their thoughts on each skill and the program's overall impact on their experience with OA. Descriptive statistics of the helpfulness rating were calculated using SAS. Thematic analysis was applied to open-response data using Dedoose software.

Results: Participants' mean rating of overall helpfulness of the pain CST program for managing arthritis symptoms was 8.0 (*sd*=2.2). A majority of participants reported the program made a positive difference in their experience with arthritis (83.1%). Mean ratings of helpfulness of the specific skills ranged from 7.7 to 8.8. Qualitative analysis of the open-response data identified four prominent themes: Improved Pain Coping, Mood and Mental Health Benefits, Improved Physical Functioning, and Positive Aspects of Intervention.

Conclusions: The high ratings of helpfulness demonstrate acceptability of this culturally enhanced pain CST program by African Americans with OA. Increasing access to cognitive-behavioral therapy-based programs may be a promising strategy to mitigate racial disparities in OA-related pain and associated outcomes.

D127 Student Presentation

Effectiveness of Telehealth in Community-Dwelling Older Adults: A Systematic Literature Review

L. M. Seo,[1] P. DiMilia,[2] K. Fortuna,[2] M. Kennedy,[2] J. Brooks,[2] S. Kim,[1] R. Masutani,[1] H. Blunt,[2] P. Bagley,[2] J. Batsis.[2,3] *1. Geisel School of Medicine at Dartmouth, Hanover, NH; 2. Dartmouth College, Hanover, NH; 3. Department of Medicine, Dartmouth Hitchcock Medical Center, Lebanon, NH.*

Background: Disparities in healthcare access and delivery caused by transportation difficulties and reduced access to providers negatively impact individuals living in rural areas. These challenges are especially prominent in older adults. Emerging telemedicine legislation using two-way video streaming may potentially overcome such barriers. Observational and pilot single-site studies suggest its cost-effectiveness, with policy decisions based on such data rather than randomized controlled trials (RCT). We systematically evaluated the evidence of telemedicine's feasibility, acceptability and effectiveness in ambulatory older adults.

Methods: Using the PRISMA guidelines, we searched the English-language literature for studies (1/2012 to 7/2018) using concepts for older adults, telemedicine, and video-conferencing in the following databases: Medline (PubMed); Cochrane Controlled Trials; Web of Science; CINAHL; EMBASE (Ovid); and PsycINFO (Proquest). Patient populations consisted of older adults (mean age≥65; none <60), and interventions consisting of synchronous, two-way video-conferencing communication in non-hospital settings. Trained reviewers evaluated studies in duplicate. We assessed bias using the Cochrane Risk of Bias Tool and extracted relevant study information.

Results: Of the 9,158 citations, we reviewed titles and abstracts and ultimately reviewed 1,115 full-text articles. We excluded 989 citations as they were: not RCTs; in a hospital setting; not English; did not fulfill age criteria; or non-telemedicine. There were 17 RCTs included. The United States was the country with the most RCTs (n=7 [41%]) and cohort sizes ranged from 11-844 (median 41). Our quality review suggested low to high degrees of bias. A qualitative review suggested that telemedicine can significantly improve certain health outcomes in older adults, including exercise capacity and functional fitness, although limited effectiveness was demonstrated for certain measures such as reducing hospital admissions and improving cognitive scores.

Conclusions: Our review suggests that Telemedicine is feasible, acceptable and effective in older adults. Future research should focus on well-designed RCTs to overcome the low bias observed in our analysis.

D128 Student Presentation
Nocturia and sleep disruption among women with overactive bladder in a randomized trial of slow-guided respiration

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Background One major consequence of overactive bladder (OAB) in older women is sleep disruption associated with nocturnal bladder symptoms. Behavioral interventions are needed for both OAB and insomnia due to the potential adverse effects of pharmacologic treatment in older populations.

Methods We conducted an ancillary study of sleep outcomes within a randomized trial of a slow-guided breathing intervention for middle-aged and older women with OAB. Women with ≥ 3 episodes/day of urgency-associated voiding or incontinence were randomized to use a portable biofeedback device to practice daily slow-guided breathing exercises for 12 weeks, or use an identical device reprogrammed to play music without guiding breathing. At baseline and 12 week follow-up, nocturnal bladder symptoms, sleep quality, sleep disruption, and reasons for disruption were measured with validated diaries and questionnaires.

Results Of the 161 women randomized (82 to intervention, 79 to control), mean age was 61 (SD ± 11) years. At baseline, 31% reported nocturia (≥ 2 episodes/night), 26% nocturnal incontinence, and 70% poor sleep quality (Pittsburgh Sleep Quality Index global score > 5). Of those with nighttime awakenings, 83% attributed at least half of awakenings to nocturnal bladder symptoms. Over 12 weeks, modest improvements in nocturnal voiding frequency and PSQI global score were detected in both groups, but no significant between-group differences in these outcomes were observed (Table).

Conclusions Poor sleep quality was common among women with OAB in a randomized trial of a slow-breathing program, and over 80% of participants attributed the majority of nocturnal awakenings to bladder factors. Nocturia frequency and sleep quality improved modestly over 12 weeks, but the guided breathing program was not superior to music control in improving sleep quality in OAB.

Nocturnal voiding and sleep outcomes from baseline to 12 weeks

	Music Control (N=82)		Paced Respiration (N=79)		Between-Group	
	Change (95% CI)*	P-Value	Change (95% CI)*	P-Value	Difference (95% CI)*	P-Value
Nocturnal voiding episodes per night (by voiding diary)	-0.3 (-0.4, -0.1)	.002	-0.4 (-0.6, -0.2)	<.001	-0.11 (-0.4, -0.1)	.28
PSQI overall sleep quality score	-1.6 (-2.1, -1.0)	<.001	-1.4 (-2.0, -0.9)	<.001	0.11 (-0.6, 0.8)	.77
Wake after sleep onset (percentage of sleep duration)**	-2.1 (-5.5, 1.3)	.002	-3.0 (-6.3, 0.2)	.003	-0.97 (-4.7, 2.8)	.85

*Least square mean estimates and confidence intervals derived from ANCOVA models
**P-values using Winsorized (98-99th percentile) values, change values using raw values

D129 Student Presentation
Metformin for Frailty Prevention: A Randomized Placebo-Control Trial

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Background:

Frailty is a clinical geriatric syndrome that puts older adults at risk for falls, disability, and death. Prediabetes is a major risk factor for frailty in older adults. Metformin is a well-tolerated drug that works as an anti-inflammatory and an insulin sensitizer, which are major mechanisms that contribute to frailty.

Methods:

This is a double-blinded, randomized, placebo-controlled trial of metformin for prevention of frailty (Fried criteria) over two years in community-dwelling adults over 65 years with pre-diabetes (2hr OGTT between 140-199mg/dL). Secondary outcomes are lower extremity strength and function, systemic and muscle inflammation, muscle insulin signaling, insulin sensitivity, glucose tolerance, and body composition. Exclusion criteria includes chronic disabling neurologic, heart, pulmonary, and rheumatologic disease.

Results:

Baseline characteristics for current subjects (n = 41) are reported. Mean age is 73.5 ±5.9 years, 54% are female, 42% are Hispanic, body mass index is 29.3 ±5.6 kg/m2, systolic blood pressure is 131.1 ±16.4 mmHg, fasting glucose level is 102.2 ±9.1 mg/dL, Hemoglobin A1c is 5.8 ±0.3%, total cholesterol is 164 ±30.7 mg/dL, HDL cholesterol is 51.2 ±12.6 mg/dL, and triglycerides are 112.4 ±41.2 mg/dL. The mean frailty score is 0.56 ±0.55. Forty six percent had a frailty score of 0, 51% had a score of 1, and 2% had a score of 2.

Conclusions:

This ongoing clinical trial may have future implications for the use of metformin to prevent frailty in prediabetic older adults who are at high risk for becoming frail.

D130 Student Presentation
The relationship between comorbidities and enrollment in cancer clinical trials by age at diagnosis

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Background: Cancer clinical trial (CCT) eligibility criteria are major barriers to participation. Even though the majority of cancer patients are older than 65 years, they are underrepresented in CCTs. Since comorbidity associates with aging, we calculated the prevalence of specific comorbidities and assessed whether any limit enrollment by age groupings.

Methods: Cancer patients diagnosed at Sidney Kimmel Comprehensive Cancer Center were identified from the Johns Hopkins Hospital cancer registry. To evaluate CCT enrollment, 17,959 patients residing in the United States first seen between 2014 and 2016 were examined on age (18 to 39, 40 to 64, 65 to 84, older than 85 years), sex, race (white, black, other), residence (Baltimore City, Maryland, Maryland-adjacent states, other), cancer characteristics and specific comorbidities (heart disease/hypertension (HTN), cerebrovascular disease, respiratory disease, hepatic disease, renal disease, diabetes, HIV, prior cancer, tobacco use). Chi-square and logistic regressions evaluated relationships among age, comorbidities and CCT enrollment. Multinomial logistic regression of CCT enrollment by age (adjusted by demographics and residence) evaluated effects for each age subgroup.

Results: 79% of patients had comorbidities, most commonly tobacco use (45%) and HTN (29%). Comorbidities were most prevalent in ages 40 to 64 (49%) and 65 to 84 (41%). Patients 85 and older enrolled significantly less than those 18 to 39 (OR 0.5, p = 0.005). In multinomial modeling, only black race enhanced enrollment in the 85 and older subgroup. In the 65 to 84 subgroup, HTN, prior tobacco use, prior cancer, female sex and Baltimore City residence suppressed enrollment. In the 40 to 64 subgroup, Baltimore City residence, female sex, HTN, respiratory disease, and other comorbidities were significantly associated with enrollment.

Conclusions: Study eligibility criteria should be reexamined to assess whether patients 40 to 84 years old with HTN, respiratory disease, tobacco use or prior cancer can safely be included in CCTs. By reconsidering study criteria and patient features such as age and comorbidities, cancer centers will have more representativeness in CCT enrollees, ultimately bringing more relevance to results.

D131 Student Presentation
Association between Multimorbidity, Longest Tenure
Occupation, and Race/Ethnicity in Middle-aged and Older Adults
A. Hernandez, S. Markwardt, A. R. Quiñones. *Oregon Health and Science University, Portland, OR.*

Background: Occupation affects long term health via socioeconomic and work-related factors. Studies show blue-collar workers have greater odds of poor health than their white-collar counterparts. Multimorbidity, ≥ 2 co-occurring chronic diseases, affects the majority of patients over the age 50, and disproportionately burdens poor adults and select racial/ethnic minorities. Relationships between occupation, race/ethnicity, and multimorbidity have not been previously assessed.

Methods: Using the 2014 Health and Retirement Study, we performed a cross-sectional analysis of Baby Boomers, examining the relationship of multimorbidity prevalence (<2 vs. ≥ 2 chronic diseases) to longest tenure occupation and race (non-Hispanic white, Hispanic, non-Hispanic black). χ^2 tests of independence were conducted in Stata 15.

Results: Management occupations have the lowest multimorbidity prevalence in non-Hispanic white and non-Hispanic black groups, and there are significant differences across occupation for these groups as well. With the exception of Natural Resources, multimorbidity significantly varies by race/ethnicity within occupation.

Conclusions: Our analyses indicate occupation and race/ethnicity are associated with the prevalence of multimorbidity. Work in a managerial/professional setting may be protective against the development of multimorbidity and disease burden later in life, although these benefits may accrue differentially by race/ethnicity.
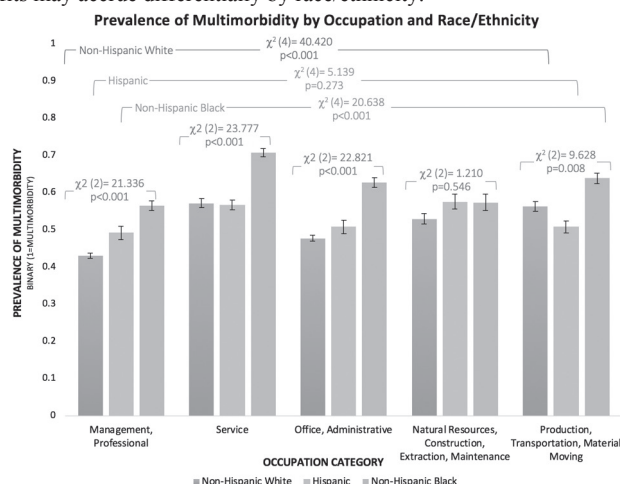
Color Brackets: χ^2test across occupation within race/ethnicity
Gray Brackets: χ^2test across race/ethnicity within occupation
Standard error of the proportion shown.

D132 Resident Presentation
A Cross-Sectional Survey of Urinary Incontinence among Adults
Age 65-79 Years
B. Yang, D. R. Lee, J. C. Lo, N. P. Gordon. *Kaiser Permanente Northern California, Oakland, CA.*

Background:
Urinary incontinence (UI) is an undertreated condition that can affect quality of life, morbidity, and caregiver burden. Previous studies have identified risk factors predicting UI in different clinical populations. This study aims to describe the prevalence of self-reported UI and associated risk factors among older adults within an integrated healthcare system.

Methods:
Cross-sectional self-reported survey data were examined for 10,826 adults aged 65-79y who responded to the 2011 or 2014/2015 cycles of the Kaiser Permanente Northern California (KPNC) Member Health Survey. Respondent data were weighted to the age-sex-geographic composition of adults 65-79yo in KPNC in 2014. We estimated the prevalence of UI (stress or urge urine leakage $\geq 1x$/week) and used multivariable logistic regression to examine the relationship of UI with age (65-74y, 75-79y), sex, race/ethnicity (white, black, Hispanic, Asian/Pacific Islander, other), weight, diabetes and frequent problems falling or staying asleep (insomnia). Weight classification was based on body mass index (BMI, kg/m2): underweight (<18.5), healthy weight (18.5-24.9, as reference), overweight (25-29.9), moderate obesity (30-34.9) and severe obesity (≥ 35).

Results:
The weighted respondent sample was 54% female and 72% white. Prevalence of UI was 16.8% for ages 65-79y but varied by age and sex. UI prevalence among men was 8.1% for ages 65-74y and 12.5% for ages 75-79y, and among women, 21.4% for ages 65-74y and 29.9% for ages 75-79y. In multivariable analyses, older age (OR 1.6 [CI 1.5-1.8] for 75-79y vs 65-74y) and female sex (OR 3.1 [CI 2.7-3.6]) remained significant predictors of UI (adjusted for race/ethnic differences and diabetes status). Insomnia was a strong independent predictor for both sexes (OR 3.2 [CI 2.7-3.8]). For men, moderate and severe obesity (OR 1.9 [CI 1.2-3.0] & OR 2.9 [CI 1.7-5.0], respectively) were significant predictors of UI, but for women, only severe obesity predicted UI (OR 2.1 [CI 1.5-3.1]). Diabetes (OR 1.5 [CI 1.3-1.8]) was a significant predictor for both sexes. Overweight status was not a significant predictor of UI in adjusted analyses.

Conclusions:
In a contemporary population of seniors ages 65-79 years, we identified important modifiable risk factors for UI, including insomnia and higher order obesity. Understanding and managing these clinical risk factors for UI may help efforts to reduce the burden and severity of UI in the aging adult population.

D133 Student Presentation
Medication Use Amongst Centenarians
C. Villalba, S. Andersen, T. Perls. *Medicine, Boston University School of Medicine, Boston, MA.*

Background: In a 2018 (Clin Epi,10:289-298) Swedish study of ~1.7M people ages>65, polypharmacy prevalence (+5 drugs) was 44%. The study included 17,377 >95 yr. olds. The mean number of drugs increased from 3.6 in the 65-74 yrs group to 6.4 in the >95 yrs group, and the 1-yr risk of developing polypharmacy increased from 20% to 34%, respectively. Since aging is an important risk factor for co-morbidities, one might expect these numbers to continue to rise with even older age. We hypothesized that individuals who approach the limit of life span, semi-supercentenarians (105-109) and supercentenarians (110+), compress morbidity towards the end of life and therefore have a different pattern of medication usage, taking fewer drugs, not more. **Methods:** New England Centenarian Study participants and proxies returned questionnaires about their medical history and medications. Drugs were coded with the Anatomical Therapeutic Chemical (ATC) Classification System and responses were analyzed according to centenarian agegroups. Results: 804 responses were collected from centenarians (ages 100-104; 47%), semi-supercentenarians (43%), and supercentenarians (10%). 82% were female and the mean number of drugs was 5.5. Participants indicating that they were taking no drugs were: centenarians: 4%, semi-supercentenarians: 5% and supercentenarians: 9%. Medication use for each age group was also analyzed according to their ATC classifications (Table 1).

Conclusions: Centenarians take fewer medications compared to the people age >95 years reported in the above Swedish study. Within the centenarian cohort, the prevalence of those on no drugs increased with age, consistent with the compression of morbidity phenomenon. Also, declines with age in prevalence of disease/syndrome-specific drugs were noted for the gut-metabolic and cardiovascular categories but increases were noted in the other groups. Centenarians, particularly the semi- and super- groups buck a number of aging-related trends

including drug use, reflecting their select survivorship status. These findings support older centenarians as a human model of healthy aging.

Frequency of medication use according to centenarian age group and ATC medication classification

Age	Gut-Metabolic	Cardio-vascular	Hema-tologic	Derma-tologic	Neuro-logic	Resp-iratory	Opthal-mologic	Hormone (Thyroid)
100-104	76%	68%	43%	13%	48%	14%	16%	23%
105-109	66%	63%	41%	12%	50%	16%	18%	30%
110+	64%	51%	42%	16%	53%	20%	22%	32%

D134 Resident Presentation
Self-Reported Hearing Loss and Use of Hearing Aids in Older Adults

C. F. Li, J. C. Lo, G. C. Lau, N. P. Gordon. *Kaiser Permanente Northern California, Oakland, CA.*

Background: Hearing loss (HL) is a common disability among older adults. However, few studies have examined this age-related disability in population cohorts with a large subset of Asians. This study examines ethnic differences in the prevalence of self-reported HL and use of hearing aids in a community-based Northern California population of seniors.

Methods: We identified 12,543 adults aged 65-89 years who were members of Kaiser Permanente Northern California (KPNC) and responded to the 2011 or 2014/2015 cycles of the KPNC Member Health Survey, which included questions about HL. HL was defined by self-reported problems with hearing, deafness, or use of hearing aids. Respondent data were weighted to the 2014 KPNC population. Race/ethnicity, education and income level were obtained by self-report. The association between race/ethnicity and HL was examined using multivariable logistic regression.

Results: Among the 12,543 seniors in the weighted sample (71% white, 6% black, 8% Hispanic, 12% Asian), 50% were female, and 45% were aged 65-74y. The prevalence of reported HL was higher in men (30%) than women (20%), and higher in white (26%), followed by Hispanic (21%), Asian (18%), and black (13%) seniors. Adjusting for age and sex, the odds of HL was lower for Hispanic (OR 0.76, 95% CI 0.62-0.92), Asian (OR 0.66, CI 0.56-0.79), and black (OR 0.45, CI 0.34-0.59) race compared to white. Among those with potentially correctable HL (excluding deafness or uncorrectable HL), 56% reported hearing aid use, but this varied by race/ethnicity; 59% of white, 47% of Hispanic, 39% of Asian, and 36% of black seniors with HL used hearing aids. Adjusting for age, sex, education and low income status, the odds of hearing aid use (compared to white race) was significantly lower for black (OR 0.30, CI 0.11-0.80) and Asian (OR 0.52, CI 0.34-0.79) race among men and for Hispanic (OR 0.45, CI 0.24-0.83) and Asian (OR 0.38, CI 0.22-0.66) race/ethnicity among women, and tended to be lower for black (OR 0.53, CI 0.27-1.07, p=0.08) race in women.

Conclusion: Among seniors, self-reported HL differed by race/ethnicity. Only about half of all seniors with self-reported HL indicated use of hearing aids, with notably lower use in Asians, blacks and Hispanics reporting HL. Our data supports the need to understand ethnic differences in HL and to address disparities in hearing aid use among seniors.

D135 Resident Presentation
Weight Status and Diabetes Risk in Older White, Chinese, and Filipino Adults

C. F. Li, J. C. Lo, M. Chandra, N. D. Ramalingam, G. C. Lau, J. Rau, N. P. Gordon. *Kaiser Permanente Northern California, Oakland, CA.*

Background: Less is known about recent diabetes mellitus (DM) prevalence among older Asians, including Chinese and Filipinos, two predominant Asian subgroups in California. This study examines the relationships between body mass index (BMI) and DM in older white, Chinese, and Filipino adults.

Methods: We identified 303,467 non-Hispanic white, 20,914 Chinese, and 20,354 Filipino adults aged 65-89 years who received healthcare in Northern California in 2016 and had a measured height and weight. Calculated BMI was classified using standard and Asian-specific thresholds (Table). DM was defined based on prior diagnosis and treatment. Log binomial regression was used to examine the independent relationships between race/ethnicity, BMI, and DM, represented as relative risk (RR) and 95% confidence intervals (CI).

Results: Among 344,735 seniors, 55% were female; 62% were 65-74y, 31% 75-84y, and 7% 85-89y. BMI distribution varied by race/ethnicity. Using standard BMI categories, 2%, 4%, and 2% of whites, Chinese, and Filipinos, respectively, were underweight; 30%, 58%, and 41% were healthy weight; 37%, 31%, and 42% were overweight, and 31%, 7%, and 15% were obese. Using Asian BMI categories for Chinese and Filipinos, 35% and 21%, respectively, were normal weight, 43% and 46% were overweight, and 17% and 31% were obese. DM prevalence varied by ethnicity, affecting 16% of whites, 21% of Chinese, and 39% of Filipinos. DM prevalence also increased with BMI and was highest for Filipino seniors with obesity (Table). Adjusting for age, sex, and BMI category, DM risk was higher in Filipinos than Chinese (RR 1.7, CI 1.6-1.7).

Conclusions: A higher proportion of Chinese and Filipino seniors had DM compared to whites. DM risk was almost 2-fold higher in Filipino than Chinese adults, emphasizing distinct ethnic differences among older Asians, independent of BMI. Our data supports the importance of metabolic screening and follow-up in older Asians, especially Filipinos with high BMI.

Percentage of Subjects with DM Stratified by Standard or Asian BMI Category

	Underweight BMI		Healthy BMI		Overweight BMI		Obese BMI	
	Standard <18.5	Asian <18.5	Standard 18.5-24.9	Asian 18.5-22.9	Standard 25-29.9	Asian 23-27.4	Standard ≥30	Asian ≥27.5
White	4%	-	7%	-	14%	-	27%	-
Chinese	10%	10%	18%	16%	26%	23%	42%	34%
Filipino	23%	23%	35%	34%	39%	37%	49%	45%

D136 Resident Presentation
Understanding Functional, Behavioral, and Psychosocial Factors for Screening and Interventions in a Large Population of Older Adults

D. R. Lee, J. C. Lo, N. D. Ramalingam, N. P. Gordon. *Kaiser Permanente Northern California, Oakland, CA.*

Introduction:

Primary care physicians only have about 17 minutes per encounter, but geriatric care is often complex and requires more than the allotted time. Given these limitations, some important health risks can be overlooked. This observational study examines health-related issues reported by older adults to help guide focused screening and interventional approaches during both routine and annual health visits.

Methods:

This is a cross-sectional study conducted in adults aged 65 and over in the Kaiser Permanente Northern California Member Health Survey during the 2014-2015 cycle. About 9950 members were mailed questionnaires pertaining to behavioral/psychosocial risks, functional status, and lifestyle factors with 6199 survey respondents (rate of 63.3%). Responses were analyzed by age category (65-74, 75-79, and 80+) and by sex (women, men) and significance was determined by chi-square testing.

Results:

Approximately 10.9% of seniors reported difficulty performing daily activities because of vision problems and 8.5% had memory problems, and these problems increased with age. Hearing problems were more common among men than women (30.8% vs 21.2%) and also increased with age. Older women (aged 80+) were nearly twice as likely as older men (aged 80+) to require help with ≥3 ADLs (12.3% vs 5.6%) and IADLs (20.7% vs 9.8%). Women were also more likely

to have problems with urinary leakage (27.7% vs 11.2%), insomnia (15.8% vs 10.2%), balance/walking (15.1% vs 10.9%), feeling depressed/sad (13.3% vs 7.7%), and feeling lonely/socially isolated, with older women feeling more isolated compared to older men (9.2% vs 4.6%). Although 12.0% of adults aged 80+ had problems with their mouth that interfered with eating or speaking, 28.4 % had not seen a dentist in the past 12 months. Additionally, 15.2% of seniors worried about personal/family financial security.

Conclusion:

Using a questionnaire to screen for health-related risk factors that affect health, functioning, and quality of life in older adults in conjunction with annual visits can yield valuable information to inform clinical care. Many of these health-related issues may not otherwise be mentioned by seniors unless they are greatly impacting health or quality of life. Understanding how prevalence of risks differs by age and sex can be helpful for designing tailored health assessment tools.

D137 Student Presentation
Habits of Nervous Tension and Premature Mortality in Johns Hopkins Medical School Graduates

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BACKGROUND

Psychosocial habits in mid-early life have been shown to affect mortality in later life. Negative responses to stress in people who have stressful careers can have a negative impact on quality of life decades later. A previous study demonstrated that a higher Habits of Nervous Tension (HNT) score correlated to a higher likelihood of suicide among a medical school graduate cohort. It was also found that irritability (RR= 5.5; 95% CI 1.76;17.17) and urinary frequency (RR=3.3; 95% CI 1.07;10.32) were the highest predictors of suicide. Our purpose was to re-evaluate this association using 20 years of additional follow-up in the study and encompassing overall mortality.

METHODS

The Johns Hopkins Precursors Study is an ongoing cohort study of medical school graduates. Participants attended Johns Hopkins medical school between the years 1946-1964 (n=1,337) and completed the HNT questionnaire while in medical school, and psychosocial habits are annually recorded through mailed questionnaires. Mortality was recorded by access of public records for death certificates. Parametric survival analyses of HNT scores comprised of 25 questions associated with age of death.

RESULTS

N=1,337 participants contributed 75,069 person-years to the analysis. An overall higher HNT score is not associated with increased mortality (HR=.99; 95% CI .9533;1.03). However, when reporting individual questions of the HNT scale, individuals who reported more exhaustion (HR=.64; 95% CI .46;.89) or tremulousness (HR=.75; 95% CI .57;.99) had shorter lifespan, whereas individuals reporting philosophic effort (HR=1.46; 95% CI 1.05;2.04) were more likely to live longer.

CONCLUSION

Findings from our study suggest that exhaustion and philosophic effort may be a stress coping mechanism that reduces risk of premature death, whereas tremulousness and exhaustion was associated with a higher chance.

D138 Student Presentation
Trends in microbiological culture collection across Veterans Affairs nursing homes from 2010 to 2017

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BACKGROUND: Antibiotic overuse is common in United States nursing homes (NHs), and may be driven in part by collection of microbiological cultures. Long-term studies describing the trends in collection of microbiological cultures in NHs at the national level have been largely absent. Here we describe changes in collection of cultures nationally across Veterans Affairs (VA) NHs over several years.

METHODS: We identified all cultures collected from 2010-2017 of residents admitted to VA NHs. We included all cultures whether they were positive or negative for bacterial growth. Cultures were categorized by specimen source (urine, blood, skin and soft tissue, or lung). *Joinpoint* Software was used for regression analyses of trends over time and to estimate annual average percent changes (AAPC) with 95% confidence intervals (CI).

RESULTS: From 2010-2017, 342,850 cultures were collected from 139 VA NHs. Over the 8-year study period, the number of cultures collected per nursing home admission decreased significantly by 8.4% per year (95% CI -10.1– -6.6%), while the proportion of positive cultures remained stable at approximately 50% (-0.4% per year, 95% CI, -1.1–0.4%, p=0.3). The most common culture source was urine (56.9%), followed by blood (16.0%), skin and soft tissue (10.3%), and lung (4.0%). The number of overall cultures collected per year decreased by 7.6% for lung, 7.0% for urine, 6.0% for blood, and 5.6% for skin. There were 12,005 fewer urine cultures collected in 2017 (n=17,984) as compared to 2010 (n=29,989).

CONCLUSION: Our study demonstrates a significant reduction in the number of cultures collected over time, particularly urine cultures. While testing overall decreased, the proportion of positive cultures remained stable. This reduction in cultures may represent an important reduction in collection of unnecessary cultures in VA NHs nationally and may be driven by increased awareness for over-testing and over-treatment of infections. Further work is warranted to investigate if the reductions in cultures collected over time has led to less resource utilization and costs, and improved resident care and outcomes among VA nursing homes.

D139 Resident Presentation, Encore Presentation
Role of vitamin D levels in predicting the occurrence of non-communicable diseases in the geriatric population of northern India.

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Background: The geriatric population of India is expected to rise from 7.6% in 2000 to 20.6% in 2050. Prevalence of non-communicable diseases is increasing in eldelry. Recently, vitamin D has been shown to be associated with a number of chronic diseases. Elderly remain at risk for lower levels of vitamin D. The aim of our study was to find the role of vitamin D levels in predicting the occurrence of non -communicable diseases in the elderly. **Methods:** Study was conducted on 250 cases in Department of Medicine at KGMU, Lucknow, India. Cross sectional, Observational study. Elderly over 60 years with ≥ 1 of the following- Hypertension, Type 2 diabetes mellitus, Coronary artery disease (CAD), Chronic Obstructive Pulmonary Disease (COPD) and Metabolic syndrome (IDF criteria) were enrolled

after taking informed consent. SPSS (Statistical Package for Social Sciences) Version 21.0 was used. Mean, standard deviation, ROC curve (receiver operator curve) were used.p-level of significance with p > 0.05 not significant, p <0.05 significant. **RESULTS:** The majority (62%) had 25(OH)D levels <20 ng/ml indicating vitamin D deficiency. On evaluating the discriminant role of serum 25(OH)D levels for the detection of morbidities among elderly using receiver operator characteristic curve analysis, the area under curve value was observed to be 0.859 (p<0.001). The cut-off values under high sensitivity, high specificity and balanced considerations were calculated as ≤27.5 ng/ml, ≤11.95 ng/ml and ≤24.5 ng/ml respectively with projected sensitivity & specificity of 91.6% & 68.8%, 55.4% & 91.7% and 84.2% & 83.3% respectively. For balanced considerations, the projected sensitivity, specificity, positive and negative predictive values were 84.2%, 83.3%, 95.5% and 55.6% respectively. **CONCLUSIONS:** Majority of north Indian elderly are vitamin D deficient. In treating or better still preventing vitamin D deficiency, we might be able to prevent a number of non-communicable diseases that simultaneously afflict the elderly. The pleiotropic effects of vitamin D on the human health make routine supplementation a cost effective health initiative.

Cut-off value under different trade-off consideration

trade off consideration	projected cut off value	projected sensitivity	projected specificity	projected PPV	projected NPV
high sensitivity	<27.5	91.6%	68.8%	92.5%	87.2%
high specificity	<11.95	55.4%	91.7%	96.6%	32.8%
balanced	<24.5	84.2%	83.3%	95.5%	55.6%

D140 Resident Presentation
Examining Hospital-Related Outcomes for Hospice Eligible Elderly Patients With Solid Tumors, Does Hospice Enrollment Make a Difference?
M. Lee, S. Lopez, G. DeCastro, K. Van Ogtrop. *Northwell Health, Queens, NY.*

Background: Although hospice has been associated with improved symptom management, quality of life, lower costs and increased length of survival in terminally ill patients, it is underutilized. The primary outcome of this study was to examine the relationship between hospice enrollment status and hospital readmissions in elderly patients with solid tumors. Secondary outcomes were length of stay, ICU admissions, mortality, code status, LACE scores and frequency of geriatric and palliative care consults (GAP) and palliative care unit admissions (PCU).

Methods: This was a retrospective cohort study on patients older than 65 years old with solid tumor cancers admitted to a tertiary hospital (12/1/12-3/1/15). Patients were divided between those enrolled in hospice and those not enrolled but with criteria suggesting hospice eligibility (Metastatic disease and Karnofsky Performance < 50%). Descriptive statistics were calculated with two sample t-tests for continuous measures and odds ratio for secondary outcomes using SAS 9.4

Results: The two groups did not differ in regards to demographics and Charlson scores. There were higher readmissions in the non-hospice group than hospice group, p=0.0064. The non-hospice group had an average LACE score ≥10 (high risk of readmission) compared to the hospice group, average LACE <10. Though in hospital mortality were similar, DNR status was statistically different in the Hospice group, p<0.0001. There was no signficant difference in LOS.

Conclusion: Elderly patients with solid tumors that may be eligible for hospice services, if not identified, may be prone to frequent readmissions and aggressive interventions. GAP consultation may further help with identifying this vulnerable population in order to improve their outcomes. However, more research is needed to closely study the effects of hospice in reducing hospital complications and where these benefits may further help

Odd Ratios of Secondary Outcomes

	Odd Ratios	p value	Confidence Interval
DNR status	5.914	p<0.0001	(3.756, 9.311)
ICU admissions	0.250	p<0.0001	(0.134, 0.465)
In Hospital Mortality	0.970	p=0.8912	(0.728, 1.318)
Geriatrics and Palliative (GAP) Consults	2.968	p<0.0001	(1.780, 4.949)
Palliative Care Unit (PCU) Admissions	1.034	p=0.8912	(0.490, 2.183)

D141 Student Presentation
Knowledge and Participation in Advance Care Planning Among Uninsured Individuals
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Background: Advance Care Planning is important as patients age. Minorities and low SES individuals are least likely to participate in ACP by completing advance directives, medical power of attorney documentation, or discussing preferences for care with decision makers. St. Vincent's clinic serves un- and underinsured individuals in Galveston County, Texas. We hypothesize most of our patients are unaware of ACP and have not participated in preparatory planning activities.

Methods: As a QI project, we use questions from the Health and Retirement study aiming to describe the prevalence of knowledge and participation in ACP in uninsured populations. After baseline data is gathered, we will design and evaluate an intervention. This project focuses on preliminary results from this study of baseline knowledge and participation. Data collection is ongoing, and we anticipate improved sample size and statistical power soon.

Results: Preliminary results (n = 74) demonstrate higher than expected knowledge of ACP, but low participation. 54 respondents (73%) were aware of Medical Power of Attorney and Advance Directives, but 13 (18%) and 7 (9.5%), respectively reported having these documents. In adjusted, multivariable logistic regression modeling, non-white respondents were less likely to know about ACP (OR: 0.17, 95% CI: 0.04-0.68). Income was associated with ACP (OR: 0.3, 95% CI: 0.11-0.84), but the relationship was mediated by knowledge of ACP.

Conclusion: These preliminary findings support our hypothesis that participation in ACP is low among uninsured patient populations. Surprisingly, respondents were more aware of ACP than we expected. We await increased statistical power with a larger sample size and expect some of the wide confidence intervals in our results to tighten demonstrating more meaningful relationships.

D142 Student Presentation
Prevalence of Substance Use and Substance Use Disorder among Middle-aged and Older Adults with Multiple Chronic Conditions in the United States
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Background: Older adults are vulnerable to the adverse effects of illicit drugs, as they are more likely to have multiple chronic conditions (MCC) and take more prescribed medications. Substance use can also negatively affect the management of chronic diseases.

Methods: We examined cross-sectional aggregated data from 2 annual administrations (2015-2016) of the National Survey on Drug Use and Health (NSDUH) to analyze associations between self-reported past-year drug use and multiple chronic medical conditions. We considered 10 self-reported chronic conditions queried in NSDUH and categorized the number of chronic conditions (0, 1, or ≥2) related to each illicit drug used [past-year use and substance use disorder (SUD) including cannabis, cocaine, methamphetamine, inhalants, hallucinogens, heroin, and prescription opioid, tranquilizer, sedative, and stimulants]. Logistic multivariable regression models were used to examine correlates of MCC among past-year drug users.

Results: The study sample included 17,571 adults age ≥50. Among adults with chronic conditions, past-year drug use was reported

by 10.1% with 0 chronic conditions, 9.0% with 1 chronic condition and 9.4% with ≥2 chronic conditions (p=0.20). Past-year SUD was reported by 0.9% with 0 chronic conditions, 1.0% with 1 chronic condition and 1.3% with ≥2 chronic conditions (p=0.07). Prescription sedative and stimulant misuse was significantly higher among adults with ≥2 chronic conditions compared to those with 0 or 1 conditions. Any SUD excluding cannabis was significantly higher among adults with ≥2 chronic conditions (1.1%) compared to adults with 0 (0.6%) and 1 (0.7%) conditions (p=0.03). In the adjusted model, among adults with ≥2 conditions, correlates of past-year drug use included younger age, male, and nicotine dependence and alcohol use disorder (AUD).

Conclusion: In this nationally representative survey, among adults age ≥50, there were no significant differences in the prevalence of substance use and SUD between adults with 0, 1, or ≥2 chronic conditions, suggesting that this cohort continues substance use even while having chronic conditions. Among adults with MCC, nicotine dependence AUD, were associated with drug use. This group with high multimorbidity may be particularly vulnerable to the negative effects of illicit substances.

D143 Student Presentation
Functional Endurance and Gait Speed Relations to Mild Cognitive Impairment (MCI) and Dementia: The ARIC Study

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Background: Slower gait speed (GS) is associated with dementia risk. Combining functional endurance measures with GS may provide improved prediction of MCI and dementia risk, particularly among higher functioning adults.

Methods: Endurance was measured as meters walked "as fast as you can" in 2 minutes (TMW) and usual GS over 4 meters at Visit 5 of the Atherosclerosis Risk in Communities Study (N=3,666, 71-94 years, 44% men, 18% black). Neurological exams, cognitive tests and participant and proxy interviews were used to adjudicate cognitive status (normal, MCI, dementia). Multinomial regression models estimated relative risk ratios (RRR) to examine relations of cognitive status with TMW and GS separately and then combined, adjusting for sociodemographic variables, cardiovascular factors, and ApoE4. Nonlinearities, missingness, and synergistic TMW+GS effects were accounted for.

Results: 2,890 (79%) completed GS, TMW and cognitive exams. In separate models, a 1 standard deviation (SD) higher GS was associated with a 58% lower risk of dementia, RRR=0.42 (0.28,0.64), but only for GS<1m/s; for GS≥1m/s, associations were not supported, RRR=0.58 (0.22, 1.50). Each SD higher TMW was associated with a 55% lower risk of dementia across the TMW range, RRR=0.45 (0.34, 0.59). Combining GS and TMW in a single model (with nonlinearities and interactions) led to improvements over both separate models (likelihood ratio tests p<0.001 each), where participants with high performance in both metrics (e.g. TMW=200m, GS=1.2m/s) had 99% lower dementia risk, RRR=0.01 (0.00,0.05) and 72% lower MCI risk, RRR=0.28 (0.15,0.51) compared to participants with low performance (e.g. TMW=100m and GS=0.8m/s).

Conclusion: Combining endurance measures with GS may be a more sensitive indicator of MCI and dementia risk in higher-functioning older adults.

D144 Student Presentation
Prevalence of frailty in homebound older adults

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Background: Frailty is a distinct clinical syndrome characterized by the body's failure to correct itself from homeostatic imbalance[1]. In the United States the prevalence of homebound individuals was 5.6% in 2011[2]. However, prevalence of frailty in homebound older adults has not been measured.

Objective: Measure frailty using the Fried Frailty Phenotype (FFP) in homebound patients residing in Houston, Texas and identify factors that correlate with frailty status.

Methods: Frailty status was measured in homebound older adults (age 50+). Demographic data including age, gender, ethnicity, number of medications and diagnoses were obtained during visits to the homes of participants. Frailty was measured using the FFP criteria of unintentional weight loss, weakness, poor endurance, slowness, and low physical activity[1]. Participants were considered frail with ≥3 criteria met, prefrail with 1-2, and robust with 0.

Results: We visited 25 homebound patients (average age 73) in the Harris Health-UTHealth LBJ Bridge House Call Program and screened for frailty using the FFP as part of their clinical exam. Of the 25 patients 14 (56%) were frail, 11 (44%) were prefrail, and none (0%) were robust. There were 12 (48%) female and 13 (52%) male participants. Those who took 5+ medications (polypharmacy) were 63% frail and 37% prefrail, while those who took <5 medications were 33% frail and 67% prefrail. Those who had 10+ diagnoses were 57% frail and 43% prefrail, while those who had <10 diagnoses were 50% frail and 50% prefrail.

Conclusion: As anticipated, there was a greater prevalence of frail and prefrail homebound older adults when compared to the prevalence found in community-dwelling older adults (10% and 40%, respectively). Participants who took 5+ medications were more likely to be frail when compared to those who took <5 medications. We also saw a trend where the more diagnoses the patients had the more likely they were to be frail. Results will be used to develop future studies aiming to mitigate frailty.

References:
1. Fried, L. P., Tangen, C. M., Walston, J., Newman, A. B., Hirsch, C., Gottdiener, J., ... & McBurnie, M. A. (2001). Frailty in older adults: evidence for a phenotype. *The Journals of Gerontology Series A: Biological Sciences and Medical Sciences*, 56(3), M146-M157.
2. Ornstein, K. A., Leff, B., Covinsky, K. E., Ritchie, C. S., Federman, A. D., Roberts, L., ... & Szanton, S. L. (2015). Epidemiology of the homebound population in the United States. *JAMA internal medicine*, 175(7), 1180-1186.

D145 Resident Presentation
Is the SPPB a Useful Tool for Stratifying Fall Risk in Primary Care?

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BACKGROUND

The Short Physical Performance Battery (SPPB) is a quick performance measure advocated for screening community-dwelling older adults for subsequent morbidity and disability. It measures 3

timed tasks: walking speed (WS), chair stand (CS), and standing balance (SB). Prospective evidence supporting its ability to predict falls is limited. We evaluated the ability of the SPPB and each of its 3 components to independently determine 1- and 4-year fall risk.

METHODS

We performed a secondary analysis of a cohort of 430 primary care patients at risk for mobility decline. Each SPPB component was scored 0-4 points (higher=better), with a maximum total score of 12. Score categories were low (4-6), middle (7-9), and best (10-12). Falls were recorded quarterly by phone for 4 years. Multivariable negative binomial regression models evaluated relationships between baseline SPPB performances and future falls. The following covariates were selected by statistical criteria ($p<0.1$): age, gender, race, education, comorbidities, BMI, psychotropic drugs, physical activity, pain, and depression.

RESULTS

Of 417 participants included, 67% were female, 82% white, median age 76 [IQR 70-82], and SPPB 9 [IQR 7-10]. Low performance on the SPPB predicted 1-and 4-year fall risk with rate ratios (RRs) of 3.03 [CI 2.04-4.49] and 1.53 [1.09-2.17], respectively (ref= best performers). The low performers on WS also had higher 1-and 4-year fall risk with RRs 2.90 [1.85-4.55] and 1.61 [1.07-2.41]. The low performers on CS and SB had higher 1-year fall risk with RRs 1.77 [1.11-2.84] and 2.86 [1.82-4.50]. Performance on CS and SB tests did not determine 4-year fall risk.

CONCLUSIONS

Among older adults at risk for mobility decline, a score of 4-6 on the SPPB, or low performance on WS predicts a high risk of subsequent falls over 4 years. Low performance on the CS or SB test predicts a high risk of subsequent falls over 1 year.

D146 Student Presentation
Burden of Chronic Obstructive Pulmonary Disease (COPD) Among Older Adult Medicare Beneficiaries in the United States
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Background: COPD burden is significantly higher in older adults compared to younger individuals. However, limited evidence is available on disease burden of COPD in the aged Medicare population in the US. Our study examines the disease burden, including prevalence, incidence, all-cause mortality rate, and prevalence of comorbid conditions, of COPD in older adult Medicare beneficiaries.

Methods: The study uses a 5% representative sample of Medicare data between 2009 and 2012. Beneficiaries 65 years of age or older were included. COPD and its comorbid conditions were identified in the master beneficiary summary files for chronic conditions (MBSF_CC). Comorbidity was defined as any co-existing condition identified in the MBSF_CC data. We quantified annual prevalence and incidence rate of COPD, and prevalence of comorbid conditions. In addition, annual age-, sex-, and race-standardized mortality rates among beneficiaries with COPD were examined.

Results: Among 2,746,747 Medicare beneficiaries 65 years or older included in the study sample, 82.4% were white with a mean of 76 years. The prevalence of COPD was unchanged between 2009 and 2011 (19.2%) but slightly decreased to 18.7% in 2012. COPD incidence rates between 2009 and 2012 were 26, 32, 32, and 31 cases per 1000 beneficiaries per year, respectively. Overall, 97.5% of COPD patients had at least one chronic comorbidity. The most common comorbidities were hypertension (78.9%), ischemic heart disease (70.5%), rheumatoid arthritis (66.3%), diabetes (44.6%), and depression (42.4%). The proportion of chronic comorbidities was higher among prevalent than incident COPD cases. Approximately 1 in 10 older adults with COPD died annually. Incident COPD cases had

higher standardized annual mortality rates than prevalent cases (2009: 102 vs 88, 2010: 102 vs 82, 2011: 111 vs 89, and 2012: 111 vs 88, deaths per 1000 beneficiaries).

Conclusions: Findings demonstrate a substantial burden of COPD among older adult Medicare beneficiaries. The higher death rate among new COPD cases may indicate late diagnosis, lack of access to care, suboptimal treatment, different composition of socioeconomic status, or higher prevalence of comorbidities. Further research on these potential factors is warranted.

D147 Student Presentation
Effects of Comorbid Cardiovascular Disease and Diabetes Mellitus on Hand Osteoarthritis State Transitions
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Background: Hand osteoarthritis (HOA) is a common, debilitating condition affecting older adults. The course of HOA and its relationship with cardiovascular disease (CVD) and diabetes mellitus (DM) are not known.

Methods: Data were from the Johnston County OA Project (n=845; mean age of 60 years, overall 2/3 women and 1/3 African-American). Data were collected at baseline (1991-1997) and two follow-up cycles (average ± SD of 6.4 ± 0.8 and 12.0 ± 1.2 years post baseline). Clinical measures of pain and function in HOA were assessed, including use of the AUStralian CANadian Osteoarthritis Hand Index (AUSCAN). Radiographic hand osteoarthritis (rHOA) required a Kellgren/Lawrence severity grade of ≥2 in at least 3 joints in each hand. A four-state progressive model was designed to produce adjusted hazard ratios and 95% confidence intervals [aHR (95% CI)] between DM or CVD and specific HOA state transitions, considering covariates of sex, age, race, education, and obesity.

Results: Those with DM and no rHOA (versus those without DM) showed a reduced likelihood for symptomatic improvement [aHR (95% CI): 0.52 (0.30, 0.90)]. A similar effect among those with CVD did not reach statistical significance. Among women, those who had or developed CVD (versus without CVD) were less likely to have incident rHOA with no/mild symptoms [aHR (95% CI): 0.47 (0.24, 0.94)]. Men with CVD were significantly more likely to develop incident rHOA [aHR (95% CI): 7.19 (1.09, 47.30)]. In analyses using AUSCAN pain and function scores, CVD was associated with a reduced chance of symptom improvement irrespective of rHOA status [with rHOA, aHR (95% CI): 0.13 (0.02, 0.77); without rHOA, aHR 0.58 (0.36, 0.92)]. Those with DM and no rHOA (versus those without DM) showed a significantly decreased likelihood for functional improvement [aHR (95% CI): 0.58 (0.34, 0.98)]. Women with CVD and rHOA, as well as those individuals with multiple comorbidities (CVD, DM, and obesity), had a higher risk of worsening hand function.

Conclusions: This study highlights the impact of comorbid CVD and DM on the clinical and radiographic course of HOA, as well as differential effects by sex.

D148 Student Presentation
Diabetes Drug Use Among Older Adults with Cognitive Impairment
T. Rodriguez, S. Gray, D. Barthold, Z. Marcum. *University of Washington, Seattle, WA.*

Background: Older adults with diabetes mellitus (DM) and comorbid dementia face an increased risk of hypoglycemia and are unlikely to experience the long-term benefits of tight glycemic control. We evaluated the association between level of cognitive impairment and DM medication use in a cohort of older adults to assess whether treatment intensity – using number of DM drugs and insulin use as proxies – varies across levels of cognitive impairment.

Methods: We used data from the National Alzheimer's Coordinating Center, a longitudinal study of older adults with and without cognitive impairment. Clinical evaluation and participant-reported data are collected annually. We developed a cohort of participants with DM on their most recent observation and some level of cognitive impairment defined as: mild cognitive impairment (MCI), non-MCI impairment (cognitive impairment but not meeting criteria for MCI), or dementia. We identified DM medications from self-reported medication use. Analyses used cross-sectional data from subjects' most recent observation. Comparing across levels of cognitive impairment, we used Poisson regression to compare differences in number of DM medications and logistic regression to compare likelihood of no DM medications as well as use of any insulin. All models adjusted for demographics, living situation, level of independence, and recent onset DM (no diagnosis at first visit but presence of diagnosis at most recent visit).

Results: Our cohort of 2,574 participants included 205 (8%) with non-MCI impairment, 744 (29%) with MCI, and 1625 (63%) with dementia on their most recent visit (mean age at most recent visit, 77.7 years). The mean number of DM medications was similar across levels of cognitive impairment (1.07 for non-MCI impairment, 1.08 for MCI, and 0.95 for dementia). Overall, 509 (19.8%) participants reported any insulin use, of which 214 (8.3%) used short-acting insulin. Comparing those with dementia to those with MCI, there was no significant difference in number of DM medications reported (RR=0.92, 95% CI=0.84-1.02) or odds of using any insulin (OR=0.89, 95% CI=0.66-1.21). However, those with dementia were more likely than those with MCI to report no DM drugs (OR 1.32, 95% CI 1.07 - 1.62).

Conclusion: DM treatment intensity, defined by number of DM medications and insulin use, was not significantly different across levels of cognitive impairment. However, those with dementia were more likely to report no DM medication use.

D149 Student Presentation
Research priorities and inclusion preferences of homebound adults and caregivers receiving home-based medical care

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Background: Homebound older adults and their caregivers are a largely invisible and vulnerable population who have not had a voice in establishing a patient and caregiver-centered research agenda. Research priorities established without stakeholder input may overlook significant questions of importance to patients and caregivers. With a PCORI Stakeholder Engagement Award, we aimed to address this deficit by eliciting research priorities and strategies for further research engagement from this population.

Methods: We conducted semi-structured interviews with homebound adults age 65+ without dementia and caregivers of homebound older adults recruited from home-based medical practices at JHU and UCSF. Semi-structured interview questions addressed prior research experiences, research engagement strategies, and research topics of interest to participants. Descriptive thematic analysis was used to analyze interviews and identify themes.

Results: We interviewed 17 caregivers and 13 homebound older adults split evenly across both sites between April and October 2018; 73% were female, 57% people of color, and 38% enrolled in Medicaid. Participants identified research priorities focused on condition-specific medical research questions, including managing multiple comorbidities. Participants also prioritized improving caregiver training and opportunities for respite, healthcare delivery and affordability, and physical adaptations to the home care environment. Both patients and caregivers were interested in future research engagement, but anticipated that time commitment and physical inabilities could be barriers to participation. While most participants said they would prefer to meet with researchers in person, they thought that connecting via phone and videoconferencing could be feasible.

Conclusions: Our findings provide insight on research questions of interest for homebound older adults and caregivers. We also identify strategies to engage this population as advisors to work with researchers to develop a patient-centered research agenda for the field of home-based medical care. Homebound adults and caregivers reported interest in engaging in the research process and identified multiple platforms through which to do so.

D150 Student Presentation
Managing Managed Care: Perspectives from Key Stakeholders in Skilled Nursing Facilities

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Background: In recent years, Medicare Advantage (MA) plan enrollment has increased, a trend that is expected to continue. Many SNFs rely on MA managed care insurer referrals to maintain their census in a market with high competition for post-acute care patients. This research aims to describe the relationship between MA plans and SNFs from the perspective of key decision-makers in SNFs.

Methods: This qualitative study used convenience and combined purposive-snowball sampling to select staff from Denver metropolitan SNFs. Interviews focused on participants' perspectives on the relationship between MA plans and SNFs, including MA mechanisms of control, power dynamics, and preferences for MA plans versus Fee-for-Service (FFS) Medicare patients. A codebook was developed based on the interview guide. Six transcripts were double-coded by two independent coders. A final codebook was then developed and used by the primary coder to code the remaining data, upon which key themes were identified.

Results: Twenty-three interviews were conducted with individuals from 11 SNFs including 7 directors of nursing, 6 administrators, 3 social workers, 2 physical therapy directors, 2 admissions coordinators, 1 director of marketing, 1 business operations manager and 1 corporate level individual. Three key findings emerged during the interviews: 1) case management is a key mechanism of MA plans, which influences the behavior of SNF decision-makers and can be burdensome for SNF staff to navigate; 2) MA plans often exhibit power over the length of stay for their beneficiaries in the SNF, which has the potential to lead to an early discharge and a perceived risk for rehospitalization; 3) many SNFs reported a preference for admitting FFS over MA patients because of the higher reimbursement rate of FFS and having more control over patient care.

Conclusions: The themes describe how SNFs' reliance on MA plans for patient referrals and streams of revenue can place them at odds with overall patient care. It is unclear how MA plans' influence over care affects outcomes for patients in SNF. SNFs in the Denver metropolitan area are typically unable to maintain a census of only FFS patients, therefore they must learn to work with MA plans to stay in business.

D151 Student Presentation
Facilitating Care Coordination for Older Adults with Cognitive Impairment: A Qualitative Study of Primary Care Encounters

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BACKGROUND

The average Medicare beneficiary sees 7 physicians in 4 different practices annually. Patients with cognitive impairment are at increased risk of poor care coordination. Our objective was to gain a deeper understanding of factors during primary care visits that may facilitate or hinder effective care coordination.

METHODS

Qualitative content analysis of audio-recorded primary care encounters from SAME Page, a randomized pilot trial that examined whether a patient-family agenda setting intervention improves primary care visit communication for patients with cognitive impairment. Participants were 65 years and older with cognitive impairment, family companions (n = 93 dyads), and clinicians (n = 14) from two general and one primary care geriatrics clinic in Baltimore, Maryland.

RESULTS

The mean age of patients was 79.9 years (SD 7.6) and the mean Mini Mental Status Exam score was 21.6. Barriers to care coordination included: absent or confusing information in patient health records and caregivers being unable to clarify information about the patient's health. Facilitators included: clinicians actively inquiring about and summarizing patient health information, and caregivers engaging in care coordination or clarification of patient health records.

CONCLUSION

Our findings suggest that for older adults with cognitive impairment, strategies to improve care coordination may include systems approaches to improve the transfer of information between clinicians and settings of care, and caregiver education to foster active engagement in clarifying patient medical records and care.

D152 Student Presentation
A qualitative study of caregiver roles in medication review during primary care visits of older adults with cognitive impairment

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Background: Older adults with cognitive impairment are at increased risk of drug-related problems, making medication reviews during routine primary care visits essential to their health. Although family caregivers routinely accompany these patients to primary care visits, little is known about their role during medication reviews. Our objective was to understand how family caregivers of older adults with varying degrees of cognitive impairment affect conversations surrounding medication reviews during routine primary care visits.

Methods: Qualitative content analysis was performed by 4 independent coders on audio-recorded primary care clinical encounters that occurred between August 2016 and August 2017. Participants were patients aged 65+ with cognitive impairment and their family caregiver (n=93 dyads) and clinicians (n=14) from two general and one primary care geriatrics clinic.

Results: The mean age of patients was 79.9 years (SD 7.6) and the mean Mini Mental Status Exam score was 21.6 out of 30. Patients had a mean of 7.12 self-reported medications. Most caregivers were female (48, 51.6%) and were either adult children or spouses. Family caregivers facilitated medication review by having medication knowledge readily available, including any recent changes to medications or side effects and supplying information to the physician when the patient could not. Barriers to communication surrounding medication review included: the caregiver lacking information regarding medications or not being the person who usually administers the patient's medications, and disagreements among multiple caregivers or the caregiver and patient.

Conclusions: Family caregivers play a vital role during medication review in primary care visits of older adults with cognitive impairment. Findings suggest the need for approaches to maximize the ability of the caregiver to facilitate medication review and minimize barriers to communication surrounding medication review.

D153 Resident Presentation
Social isolation and loneliness from the patient perspective: a thematic analysis

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Background: A growing homebound population may be at risk for social isolation and feelings of loneliness. Health related social needs may play a contributing role in these feelings. Current research shows isolation and loneliness are drivers of health outcomes impacting from readmission rate to cognitive function. This study seeks to provide patient-centered insight into perceptions of isolation and loneliness in a homebound population. **Methods:** Eight participants were recruited from a group of community-dwelling older adults receiving care in a home-based primary care practice associated with a family medicine residency program in Cincinnati, Ohio. One 30-minute semi-structured interview was completed in the participants' homes. The interview focused on loneliness and social isolation, using the well-validated short-form 6-item De Jong Gerveld Loneliness Scale. Interviews were digitally recorded and transcribed. Three qualitative data analysis raters then open-coded de-identified transcriptions independently. Themes were defined and named using thematic analysis then triangulated around a consensus of themes. **Results:** Patients denied loneliness but many described social isolation. Several had not been out of their homes in months. Contacts were primarily aides, nurses and physicians who came for visits. For those who went out, it was only for doctor visits. Contact with family and friends occurred many times as phone calls, not physical visits. The largest barriers contributing to social isolation were mobility issues like no access ramps and broken electric power chairs. Many described solitary activities such as reading, crafts, cards, watching TV and listening to music. Patients also described activities they used to do before being homebound such as lunching on the downtown square, going to restaurants and the library, shopping and gambling at the casino. **Conclusion:** A majority of sampled homebound older adults acknowledged social isolation but denied loneliness. Since social isolation has been linked to poor health outcomes, it may be beneficial to focus assessment and interventions on social isolation instead of loneliness.

D154 Student Presentation
Preserving patient autonomy among older adults with cognitive impairment: Clinician strategies during primary care visits

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Background: Little is known about how to best address patient autonomy for older adults with cognitive impairment in primary care. Our objective was to describe how clinicians navigate the challenges of preserving the autonomy of older adult patients with cognitive impairment during primary care visits.

Methods: Qualitative content analysis was performed using transcripts from 93 clinical encounters recorded during the SAME Page study, a randomized pilot trial of a primary care agenda-setting intervention for older adults with cognitive impairment. Eligible participants were community-dwelling adult patients at 2 primary care clinics and a specialty geriatric clinic who were aged ≥65, had a visit companion, and mild to severe cognitive impairment.

Results: Nine physicians and 5 nurse practitioners / physician assistants participated. Eight had 15 or more years in practice and 7

were female. The following strategies were used by clinicians during primary care visits (mean duration=25.2 minutes) to preserve patient autonomy: encouraging caregiver buy-in to treatment plans that support patients' priorities, incorporating patients' goals of care, adapting patient routines to maximize independence at home, and preserving patient identity in spite of illness. Obstacles to the use of such strategies included: discordance between patient and caregiver treatment preferences and non-contributory caregivers. During encounters with patients who had severe cognitive impairment, clinicians relied largely on communication with the caregiver in order to address patient needs.

Conclusions: We identified several strategies used by primary care clinicians to preserve autonomy of patients with varying degrees of cognitive impairment, as well as some obstacles. The described approaches should be tested in larger studies.

D155 Student Presentation
A Qualitative Comparison of Older Adults' and Informal Caregivers' Perspectives on Aging

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Background. Effective and compassionate health care for older adults requires an understanding of aging from the perspectives of those experiencing it. While prior studies have identified markers of "successful aging"; the purpose of this study is to better understand the aging experience by asking older adults to identify their perceptions, concerns, and expectations associated with aging.

Methods. We conducted four focus groups with older adults and four focus groups with informal caregivers (IC) of older adults followed by qualitative thematic analysis. We compared perspectives on aging between younger IC (below 65 years) and older IC (over 65), and between IC and those receiving care.

Results. The most common descriptions of aging were 1) a loss of control, i.e., the inability to physically do what one feels mentally capable of doing; and 2) being freer, i.e., unencumbered from the responsibilities and risks encountered earlier in their lives. Older adults were most concerned about losing mobility and cognition (e.g. dementia). IC, in addition, were concerned about becoming dependent on others and feared the potential for not having a caregiver or advocate as they age. While younger IC tended to express fear of, and resistance to, aging, older IC were more accepting of aging as a natural process. Older IC and older adults were most excited for traveling, volunteering, maintaining health status, and pursuing hobbies.

Conclusions. Providing health care for older adults may pose challenges for individuals who are not in this age group, i.e., the task of understanding the unique worries and hopes of aging older adults. Learning about aging from those who are experiencing it and from those observing it while caring for an older adult can help healthcare providers empathize with the concerns of older patients and focus attention on alleviating the anxieties that have adverse consequences on quality of life. This is true even among older adults in relatively good health. Findings also point to implications at the intersection of social and health policies, e.g., regarding older adults' desire to maintain independence juxtaposed with their anxiety about not finding an advocate or companion when they need one.

D156 Student Presentation
Exploration of How Low-Income, Older Adults Address Food Insecurity: A Qualitative Study

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Background: Food insecurity—unreliable access to sufficient affordable, nutritious food—affects approximately 48 million people. Up to 60% of older adults with incomes <200% of the federal poverty threshold are food insecure. This study sought to describe the experiences, social norms, and beliefs relevant to food insecurity among low-income, older adults.

Methods: The sample frame comprised low-income, older adults who had participated in prior research and agreed to be contacted for additional studies. Snowball sampling was also used to reach data saturation. Participants (n=28) completed a survey that included three food insecurity questions. Focus group sessions used vignettes to elicit social norms and beliefs. Sessions were recorded, transcribed, and analyzed using thematic analysis by two coders.

Results: Most (96%) participants were female and (79%) food insecure. The mean age was 70.11 years (sd=5.90). Participants identified many community resources that could address food insecurity. Food pantries were cited often as vital. Three key themes emerged from the data. The first was resources for food are available, but "there's no free lunch. You've got to work." Participants generally relied on more than one resource each month to meet their food needs, such as multiple food banks, and participants suggested that "you go and you find out" about resources, citing community meetings and senior centers as hubs for information. The second theme that emerged was that food and housing were described as "basic necessities," but it was essential to prioritize needs when there were insufficient funds, with housing taking precedent. Participants used phrases such as "rob Peter to pay Paul," and needing to "hustle up the money." Finally, the last theme of "pride [getting] in the way" was cited as a barrier to resolving food insecurity. Participants stressed that seeking help was not a sign of weakness, even if they had lived independently up to this point.

Conclusion: These results show that low income older adults work to address food insecurity, but not all food insecure older adults know about the available food resources or how to access them. Physicians should take a more holistic approach by addressing both medical and social determinants of health. Physicians can address food insecurity by screening for it during patient interviews and facilitating access to community resources.

D157 Student Presentation
The Influence of Tau Expression on Myelination in Alzheimer's Disease

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Background: Alzheimer's disease (AD) is the leading neurodegenerative disorder in the United States, and the only top ten cause of death without an effective therapy. Recent evidence suggests disease etiology may involve the accumulation of tau protein within white matter regions of the brain.

Question: Does tau expression and/or pathology alter axonal myelin?

Methods: The study began by selecting two cohorts of mice: a wild type (WT) with normal expression of the tau protein and a knockout (KO) without any tau expression. The mice were euthanized and their brains sectioned. Three WT brains and three KO brains were then stained with oligodendrocyte specific protein (OSP) followed by an immunofluorescent secondary antibody targeting the OSP. The stained brains were then mounted on a slide, and six images were captured for each brain, three from the cortex and three from the hippocampus, before quantitatively analyzing the intensity of the stain in terms of myelin expression.

Conclusion: The results indicated that there was a significant difference in myelin expression, specifically within the hippocampus with KO mice expressing more myelin. The average intensity of the stain was compared between the WT and KO mice within the cortex as well as the hippocampus. There was no significant difference found for the cortex when comparing the myelin stain intensity. This data suggests that the presence of the tau protein may have an impact on the expression of myelin, and the accumulation of tau within AD's brains may negatively influence myelin expression and signal transduction.

D158 Student Presentation, Encore Presentation
Biochemical & physiologic factors that affect patient fitness & body composition during hematopoietic stem cell transplantation for hematologic malignancies

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Hematopoietic stem cell transplantation (HCT) is a potentially curative treatment for hematologic malignancies but is associated with significant side effects, including functional impairment & decreased quality of life (QOL). Poor characterization of HCT-induced functional impairment & prognostic markers for recovery are a barrier to identifying patients at risk & developing new preventive or treatment strategies. This pilot study aims to characterize factors that contribute to these side effects during HCT. Twenty-one patients (autologous=15, allogeneic=6) seeking treatment for hematologic malignancy at the Puget Sound Veterans Affairs Healthcare System Bone Marrow Transplant Unit completed measurements of fitness, body composition, sex hormones & inflammation before HCT & 30±10 days after HCT. Blood tests included bioavailable testosterone, estradiol, estrone, IL-6, & TNF. Resting energy expenditure (REE) was assessed by indirect calorimetry, body composition by dual-energy x-ray absorptiometry & functional performance by handgrip strength (HGS), stair climbing power (SCP), 6-minute walk test (6MWT), 1-repetition maximum (1RM) muscle strength, chair stand test (CST) & peak oxygen consumption (peak VO$_2$). Previously-validated questionnaires were used to assess QOL & functional status. Statistical methods included non-parametric paired t-tests. Both transplant types showed significant decreases in 6MWT (autologous, p=0.009, allogeneic, p=0.046) & patient-reported vitality (autologous, p=0.03, allogeneic, p=0.04) at follow-up. The autologous group showed significant decreases in peak VO$_2$, HGS, SCP, CST, lower body 1RM, fat mass, lean mass, REE, estrone, erectile function & sexual desire (p≤0.05). These parameters were unchanged after allogenic transplant. Bioavailable testosterone, estradiol, IL-6, & TNF were unchanged in both groups. The autologous group reported significantly increased nausea & diminished social/family well-being (p≤0.03), with a trend for increased fatigue (p=0.053). Recruitment & long-term follow up are ongoing. HCT is associated with a significant decline in fitness & muscle function & increased burden in patient reported outcomes.

D159 Student Presentation
Metabolomic Approach to Investigate the Pathogenic Mechanism of Gluconeogenesis in Obesity

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Background: Diabetes and obesity in older adults is linked to higher mortality, reduced functional capacity, and an increased risk of hospitalization. This study aims to utilize pyruvate tolerance tests and metabolomics to identify the mechanism for gluconeogenesis dysregulation in diet-induced insulin resistance mouse model.

Methods: Pyruvate tolerance tests were utilized to identify differences in the hepatic gluconeogenesis pathways between the normal diet mouse model and the diet-induced insulin resistance mouse model. The pyruvate tolerance test was administered weekly, during which data for Fasting Blood Glucose and Glucose AUC were collected. Hepatic Mitochondrial Pyruvate Carrier 1 and 2 (MPC) levels were measured as a potential pathway for glucose intolerance. In addition, liver samples were collected, prepared, and analyzed with NMR and MS to provide metabolomic data.

Results: Results of the pyruvate tolerance test shows elevated fasting glucose levels and glucose intolerance in the aging and obesity mouse models. This is possibly due to increased expression of hepatic MPC, which amplifies the metabolites involving gluconeogenesis. Results of the metabolomic study indicates that there were multiple metabolites that were significantly elevated in the hepatic gluconeogenesis pathway for diet-induced insulin resistance mouse model. As compared to a normal diet mouse model, the high-fat high-sugar fed mouse model had elevated fructose-1-phosphate, fructose-6-phosphate, and glucose-6-phosphate levels. A heat map was used to show the difference in hepatic gluconeogenesis between the two models of mice.

Conclusion: The results of the pyruvate tolerance test and metabolomic study provide evidence that elevation of mitochondrial pyruvate carrier is associated with the induction of hepatic gluconeogenic metabolites in the diet-induced insulin resistance mouse model. In future studies, specific targets for regulating gluconeogenesis in patient with age-associated metabolic diseases should be studied.

D160 Student Presentation
Effects of Cytotoxic Chemotherapy on Physical Function & P16^{INK4A} Gene Expression in Women with Newly Diagnosed Breast Cancer

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Background: With increased overall life expectancies, long-term breast-cancer survivors are at risk for manifesting features of accelerated aging that have yet to be well-characterized in prospective studies. A better understanding of the effects of cytotoxic chemotherapies on physical function and cellular senescence may help to guide refinements in therapy to optimize survival benefits, while minimizing the impact on cellular aging.

Methods: In 20 women with newly diagnosed ER/PR positive, HER2 negative stage II or III breast cancer who were assigned to receive a taxane-based treatment (paclitaxel or doxacetal), we studied the effect of chemotherapy on physical function and expression of the senescence marker P16^{INK4A}. Maximum grip strength, Timed Up and Go (TUG), submaximal graded exercise treadmill (GXT) testing, and P16^{INK4A} mRNA gene expression in peripheral lymphocytes were measured at baseline, and within 1 month of completing chemotherapy. Women were of mean age 46 (SD 11.7), mean BMI of 27.5 kg/m^2 (SD 7.4), and comprised a multi-ethnic group (45% white, 30% Hispanic, 15% Asian, and 10% black). At baseline, 70% reported exercising at least twice weekly for 20-30 minutes, with about 35% sustaining exercise throughout the study.

Results: We detected a significant decline in grip strength of 3.8 kg (p = 0.006), an increase in TUG of 0.46 s. (p = 0.05), and shortened time (136 s.) to reach 85% of predicted heart rate on GXT in women treated with taxane-based chemotherapy. In a subset of the women, we observed a significant increase in P16^{INK4A} mRNA level in lymphocytes after treatment.

Conclusions: Our data suggest that women with newly diagnosed ER/PR positive, HER2 negative stage II or III breast cancer treated with IV taxane-based therapy experience a significant reduction in physical function, which may be associated with accelerated cellular senescence in a subset of individuals.

D161 Student Presentation
Rosiglitazone, an insulin receptor sensitizer, does not affect the rate of insulin transport across the BBB
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Background:

Reduced insulin and insulin resistance in the brain has been associated with Alzheimer's disease (Craft et al. 1998; Benedict et al. 2004; Reger et al. 2008). Alteration of insulin transport across the blood-brain barrier (BBB) has the potential to improve memory deficits. The role of peripheral insulin in glucose metabolism is well established and several pharmacologic options are used in peripheral insulin resistance, including rosiglitazone (RSG), a PPARG agonist, which sensitize the insulin receptor (Lehmann et al. 1995; Choi et al. 2010). We explored the effects of RSG on insulin transport across the BBB and brain endothelium binding. We subsequently used an insulin receptor antagonist, S961, and assessed transport and binding.

Methods:

CD-1 mice were anesthetized with urethane. Iv RSG was administered to CD-1 male mice, followed by a 30-minute circulation period. Mice were then dosed with iv radiolabeled [125I]-insulin, 1,000,000 CPM, with Δor without 1 μg S961. Cardiac perfusions were performed on another set of mice using radiolabeled [125I]-insulin, 200,000 CPM at 2mL/min. Mice were then decapitated 1-10 minutes after and brain regions were dissected and quantified using a gamma counter. Data was plotted and analyzed using a linear regression model to determine rate of insulin transport. Capillary depletions for both delivery methods (iv and perfusion) were done on whole brains. Capillaries and parenchyma quantified with a gamma counter. T-tests were used to compare groups.

Results:

For RSG treatment without the S961 insulin receptor antagonist, we saw similar results between the iv and cardiac perfused mice. We found no difference in insulin transport across the BBB with the use of RSG compared to control. Our capillary depletion studies demonstrated similar insulin binding at the brain capillaries between RSG and control mice. Mice treated with RSG and S961 had no statistically significant differences between rates of insulin transport nor capillary binding.

Conclusion:

Based on our experiments RSG doesn't alter the rate of insulin transport across the BBB in the time frame investigated. In addition, our research shows that this drug does not enhance insulin binding to the brain capillaries. Therefore, we conclude transport of insulin across the BBB occurs independent of the insulin receptor.

D162 Student Presentation
β-Guanidinopropionic Acid as an Inhibitor of mTOR-mediated Aging in *Drosophila*
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Age-related disease is a significant burden for patients, families, and the healthcare system. This study aimed to analyze the effects of the creatine metabolite β-GPA on the mTOR pathway in *Drosophila* as a potential means to intervene in the aging process.

β-GPA is an exercise mimetic that has anti-fatigue properties in skeletal muscle. The mTOR (mechanistic target of rapamycin) protein is a central regulator of the aging process and increases lifespan of many species when inhibited. Recent evidence has shown that β-GPA can activate AMPK, which is a low-energy sensor, controller of cellular metabolism, and an inhibitor of mTOR. Therefore, this study for the first time assesses the relationship between β-GPA and mTOR, and we hypothesized that β-GPA administration would stimulate AMPK to inhibit mTOR to generate an anti-aging effect.

We allocated two cohorts of *Drosophila* flies, young (1 day of adulthood) and old (30 days of adulthood). Each cohort was divided and received either a control diet or diet with varying concentrations of β-GPA. The mTOR and downstream pathway proteins were measured by Western blot followed by chemifluorescence for visualization and protein quantification.

Results showed statistically significant (p<0.05) alteration in mTOR activation with β-GPA administration in the young cohort only. This suggests the older flies did not respond to β-GPA in terms of mTOR inhibition, which is postulated to be due to decreased AMPK sensitivity. Surprisingly, we found differences in mTOR activation patterns between males and females in the young cohort, which indicates the possible presence of sex differences in mTOR activation. In the old cohort overall, there was an attenuated response to β-GPA compared to young; however, old females remained more responsive to β-GPA administration than old males.

The data shows a promising relationship between β-GPA and mTOR in younger flies but not in older flies, and a novel sex difference was discovered. This contributes to our changing understanding of how the mTOR-mediated aging process differs between males and females. Future directions will focus on potential mechanisms for sex differences in mTOR activity, as well as explore means to improve response to β-GPA in old cohorts.

D163 Resident Presentation
Testosterone, Vascular Aging, and Cognition
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Background:

Both low testosterone (T) and vascular aging have been associated with an increased risk of cognitive impairment in men. In this preliminary analysis we examined whether low T contributes to age-related declines in cognitive performance, and explored potential mechanistic links to vascular dysfunction.

Methods:

64 healthy community-dwelling men aged 23-76 yr (mean age 53±15 yr) with a mean total T of 446±101 ng/dL (range 191-645 ng/dL) were studied. Cognitive testing included the NIH Toolbox Assessment of Neurological and Behavioral Function Cognitive Battery, Trail Making Test Parts A and B (TMT), and Stroop Color Word Interference Task. Free T (FT) was calculated using the Vermeulen equation and biomarkers of vascular aging (arterial stiffness and endothelial function) were assessed using SphygmoCor tonometry (average pulse wave velocity, central pulse pressure, augmentation index), EndoPAT plethysmography (reactive hyperemia index), and brachial artery flow-mediated dilation.

Results:

TT was correlated with age-corrected overall NIH Toolbox composite score (r=0.40, p<0.01). Among individual tests, TT was correlated with performance on the Pattern Comparison Processing Speed Test (r=0.43, p<0.01), Oral Reading Recognition Test (r=0.33, p<0.05), and age-corrected TMT Part B (r=-0.38, p<0.01). FT was correlated with performance on the Picture Sequence Memory Test (r=0.43, p<0.01) and TMT A (r= -0.41, p<0.01) and B (r= -0.33, p<0.02), but was not correlated with overall NIH Toolbox composite score (r=0.30, p=0.113).

No consistent correlations were identified between age-corrected composite or individual NIH Toolbox scores and measures of vascular aging.

Conclusion:

Higher TT and FT levels were associated with better overall cognitive performance in healthy men, independent of age, suggesting

that declines in testosterone with aging could be a contributing factor to the age-related decline in cognitive function in men. However, whether testosterone benefits cogntive performance through its effect on the vasculature warrants further study.

D164 Student Presentation
Effects of ptl-1 deletion on lifespan in C. elegans
J. Lewis, L. Chen. *UT Health San Antonio, San Antonio, TX.*

Background: Microtubules are cellular polymers that have many diverse functions. In neurons, microtubules form an integral part of the axonal structure, and regulation of microtubules can affect how the neuron ages. Tau protein is the most important microtubule regulator and stabilizer in the axon. In some pathologic processes, tau may aggregate, leading to loss of microtubule stabilization and subsequent dissociation of the microtubule polymer. *Caenorhabditis elegans* was used as a model organism in this project to study microtubule regulation due to its short lifespan, well known genetic background, and single tau homolog (ptl-1). The objective of this study was to monitor the lifespan of different strains of *C. elegans* to evaluate the effects that alteration of microtubule regulation has on longevity.

Methods: Five different strains of *C. elegans* were designed for use in lifespan experiments: wildtype, ptl-1 deletion, ptl-1 rescue, neuron-specific ptl-1 deletion, and age-specific ptl-1 deletion. Ptl-1 rescue had the rescued ptl-1 gene surrounded by loxP sequences (of the Cre-lox recombination system) to allow selective deletion of ptl-1 by attaching Cre to a neuron-specific promoter for the neuron-specific deletion and a heat-shock promoter for age-specific deletion. Lifespan experiments were performed by placing individuals on agarose gel plates containing an *E. coli* substrate and recording mortality daily. The data were analyzed using GraphPad Prism.

Results: Using a Log-rank test, the ptl-1 deletion strain had a significantly shorter lifespan than both wildtype (P < 0.001) and ptl-1 rescue strain (P < 0.001). Wildtype and ptl-1 rescue had lifespans that were not significantly different (P = 0.474).

Conclusion: The data confirmed that ptl-1 is required for longevity in *C. elegans* because of the significantly reduced lifespan of the ptl-1 deletion strain compared to wildtype. The completion of the neuron-specific ptl-1 deletion lifespan experiment is expected to further isolate ptl-1's longevity-supporting function to its role in microtubule regulation in the axon. For the age-specific ptl-1 deletion, there is a lack of precedent in the literature to hypothesize about the outcome of lifespan experiments. While direct parallels to humans may be limited from this study alone, a better understanding of the isolated role of ptl-1 in the lifespan of *C. elegans* may help support further research into the function of tau in humans and the consequences of tau pathologies.

D165 Student Presentation, Encore Presentation
Protective Effects of DDQ Against Mutant Huntingtin-induced Mitochondrial and Synaptic Toxicities in Huntington's Disease Striatal Neurons
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Huntington's disease (HD) is a progressive, fatal neurodegenerative disease, characterized by chorea, seizures, involuntary movements, dystonia, cognitive decline, intellectual impairment and emotional disturbances. HD has an autosomal dominant pattern of inheritance and an age-dependent penetrance. HD occurs in 4–10 per 100,000 persons, mainly of Caucasian origin. HD is caused by a polyglutamine repeat expansion in exon 1 of the HD gene, and encodes an expanded polyQ stretch in the huntingtin (Htt) protein. Although both wild-type and mutant Htt proteins are expressed ubiquitously in the peripheral and central nervous systems, medium spiny neurons (MSNs) in the basal ganglia are selectively affected.

The precise reasons for this selective neurodegeneration are not completely understood. Cellular changes occur in MSNs as the disease progresses, including the formation of inclusion bodies, calcium dyshomeostasis, impairment of axonal transport, and mitochondrial fusion/fission imbalance. Further, there are no drugs/agents that prevent disease progression in patients with HD. Recently, we designed and synthesized DDQ [diethyl (3,4-dihydroxyphenethyl-amino)(quinolin-4-yl) methylphosphonate] based on the structure of dopamine and tested it in Alzheimer's disease (AD) cell models and found reduced mitochondrial fission and increased fusion and synaptic activity. Based these data, we hypothesize that DDQ will reduce mitochondrial fragmentation and increase synaptic activity in HD neurons. In the current study, we investigate mitochondrial dynamics, biogenesis, autophagy/mitophagy and synaptic activity in both WT (STHDhQ7/Q7) and mutant striatal (STHDhQ111/Q111) neurons treated and untreated with DDQ. We used biochemical, molecular, immunoblotting/immunofluorescence, and confocal microscopy techniques. We tested five concentrations of DDQ in both WT and mutant striatal neurons and found increased cell viability at 100 nM concentration. DDQ reduced Drp1 and Fis1 protein expression levels in Q7 and Q111 striatal neurons. DDQ increased expression levels of Mfn1 in both Q7 and Q111 striatal neurons. Therefore, DDQ may have neuroprotective properties in HD through preserving mitochondrial function.

D166 Student Presentation
Redox Regulation of JNK and p38 Signaling in Cartilage
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Background: Altered joint tissue homeostasis plays a critical role in the progression of age-related osteoarthritis (OA). Recent studies suggest that disturbances in cellular redox signaling strongly influence the aging process. Intracellular oxidative conditions are defined by levels of reactive oxygen species (ROS) production and the antioxidant capacity of the cell. The JNK and p38 MAP kinases regulate catabolic and cell death signaling in cartilage and may play a role in OA. The purpose of this study was to measure the activity of the JNK and p38 pathways in response to ROS generation at physiologic and pathologic levels in human articular chondrocytes and to determine the role of Ask1 as an upstream regulator of their activity.

Methods: Primary human chondrocytes isolated from normal donor cartilage were treated with a fibronectin fragment (FN-f), 0.5mM-50mM H_2O_2, or menadione, which are all known to generate ROS from physiologic (FN-F and low dose H_2O_2) to pathologic levels (high dose H_2O_2 and menadione). ROS generation was measured by immunoblotting for peroxiredoxin hyperoxidation. MAP kinase signaling was evaluated by immunoblotting cell lysates using phospho-specific antibodies for MKK4, MKK3/6, p38, JNK1/2, c-Jun and MK2 and control antibodies to total protein. Ask1 function was assessed by blocking Ask1 activity with a specific known small-molecule inhibitor NDQI-1.

Results: Prx hyperoxidation, indicating pathologic levels of ROS, was seen with menadione and >1mM H_2O_2 but not FN-f or ≤ 1mM H_2O_2. FN-f and 0.5-1mM H_2O_2 increased phosphorylation of all the MAP kinase pathway members studied while menadione and >1mM H_2O_2 activated the p38 pathway (MKK3/6, p38, MK2) but not the JNK pathway (MKK4, JNK, c-Jun). Ask1 inhibition was not shown to alter downstream MAP kinase signaling under any conditions tested in these experiments.

Conclusions: As levels of chondrocyte ROS rise from physiologic to pathologic, the balance of JNK and p38 MAP kinase signaling switches to favor p38, which mediates chondrocyte death over JNK which promotes survival. Although Ask1 is known to be redox regulated and upstream of JNK or p38, it was not shown by these experiments to be required for MAP kinase activation by ROS. Some experimental data suggested that Ask1 may be required for activation

of JNK2 specifically in response to oxidative stress, however, further work is necessary to elucidate the exact role of this protein in MAP kinase signaling in chondrocytes and in OA.

D167 Student Presentation
Utility of treadmill running as a stressor to evaluate resiliency in the older mouse model

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Background: Resiliency has been variably defined as the ability to recover from the adverse effects of a stressor. However, a satisfying description of the complex biologic underpinnings of resiliency remains elusive, and it presents an obstacle to understanding inconsistent management outcomes in older adults. Here we describe the utility of treadmill running as a tool for evaluating resiliency in the mouse model.

Methods: We tested 24-month-old C57BL6 mice (N=18) and 3-month-old mice (N=4) on an Exer-3/6 treadmill (Columbus Instrument). They were challenged to complete a 90-minute run, wherein stopping exertion would lead to the mice being accelerated onto a shock grid. Each "visit" onto the grid and shock received were registered at 15-minute intervals and utilized as correlates of resiliency. Blood samples were drawn at baseline and at 6-hours post-trial. Serum muscle-specific Creatine Kinase (CK-MM) enzyme activity was measured, and a high-sensitivity cardiac troponin (hs-cTn) assay was performed.

Results: The first and last 30-minutes of the treadmill trials demonstrated an inverse association between time of first shock (ToFS) and the number of shocks and number of visits (NoVs). The strongest relationship was seen between ToFS and the NoVs accumulated at the end of the challenge (r_s=-0.83, p=0.008). Post-trial CK-MM activity normalized to ToFS revealed a positive correlation with the NoVs; results were statistically significant for the initial half of the trial, with the strongest association seen at the 45-min (r_s=0.53, p=0.04). A similar relationship was observed when post-trial CK-MM was normalized to the time the mouse remained running on the belt. Analysis of the hs-cTn assay showed similar trends to CK-MM (p>0.05). Trials with young mice did not yield statistically significant results.

Conclusion: Older mice with poor treadmill performances, represented as having a higher amount of shocks and NoVs; a shorter ToFS; and inability to complete the challenge, were correlated with a higher post-trial CK-MM activity. Therefore, outcomes could be predicted by parameters such as NoVs and ToFS. Taken together, it supports the idea of utilizing treadmill running as a stressor test that stratifies subjects based on resiliency.

D168 Student Presentation
Investigating Bone and Skeletal Muscle Interaction in Men with Prostate Cancer Treated with Androgen Deprivation Therapy

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Background: Androgen deprivation therapy (ADT), the mainstay of prostate cancer treatment, reduces bone mineral density (BMD), lean body mass, and muscle strength, which increases risk of falls and fractures. Despite antiresorptive therapy, these adverse outcomes persist. A pilot study comprehensively assessing bone, muscle, and strength parameters during ADT was initiated. We hypothesized that decline in muscle strength would precede decline in bone strength in men undergoing ADT for prostate cancer.

Methods: 8 patients, aged 56-68 years with an average Gleason score of 6.83, were recruited from urology clinic. Exclusion criteria included age <55, limited life expectancy, MRI contraindication, chronic kidney disease stage 4 or worse, antiresorptive agent use, or bone metastasis. We assessed musculoskeletal changes at baseline, 6 weeks, and 24 weeks post-ADT using muscle and bone biomarkers, MRI and CT imaging studies, gait speed, grip strength and strength testing by Biodex™.

Results: 6/8 enrolled participants were able to complete the 24 week study. All sustained dramatic reductions in sex hormones measured at 6 weeks post-ADT ($P < 0.001$) which persisted at 24 weeks. After 24 weeks, patients had a 99% (95% confidence interval 34-164) increase in the bone resorption marker serum CTX and a trend for lower serum parathyroid hormone ($P = 0.09$). There were no significant changes in myostatin, sclerostin, IGF-1, grip strength, gait speed, balance, knee, hip, or trunk muscle strength, muscle volume or fat infiltration, or BMD at 24 weeks.

Conclusions: ADT resulted in rapid declines in sex hormones that persisted for 24 weeks, increased CTX, and a trend for decreased PTH. However, over this time period there was no decline in BMD, change in muscle mass or quality by QCT and MRI imaging, or change in muscle strength. Maintenance of BMD at 24 weeks differed from earlier studies showing a decline bone density by 6 months, possibly due to our small sample size and high functioning at baseline. The increase in CTX is concerning for active bone resorption and ultimate loss in skeletal mass. We have continued to enroll new patients and are extending our assessments to 12 months. We hope a multifaceted approach to evaluate bone and muscle treatment response to ADT will inform future study design and multimodal therapeutic interventions.

D169 Student Presentation
Probing the impact of high fat feeding on cellular senescence markers in heart

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In obesity, metabolic and immune responses are altered. These changes in obesity can lead to replicative cellular senescence of distinct cell types. Replicative senescence occurs when telomeres become shortened and DNA damage occurs, thereby arresting the cell cycle. We hypothesized that high fat feeding leads to cellular senescence in oxidative tissue like heart. To investigate our hypothesis, hearts (n=4-6 per group) were isolated from mice that were categorized into 4 groups based on their diet: Standard Chow (SC), High Fat Diet (HFD), chow with High Sucrose (HS), and High Fat Diet + High Sucrose (HFD-HS). The mice with high fat diets consumed 60% calories from fat. RNA extraction was performed, and reverse transcriptase polymerase chain reaction (RT PCR) was performed to probe for senescence markers cyclin-dependent kinase inhibitor 2a (*Cdkn2a*) and cyclin-dependent kinase inhibitor 2b (*Cdkn2b*). Our findings revealed a trend towards increased expression of *Cdkn2b* in HFD, HS, and HFD-HS mice hearts vs the hearts from SC mice. Despite the trend for increased expression, statistical analysis indicated no significant difference in the expression levels of *Cdkn2b* in the mice on HFD, HS, HFD-HS vs SC diet and that our sample size was small for robust statistical comparisons among these groups of mice. We did not observe any differences in the expression levels of *Cdkn2a* in hearts of HFD, HS, and HFD-HS mice hearts vs the hearts from SC mice. The promising data *Cdkn2b*, however, warrants investigating our hypothesis using a larger sample size to determine if there is any link between cellular senescence in hearts of high fat fed mice. Funding for this research was supplied by the NIA through the MSTAR (Medical Students in Aging Research) Program.

Cdkn2a NO   Cdkn2b NO
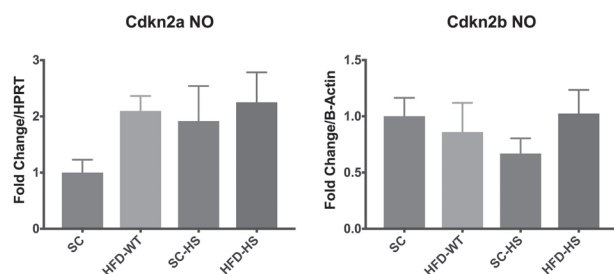
D170 Student Presentation
Evaluating Human and Whale β-Amyloid Toxicity in Human Cell Culture

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Background: Alzheimer's Disease is an irreversible neurological condition that affects millions of people worldwide. Among other proposed pathogenic models, the toxicity of the β-amyloid peptide, also referred to as Aβ-42, has been postulated. Both intra- and extracellular Aβ-42 oligomers impair neuronal function, contribute to formation of neurofibrillary tangles (NFTs), and are directly toxic to neurons. The sequence of Aβ-42 is highly conserved. However, in *Orcinus orca*, the killer whale species, there is one amino acid difference in the peptide sequence.

Methods: The purpose of this project was to determine whether the difference in amino acid sequence rendered the whale β-amyloid less (or perhaps more) toxic to human neurons. The toxic effects of human β-amyloid (Aβ-42) were both quantified and visualized by performing stress assays on SK-N-SH human neuroblastoma cell lines. Separate stress assays were done using a range of concentrations of either whale or human β-amyloid. Cell viability was measured in the assays following 4 and 6 day incubations both visually and with WST-1 viability staining.

Results: In the human Aβ-42 stress assays, there was a significant decrease in neuronal viability with increasing concentrations of Aβ-42, compared to the control cells that were not treated with any β-amyloid. In the whale β-amyloid stress assays, cell viability was significantly lower than both the control cells and the cells treated with human β-amyloid. Images obtained following the 4-day incubation of human β-amyloid displayed cellular debris and very few viable cells were visible.

Conclusion: In the stress assays performed, this particular single amino acid difference between human and whale β-amyloid did not render the whale β-amyloid less toxic to human cell culture, as hypothesized. In fact, the cells treated with whale β-amyloid had significantly lower viability than those treated with human β-amyloid. The reason for these findings is unclear. A complete pathogenic model Alzheimer's Disease remains to be fully understood. β-amyloid certainly plays a role, and its sequence determines structure and function, but a single altered amino acid may not be responsible for its toxicity to human cells.

D171 Student Presentation
Can a Peer-Led Health Promotion Program Targeting Fear of Falling Be Successfully Implemented In Independent-Living Facilities For Older Adults?

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Background: Peer-led health promotion programs (HPP) are gaining in popularity for promoting older adults' health. However, the conditions under which these programs can be optimally implemented are not well understood. This multiple case study aimed to examine the implementation of a peer-led HPP targeting older adults who are afraid of falling (*Vivre en Équilibre – VEE*) and identify the factors that were associated with its success.

Methods: VEE was delivered in six independent-living facilities for older adults in Quebec (Canada). Program reach, fidelity, adaptation, responsiveness, and factors associated with program implementation were documented. Data collection tools included observation grids, peer logbooks, attendance sheets, phone questionnaires and individual interviews among peer leaders, activity coordinators in the facilities and a subgroup of program participants. A conceptual framework on peer-led HPP implementation was used to guide data analysis. Comparison of facilities allowed to identify factors associated with VEE implementation.

Results: Seventy-one older adults enrolled in the program. Participants' response to the program was excellent, as reflected by a high satisfaction level with the program and a 91% average attendance rate. Peer leaders generally adhered with the program principles and guidelines. Individual-related factors (e.g. participants' attitudes, peers' experience), program-related factors (e.g. material quality, peer leaders' training), and organizational factors (e.g., implementation climate) emerged as important for a successful implementation. The analysis also revealed three mechanisms (interactions, self-organization and adaptation processes) through which such factors generated positive implementation outcomes.

Conclusions: Results from this study indicate that a peer-led program targeting fear of falling can be successfully implemented in independent-living facilities for older adults. Findings can help program practitioners and managers design effective strategies to achieve successful implementation of peer-led HPP for older adults.

D172 Resident Presentation, Encore Presentation
Implementation of Online Geriatric Modules for Internal Medicine Resident Physicians

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Background: The care of geriatric patients is an integral component of residency training in internal medicine. It may be implemented as part of the didactic curriculum, clinical training, and individualized learning plan. Aquifer Geriatrics is an online case-based virtual course in geriatric medicine that offers evidence-based, peer-reviewed modules intended for both educators and learners. Topics include medication management, dementia, osteoarthritis, and pain management. It is an effective resource for internal medicine resident physicians (RP) because it can be accessed based on their availability and convenience, and residents can specifically focus on areas of weakness. We introduced geriatric modules through Aquifer Geriatrics in our internal medicine residency program to facilitate training in geriatric medicine.

Methods: Our internal medicine residency program is based at a tertiary teaching hospital, and consists of a total of thirty-six residents. Residents were introduced to online geriatric modules through Aquifer Geriatrics during dedicated conference time. They were

advised to complete the online modules based on their convenience. Participation was not mandatory, however it was highly encouraged. Subsequently, an online survey, through SurveyMonkey®, was conducted to evaluate the utility and educational value of the online modules.

Results: From a total of thirty five resident respondents, thirteen were post-graduate year one (PGY-I) residents, ten were post-graduate year two (PGY-II) residents, and twelve were post-graduate year three (PGY-III) residents. Of the thirty five residents, twenty-three (65.7%) were aware of online geriatric education modules, and sixteen residents (45.7%) were using the online modules. Of the residents using the online modules, all of them found it to be helpful. Specifically, four residents rated it as 'very helpful' (25%), seven rated it as 'helpful' (43.8%), and five (31.2%) rated it as 'somewhat helpful.'

Conclusion: The use of online modules, offered through Aquifer Geriatrics, promotes individualized learning in geriatric medicine. After introducing the modules in our internal medicine residency program, we found that all residents who completed them found them to be useful. Therefore, based on our experience, we strongly suggest that these modules should be incorporated in the geriatric curriculum for internal medicine training.

D173 Resident Presentation
HAP-B: An Education Group to Promote Healthy Brain Aging for Older Adults

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Objective: Positive health behaviors can promote brain health with age. We developed a novel health education and implementation group for older Veterans with these primary goals: provide psycho-education, increase awareness of health behaviors, and promote behavioral change through individualized goal-setting, monitoring, and support. Content, which was based on a medical provider needs assessment, addressed identified gaps related to: physical activity, sleep, cognitive stimulation, and social support.

Methods: Veterans (n=17) aged 51-83 (mean=70), predominantly male (16/17) and White (12/17) participated in 6 weekly classes, 90 minutes long. This QA/QI project (IRB waiver) targeted health behaviors known to support cognitive functioning (cognitive stimulation, social connectedness, sleep quality, and physical activity). Three development groups have been completed with optional pre/post self-report measures. In addition to these measures targeting depressive symptoms, sleep quality, social support, and subjective well-being, we added in-session ratings for perception of adherence and success with Group 2. For Group 3, we added a pre/post self-efficacy questionnaire.

Results: Veterans attended 5 of the 6 groups on average. Veterans (n=13) completed baseline and post-treatment self-report measures. Qualitative feedback indicated high satisfaction and increased awareness of health behaviors. In-session ratings indicated fair use of daily log form on average, and fair-to-good follow-through with health goals. We conducted paired sample t-tests to explore whether there were notable differences in pre-post measures that could benefit our ongoing class material modification. Results suggest a trend toward significant decline in depressive symptoms (p=.06). Quantitative analyses were not conducted on the self-efficacy measure due to small sample size; however, qualitatively there was a positive association between self-efficacy and satisfaction with life over time.

Conclusions: Results from this development project were promising, with evidence of increased awareness of health behaviors and improved mood. Ongoing data collection will increase power for future analyses and yield additional insights into the role of perceptions of self-efficacy in moderating outcomes. Future directions include collecting objective measures of adherence (e.g., activity-trackers, daily diaries) and increasing sample diversity.

D174 Student Presentation
Geriatric Fellowship Telephonic Call Experience

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Background:

The Geriatric Fellowship Curriculum Milestones recognize the ability to "manage acute problems in long-term care via telephone" as a fundamental skill to be developed during training. (1) However, at the Baylor College of Medicine (BCM) program, incoming fellows report feeling unprepared to perform telephonic call. To better understand the experience and prepare incoming fellows, calls were monitored for 30 days.

Methods:

Details including origin of communication, reason for contacting the fellow, and call duration were obtained from an electronic log where fellows record details of all on-call communication.

Results:

During their training, fellows provide on-call night and weekend coverage for VA Community Living Center floors (~180 patients), BCM affiliated community long-term care facilities (~180 patients), and the BCM geriatric outpatient practice (~1,000 patients). During the monitoring period, there were 198 calls (118 VA and 80 BCM) with fellows receiving an average of 3.93 calls daily from the VA and 2.67 from BCM. On average, patients at the VA were of younger age (67.2 years) than those from BCM (83.7 years). Calls were generally brief with 64.6% lasting <5 minutes and 26.3% between 5-10 minutes. Only 0.5% of calls lasted >30 minutes. The three primary reasons for calls were medication concerns, abnormal lab values, and GI issues. Patients were statistically more likely to be transferred to an emergency department from BCM compared to the VA (12.5% versus 4.2%, p=0.03) with the primary concerns being abnormal vital signs, cardiac/respiratory issues, and falls.

Conclusion:

Becoming comfortable taking telephonic call is an important skill for geriatric fellows. By better understanding the origin, number, and type of calls our fellows are receiving, an educational session provided on telephonic call early in their training will be appropriately modified for the coming academic year.

1. The Portal of Geriatrics Online Education. Geriatric Fellowship Curriculum Milestones. Accessed December 2, 2018. https://www.pogoe.org/content/9178

D175 Student Presentation
#Geriatrics - A 7-year Twitter Analysis

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Background: The use of social media platforms as an educational tool to promote awareness has become increasingly popular as technology advances. Twitter is a microblogging, social media platform in which users can share short, text-based messages with other users from around the world. Twitter users are now able to write posts ("tweets") limited to 280 characters and can hyperlink articles, web-pages, pictures, and other materials in their posts. 79% of the 336 million current monthly twitter users are international, suggesting that Twitter serves as a tool allowing international connection via the rapid spread of informative and educational material worldwide. This study sought to evaluate the use of #Geriatrics by analyzing tweet activity, top influencers, and tweet content over the past 7 years.

Methods: Simplur Signals (Simplur LLC) was used to perform a retrospective analysis of the use of #Geriatrics on Twitter. Data was collected from October 13th, 2010 through June 5th, 2018. Retweets

and tweets from spam or unknown accounts were excluded from the data set before analyzing tweet activity and top influencers. Manual analysis was performed to qualitatively assess tweet content of the top 200 Retweets by Impressions (excluding spam or unknown accounts) into six different categories.

Results: A total of 65,002 tweets were shared during the selected time frame. Year 1 had the lowest tweet activity (533), while Year 5 had the highest (17,206). Tweet activity has decreased by 216% from Year 5 to Year 7 (7,949). The majority of the top 100 influencers were doctors (57.4%) with Advocate and Support Organizations coming in second (8.3%). Regarding top 200 retweet content, results are as follows: Health/Advocacy 30%, Research/Academia 23.5%, General News & Events 17.5%, Professional Opinion 16.5%, Patient Related 9.5%, and Uncategorized 3%.

Conclusions: The use of #Geriatrics on Twitter has increased over the years. Physicians compose the majority of top influencers followed by Advocate and Support Organizations. Most discussions focus on increasing awareness, promoting advocacy, and sharing research related to the practice of geriatrics. With its widespread use and lack of international boundaries, Twitter serves as an effective platform in informing and increasing awareness about geriatrics.

D176 Student Presentation
Incorporating an Escape Room Game Design as a Learning Strategy to Increase Geriatric Knowledge and Management Techniques in Prediabetes in Trainees

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Background
Innovative educational approaches are necessary in academia to advance learner understanding and retention of material. An evolution towards increasing active learning environments challenges educators to develop and implement new teaching strategies; inclusion of games as an educational tool has the potential to improve the comprehension of complex didactic material. Geriatric care and concepts are an ideal fit for a game-like learning environment due to the multi-level complexities and the desire to spark passion and interest in trainees for the older adult population. The objectives of this study were to determine if the escape room format: 1) enhanced student learning involving geriatric management of pre-diabetes, 2) was an enjoyable learning experience, and 3) enhanced teamwork within a group of pharmacy students.

Methods
Teams of second-year professional pharmacy students in a four-year doctor of pharmacy program completed a patient case involving a geriatric patient diagnosed with prediabetes. The patient case involved an older adult male who needed to "escape" diabetes, and learners had to solve multiple puzzles to make recommendations to both the patient and available provider. An anonymous, voluntary post-simulation survey was distributed to all participants regarding the experience. This study was approved through the West Virginia University IRB.

Results
Eighty-eight (97.8%) of the class completed the survey. Of the respondents, 43% were male and a majority (88.6%) were between ages 18-25 years of age. Over 92% of students reported enhancement of geriatric learning. The majority of the participants stated they either strongly agreed or agreed that the escape room format enhanced teamwork (96.6%), would be interested in future escape room activities (98.9%), and that the activity was enjoyable (97.7%). Subjective participant comments indicated this teaching format helped to increase learning enjoyment, self-reported retention, and sparked an interest in the focused topic.

Conclusions
This activity demonstrates the effectiveness of escape room style learning in helping to engage learners and incorporate geriatric teaching and knowledge into training. While further research is necessary, this provides an unexploited potential teaching technique in advancing geriatric education.

D177 Student Presentation
Geriatrics Ethics Seminar: Case-Based Practice in Ethical Decision-Making for Diverse Learners

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Background
Denver VA Geriatric Research, Education and Clinical Center (GRECC) hosts 15 allied health trainees and geriatric medicine fellows annually. Trainees represent psychology, pharmacy, audiology, social work and are at different stages of academic development. They encounter ethical dilemmas and will continue to throughout their practice. As part of their preparation, we developed an ethics seminar for diverse disciplines/stages of training. The curriculum addresses ethics-oriented geriatric competencies specific to each discipline, as well as the 10 Ethical Principles in Geriatrics and Long-term Care (Feinsod, F M, Wagner, C. 2005). Objectives: to enhance trainees' confidence to 1) apply ethics frameworks to cases specific to geriatrics and 2) identify applicable ethical principles and solutions to uphold principles.

Methods
Series includes five 1.5 hour sessions. In a flipped classroom format, trainees view seven presentations from ethicists that feature clinical ethical decision-making frameworks (e.g. "A Clinician's Approach to Clinical Ethical Reasoning" by Kadjian et al. 2005). During in-person sessions, trainees practice using each framework to deliberate trainee-generated cases through facilitated small and large group discussions. Trainees use an anonymous "case collection" form to document ethical dilemmas emerging in their practice. These cases, and others shared during discussions, generate a repository of geriatric ethics cases that inform the curriculum.

Results
Trainees were highly engaged in the series (~12 trainees/session) and reported high satisfaction in a standardized evaluation form. Preceptors reported satisfaction with seminar's alignment with discipline-specific competencies. Trainees consistently reported increased confidence to apply session-specific learning objectives; majority of objectives showed statistically significant growth pre to post. Trainees demonstrated progress in appropriately identifying ethical dilemmas and applying principles to diverse situations involving older adults and caregivers.

Conclusion
Seminar addresses geriatric-specific ethics competencies for diverse trainees and supports knowledge/application of ethical decision-making frameworks using a case-based approach.

D178 Student Presentation
Isolated Parietal Skull Fracture: A Missed Case of Elder Abuse Provides Teaching Opportunity

E. Bloemen, J. Hardland, S. Church. *Geriatrics, University of Colorado School of Medicine, Denver, CO.*

Case Presentation: An 85 year old man was BIBA to the emergency department after being found lying in feces by his neighbor. When evaluated he was found to have an isolated right longitudinal skull base fracture extending into the mastoid process, right parieto-occipital parenchymal hemorrhage with adjacent subarachnoid hemorrhage and small volume intraventricular hemorrhage, bilateral subdural hygromas, and evolving right temporo-occipital and right inferior frontal hemorrhagic contusions, interpreted by radiology as likely posttraumatic from a coup-countrecoup injury. The patient presented with no other injuries and no recollection of how this injury occurred. A week after his presentation his step-children sold the house he had been living in and sold or threw away all of his belongings. Geriatrics was consulted 45 days into admission by neurosurgery for a capacity evaluation. The prior providers reported that the patient must

have fallen as that was what the step-son had told them, they had not considered elder abuse or physical assault as an etiology for his injury. Several months after presentation the patient endorsed being afraid of the step-son who presented with the patient, however he still does not remember what happened. The case was reported by the geriatrics team to police and APS and an investigation is ongoing.

Discussion: Isolated skull fractures due to a fall from standing height are exceedingly uncommon. This injury represents a high energy impact and is likely the result of elder abuse or assault. This case provided an excellent example of elder abuse for our residents rotating on the geriatric service due to the highly unusual nature of the injury, as well as the dubious social circumstances. This case was adapted into a didactic session that all residents rotating on geriatrics now receive. This session focuses on the red flags in the presentation of the case, what to improve as the provider, as well as what agencies, social supports, and legal requirements are involved in cases of elder abuse.

Conclusions: Missed cases of elder abuse likely happen every day in hospitals around the country. Capitalizing on these cases to provide real time education to learners from the same institution can provide a deeper understanding of these complex cases as well as resources and tools that can be used to identify elder abuse in other patients.

D179 Resident Presentation
POLST forms: Addressing comfort and accuracy in the primary care setting

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Background

Patient-centered care has been at the forefront of primary care in recent years. It allows for clinical decision making to be responsive to patient needs, preferences and values. An under-utilized tool in primary care is the POLST form. It is an objective tool to translate a patient's goals for care into medical orders that follow the patient across care settings. Its use is often inappropriate and inconsistent among providers. Often POLST forms are addressed in the acute care setting rather than as part of outpatient care, where patients may not have the ability to make decisions about their immediate future. These decisions often fall on caregivers who may not have the knowledge for, or comfort with, making these decisions, increasing the emotional burden on the patient and family. It would be better served if these conversations were held in a familiar setting, such as a designated outpatient appointment. Targeted training to primary care providers regarding the utilization of the POLST form allows the needs and preferences of the patient to be met with greater accuracy and comfort. This study was designed to assess the effectiveness of a targeted workshop in increasing physician familiarity and comfort with POLST forms.

Methods:

Data was gathered from a group of residents spanning three years of training. A pre-test was administered prior to a workshop on POLST forms and used to establish comfort level with POLST Forms, discussion of end of life goals, knowledge about filling out POLST paperwork, and accurately identifying eligible patients. After the workshop, a post-test was given to assess improvement.

Results:

Preliminary results demonstrate that learners actively participating in a targeted workshop show improvement in test scores assessing accuracy and comfort level with POLST forms.

Conclusions:

A targeted workshop had a positive impact on POLST form completion and discussion by residents when addressing complex patient populations. With proper identification, patients can have significant improvement with end of life care including alleviation of patient and caregiver emotional burden and better management of resources. This aligns with a patient-centered model of care for providing consistent and collaborative care. If taught these tools during residency training, physicians will have a greater comfort level in providing appropriate end of life care.

D180 Student Presentation
Reporting Learning Outcomes, Quality Assessment and Grading of Strength of Findings of Published Hospice and Palliative Care Curricula for Internal Medicine (IM) Residents: A Preliminary Result of Systematic Review

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Background: IM residents often see patients with serious illness (life threatening and life limiting diseases). The hospice and palliative care competencies for IM residents were recently developed to meet new educational needs for IM residents. The aim of this systematic review is to address the following two questions: 1) what kinds of the learning outcomes are measured? 2) what is the reporting quality in published hospice and palliative care curricula for IM residents?

Methods: PubMed, Web of Science and MedEdPortal since inception were searched. Curriculum is defined as least three components i.e., the learning objectives, educational strategies, and evaluation by assessing the learning outcome assessment via comparative design. The curriculum must have hospice or palliative contents and must have been designed specifically for IM residents. Combination of IM residency with other resident training such neurology was also eligible. The curriculum can be stand-alone as a palliative care rotation or integrated within IM residency program. Kirkpatrick hierarchy (1-4) was used to match the learning outcomes. The Medical Education Research Study Quality Instrument (MERSQI) (5-18) was used to assess the quality of study. Strength of findings of the paper adopted BEME (1-5). Data analysis was performed with SPSS.

Results: 430 citations were identified through PubMed. 90 and 19 citations were identified through Web of Science and MedEdPortal, respectively. Fifteen of 38 papers met the inclusion criteria. Only one hospice and palliative care curriculum stood alone. Total of 1070 IM PGY1-3 participated in the curricula. 80 % (12/15) used pre- and posttest design. 33% (5/15) reported explicitly learning objectives. The reported learning outcomes limited to Kirkpatrick level 2 to 3 but no 4. 87% (2/15) reported statistically findings. The mean score of the MERSQI on scale of 5-18 is 12. Average strength of findings on a scale of 1-5 was 3.

Conclusion: The learning outcome in hospice and palliative care curricula for IM residents limited to Kirkpatrick 2-3. Kirkpatrick 4 was not reported. Methodological quality and strength of findings of curricula were modest. It is urgently needed to develop a curriculum with high quality, resident behavior changes, and patient benefits.

D181 Resident Presentation
Impact of Geriatric Curriculum Changes on Internal Medicine Residents

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Background: We previously assessed the University of California San Diego (UCSD) post-graduate year 2 (PGY2) internal medicine (IM) residents' comfort level with the American Geriatrics Society's (AGS) core geriatric competencies and found a low degree of comfort in all of the core competencies. This led to a redesign of the IM geriatrics rotation, with expansion from 2 to 4 weeks, each week with a distinct care focus: geriatrics ambulatory care, inpatient care, post-acute care, and home care.

Methods: Following the geriatric curricular redesign, we repeated an anonymous, Likert-based survey of UCSD IM residents, assessing comfort with the AGS's 26 core competencies, grouped into 7 domains (Table 1). A total of 5 PGY2s completed the survey

(16% response rate), compared to 7 PGY2s in 2017 (22% response rate). In parallel, we queried the results of the American College of Physicians In Training Examination (ITE) in order to assess residents' objective knowledge of geriatrics for both 2017 and 2018 PGY2 classes.

Results: After implementing curricular changes, there was an increase in the percentage of PGY2s who reported feeling some degree of comfort with the core competencies (Table 1). Performance on the ITE also improved (Table 2).

Conclusions: Initial results show improvement in IM resident comfort level with geriatric core competencies, as well as ITE performance in the geriatric content after curricular redesign. This study supports that earlier and more extensive clinical exposure to the continuum of care sites for aging patients improves residents' self-assessed and objective geriatrics knowledge.

	Pre	Post	% Increase
Ambulatory Care	33%	76%	43%
Cognitive/Affective/Behavioral	71%	88%	17%
Complex/Chronic Illnesses	60%	75%	15%
Hospital Patient Safety	75%	100%	25%
Medication Management	67%	69%	2%
Palliative & End of Life Care	75%	83%	8%
Transitions of Care	50%	100%	50%

Table 1. PGY-2 Comfort in Geriatric Core Competency Domains. "Pre" = prior to curriculum changes (2-week rotation). "Post" = current curriculum (4-week rotation).

	2015	2016	2017	2018
UCSD PGY2	74%	69%	74%	77%
All Programs PGY2	68%	63%	70%	67%
UCSD PGY2 %tile Rank	83%	82%	77%	96%

Table 2. ITE Mean Percent Correct Scores for geriatric content area.

D182 Resident Presentation
Flipping the Acute Care for the Elderly Teaching Sessions (FACETS™): Patient-related outcomes of the competency-based, flipped-classroom curriculum for Internal Medicine residents

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Background

To address the shortage of providers adequately trained to care for hospitalized older adults, we developed FACETS™—a competency-based, flipped-classroom curriculum for Internal Medicine (IM) residents centered on core geriatric entrustable professional activities (EPAs). We sought to determine patient-related outcomes of FACETS™ related to EPAs.

Methods

FACETS™ was implemented 05/2017-02/2018 on the two-week rotation on the Acute Care for the Elderly (ACE) unit. Residents learned EPAs using asynchronous learning (educational booklets; ACE Flix™ Youtube playlist of educational videos; online modules) and synchronous learning (peer teaching; demonstration of EPAs on bedside rounds; direct observation and feedback by geriatric attending). We developed a web-based survey to investigate the impact of FACETS™ on patient-related outcomes related to EPAs and asked for qualitative comments on outcomes that occurred as a result of FACETS™. The survey was administered to all residents in 02/2018.

Results

Of 38 residents, 17 (45%) responded to the survey. All respondents reported at least one outcome, and 98 outcomes were reported. Of 17, 7 (41%) performed a medication reconciliation, 10 (59%) deprescribed a proton-pump inhibitor, 7 (41%) deprescribed a benzodiazepine, 2 (12%) detected a medication error, 3 (18%) prevented an adverse drug event, 6 (35%) screened for dementia, 6 (35%) assessed gait, and 7 (41%) screened for delirium. Thirteen survey respondents included 37 unique comments, 36 (97%) of which were positive. Comments pertained to delirium management (13, 35%), medication management (11, 30%), goals of care (5, 14%), geriatric assessment (4, 11%), delirium screening (3, 8%), medication reconciliation (1, 3%), and pressure ulcers (1, 3%).

Conclusions

FACETS™ learners reported multiple patient-level educational outcomes in EPAs including medication management and screening for geriatric syndromes. Qualitative comments were overall positive. This competency-based, flipped classroom curriculum may be useful in improving care for hospitalized older adults.

D183 Student Presentation
Leveraging In-Home Supportive Services Programs to Engage People in Advance Care Planning: Input from Staff, Caregivers, and Client Stakeholders

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Background: In-Home Supportive Services (IHSS) cares for millions of Medicaid-eligible older adults who are often homebound and socially isolated. Advance care planning (ACP) can be challenging for this population, and IHSS programs may play an important role. This study sought to explore the feasibility of an IHSS-ACP program for frail older adults.

Methods: Fifty participants (administrators, case managers, in-home caregivers, and clients) were recruited to 10 semi-structured focus groups conducted in San Francisco. Participants were recruited by convenience sample through snowball sampling of English-speaking stakeholders. All discussions were audio-recorded and transcribed. Thematic content analysis was conducted by two independent coders.

Results: Four main themes emerged: 1) Unmet needs: patients' wishes unknown during a medical crisis, lack of education/training for clients and staff; 2) Barriers: conflict of interest and potential over-reach of IHSS-caregivers, lack of billing avenues, time limitations, and cultural/literacy barriers; 3) Facilitators: leveraging established workflows, available technology, and training programs; and 4) Implementation: use a tailored, optional approach, focus on case-managers not caregivers to prevent conflict of interest, use established intake, follow-up, and training procedures, consider cultural and literacy-appropriate messaging, and standardize easy-to-use scripts and educational guides within established workflow.

Conclusions: An In-Home Supportive Services ACP program is important and feasible for frail older adults. Implementation suggestions for success by IHSS-stakeholders include focusing on case-managers rather than in-home caregivers to prevent conflict of interest; tailoring programs to clients' readiness, literacy, and language; creating educational programs for IHSS staff, clients, and community; and standardizing easy-to-use guides and procedures into IHSS workflows.

D184 Resident Presentation
Residents and Delirium in the Elderly

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Background

A significant proportion of elderly patients experience delirium during hospitalization. It is critical that internal medicine residents are able to diagnose delirium in such patients and manage them

appropriately. We investigated the experience residents have managing elderly patients with delirium, and their preferences for further training.

Methods

This was a quantitative study which used software by "SurveyMonkey". A survey was distributed to all ninety-nine residents of the internal medicine program at the University at Buffalo. This was composed of eight questions regarding the following information: the post-graduate year (PGY) of the participating resident, if they had previously encountered a delirious elderly patient, their level of confidence in diagnosing delirium compared to managing delirium in elderly patients, their familiarity with the confusion assessment method (CAM) score, and how they would prefer to learn about these topics.

Results

Thirty-nine residents across four years of post-graduate training completed the survey (eleven PGY-1 residents, thirteen PGY-2 residents, fourteen PGY-3 residents, and one PGY-4 resident). All reported that they have encountered an elderly patient with delirium. Twenty-one indicated that they were "confident" or "very confident" in diagnosing delirium. However, twenty-seven indicated that they were "not confident" or only "moderately confident" in managing delirium. Thirty-eight residents reported being interested in learning how to diagnose and manage delirium in elderly patients. Twenty-one residents reported familiarity with the CAM score, but only thirteen residents reported knowing when and how to use it. When presented with options of how they would prefer to learn about the diagnosis and management of delirium in the elderly, twenty-five chose a presentation with a lecturer compared to eight who would prefer to study a slide presentation provided to them, two who would prefer to study a handout document, and four who chose to provide various alternative suggestions.

Conclusions

These results suggest that despite the frequent encounters between internal medicine residents and older patients with delirium, residents may lack the confidence or skills to manage older patients with delirium. This is also reflected by their lack of experience using the CAM score. The results also suggest that residents are interested in learning more about this topic and would prefer to be taught by a lecturer rather than educational materials.

D185 Student Presentation

How do fourth year medical students assess and address psychiatric drugs in the elderly?

K. Tirumalasetty, M. Mazumder, J. Agens. *Geriatrics, Florida State University, Tallahassee, FL.*

Background

Psychotropic drugs are a commonly prescribed class of medications in the US. Elderly clients, regularly exposed to polypharmacy, are often on these medications which can have increased risks for drug interactions and adverse events. At a Southeastern medical school, during their geriatrics clerkship, fourth-year students submit detailed written reviews of a patient's medications. Some of the patients were followed by primary care and others by geriatricians.

Specific aspects in these reviews include common side effects, dose range, therapeutic goals, potential drug interactions, and rationale to discontinue, change dose, switch, or continue. This study looked at student medication reviews to observe how psychotropic drug regimens were evaluated and to gauge a student's critical thinking and documentation.

Methods

Consenting students agreed to have their assignments analyzed after clerkship grades were final. The dataset were written medication reviews de-identified to not include patient and student names. Over academic years (2012-2017), there were 151 medication reviews (each with several medications). From these reviews, psychotropic drugs were analyzed as separate entries from other classes of medications. These were compiled into a total of (n=96) entries. A trained research assistant,

not involved in the course, organized and quantified student recommendations on these psychiatric medicines into the following categories: discontinue, change the dose, continue without change, or switch.

Results

There were ninety-six psychotropic medication entries within the medication reviews. Thirty-one (32%) of these medications were given a recommendation to discontinue. Four (4%) entries advised changing the medication to a different one. Six (6%) recommended a dose adjustment. Forty-five (46%) entries indicated the same medication was appropriate.

Conclusion

Psychotropic drugs often have significant drug-drug interactions and greater risks when used in the elderly. This study investigated how fourth-year medical students identified and addressed these concerns in their written assignments. Almost as often as continuing a given psychotropic medication as prescribed, students recommended a change 43% of the time in dose, discontinuation, or a medication switch. Based on the student's thoughtful outlines risk/benefit analysis, it appears that these medical students were cautious and judicious with this category of medication.

D186 Student Presentation

What are common goals in self-directed learning for medical students in geriatrics?

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Background

In medical education, one area of focus is self-directed learning. For over 15 years, our four week geriatrics clerkship includes a component where students choose and submit at least one geriatrics related goal at the beginning. In addition to listing the goal, they include how they plan to meet and monitor their progress towards it. In their last week, they reflect on what they accomplished towards their goal(s). We were interested in how frequently students select polypharmacy and psychiatry related goals, the extent they achieve them, and to identify any insights to improve the course.

Methods

Consenting students agreed to have their written assignments analyzed after clerkship grades were final. The dataset comprised of student personal goals with student names de-identified. Over five academic years, (n=151) students consented to take part in this study; each submitted at least one goal. A trained research assistant, not involved in the course, organized goals and later reflections into categories: fully met, partially met, and not met. A secondary aim of the study was to quantify how often students listed polypharmacy and psychiatric related goals.

Results

94% of students indicated they met their goal (either fully or partially) by the last week of the clerkship.

43.7% of students listed a goal to specifically focus on polypharmacy in the elderly. They reported referencing such resources as articles, clerkship faculty, pharmacists, AGS Beers List, and electronic point of care tools to identify and address this issue.

33.5% of students selected psychiatric related learning objectives and listed texts, articles, guidelines, screening tools, and clerkship faculty to help achieve their goal. Students also reflected it was interesting to learn more about the cognitive and behavioral side of geriatrics, to improve at administering and interpreting cognitive testing, and recognize psychiatric disorders in the elderly.

Conclusion

In our institution's required geriatric clerkship, polypharmacy and geriatric psychiatry related goals were two of the ones more commonly selected by clerkship students. This aligns with some of the competencies students are expected achieve during the course of the clerkship. We were pleased to find the majority of students met their

own learning objectives and that they were interested in areas they encountered during their rotation.

D187 Student Presentation
Discussing what matters most: designing a medical student curriculum for end-of-life care

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Background: As the population ages, patients are living longer with complex illnesses. While physicians of all specialties are expected to provide patient-centered end-of-life care, studies demonstrate that medical students lack comfort discussing these topics with patients. Our aims were to identify gaps in medical student education and to design and implement a hands-on, longitudinal curriculum to teach essential skills for providing compassionate and skillful care to patients nearing the end of life.

Methods: We followed the six-step approach for medical curriculum development: problem identification, needs assessment, goal-setting, identifying educational strategies, implementation, and evaluation development. We reviewed national and local curricula and surveyed graduating medical students. Goals, objectives, and curriculum design were developed with input from student and faculty interviews. Qualitative and quantitative evaluation is ongoing.

Results: Literature review revealed that students are exposed to goals of care, breaking bad news, and code status discussions. However, students lack opportunities to practice and receive feedback on these skills. Ten students training as a cohort in a longitudinal clinical and urban medicine program were surveyed in a needs assessment prior to graduation; all reported exposure to goals of care conversations and 10% reported confidence. Similarly, 100% reported exposure to breaking bad news but only 20% reported confidence. The curriculum includes multiple hands-on teaching sessions where students practice breaking bad news and goals of care conversations. Peers and physician facilitators observe and provide active feedback during mock patient interviews. The initial iteration of the curriculum has been received with positive feedback.

Conclusions: Implementing a longitudinal curriculum in palliative and end-of-life care is necessary and feasible to improve education of future physicians. Students are expressing increased confidence after a few sessions, and training is ongoing. Future curriculum evaluation will include comparison of experience and confidence in key clinical skills before and after exposure to this novel curriculum. Integrating hands-on practice in these critical skills into medical student curricula will impact the quality of care provided by trainees as they pursue careers in diverse specialties.

D188 Student Presentation
Fostering Compassionate Care for Persons with Alzheimer's disease

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Background

The aim of this study was to examine the impact of the implementation of a new Compassionate Care (CC) curriculum on the quality of care provided by Certified Nursing Assistants (CNAs) to residents with Alzheimer's disease (AD). This study used Kirkpatrick's model of evaluation.

Methods

The study included an experimental and control nursing facility. The sample of residents included a convenient sample of 25 residents (experimental group) and 27 (control group). All the CNAs who took care of the residents with AD that took part in the study were also included for a total of 99 CNAs (48 experimental group and 51 control group).

Demographics were collected from both groups. At baseline and 12-weeks, data were collected on AD knowledge, self-efficacy, caregiving satisfaction, and affiliate stigma.

A two-way mixed method MANOVA was utilized to examine how scores changed for all of the dependent variables. The stress levels of the residents with AD was examined by testing a hybrid multilevel growth model.

Results

For AD knowledge, we saw a significant increase in scores from baseline to 12 weeks for the experimental group. Self-efficacy for the experimental group improved between baseline and 12-weeks but deteriorated slightly for the control group. Caregiver satisfaction showed a trend towards improvement for the experimental group. For the experimental group, feelings of affiliate stigma declined. This had an impact on the stress outcomes of the residents with AD, specifically agitation and salivary cortisol levels. Models built showed that the experimental group performed better in reducing agitation and reducing salivary cortisol levels.

Conclusions

The results of this study showed that integrating a compassionate care curriculum into the work that CNAs perform with persons with AD can lead to positive outcomes on CNAs knowledge, self-efficacy, caregiving satisfaction, affiliate stigma and a reduction of agitation and cortisol levels in persons with AD. This has implications for the way we conceptualize the type of care that is provided by CNAs to persons with AD in nursing facilities.

D189 Student Presentation
Get SMART! Teaching Students Geriatric Health-Related Goal Setting

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Background: Goal-setting, particularly in geriatrics, is essential to person-centered care. It is linked to improved outcomes, quality of life and proactive health behaviors. While integral to training in some health professions, we suspected third year medical students (MS3) had not yet learned how to develop health-related goals. We piloted a tool to teach medical and other health sciences students how to develop health-related Specific-Measurable-Achievable-Realistic-Time-based (SMART) goals with community-dwelling older adults.

Methods: Health sciences students (including all MS3s), enrolled in an interprofessional geriatrics course sponsored by the University of Pittsburgh School of Medicine. They participated in a geriatric assessment skills fair (12 skills stations, 12 minutes each, skills cards) which prepared them for 9 community-based health fairs in Pittsburgh, PA. All students were required 1) to attend the SMART goals station where they learned how to develop health-related goals using the SMART criteria and 2) to develop at least 1 SMART goal working in teams of 2-3 with each health fair participant. Teams filled out 2 health assessment forms (1 copy to the participant, 1 copy for curriculum evaluation) on each participant and were instructed to write a SMART goal at the top of each copy. We graded the SMART goals according to the number of S-M-A-R-T criteria represented: D=attempted goal, 0 of 5, C=1 of 5, B=2 of 5, and A=3+ of 5 SMART criteria met.

Results: 200 health sciences students from 9 health professions schools participated in the 2018 course. Students turned in assessments of 209 participants. 104 forms (51.0%) contained 109 SMART goals. Of these, 21 (19.3%) goals received an A, 17 (15.6%) received a B, 28 (25.7%) were given a C, and 43 (39.4%) received a D grade. None of the goals achieved a perfect score, 5/5.

Conclusion: We designed a tool that successfully taught health sciences students to engage older people in person-centered, health-related goal-setting. Further analyses will reveal which S-M-A-R-T criteria students found most challenging and guide improvements to the tool.

D190 Student Presentation
Predicting delirium after aortic valve replacement: additive value of frailty to an existing delirium risk model
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Background: Delirium is a preventable complication following aortic valve replacement that is associated with functional decline and mortality. In 2009, Rudolph et al. developed a preoperative prediction rule for delirium after cardiac surgery. We evaluated the performance of the Rudolph model in an independent cohort, and assessed the additive valve of frailty markers for prediction.

Methods: We prospectively enrolled 187 patients who underwent either surgical (SAVR, n=77) or transcatheter aortic valve replacement (TAVR, n=110) at Beth Israel Deaconess Medical Center in 2014-2016. We assessed delirium using the Confusion Assessment Method. We estimated delirium incidence based on the Rudolph score (range: 0-5): 2 points for Mini mental status exam (MMSE) $\leq$23; 1 point for MMSE 24-27, Geriatric Depression Scale >4, prior stroke, and abnormal albumin. We assessed the association between commonly used frailty measures (Clinical Frailty Score [CFS], gait speed, grip strength, and chair stands) and delirium, adjusting for the Rudolph risk score. The predictive performance for each model was evaluated by C-statistic.

Results: The overall incidence of delirium was 50% in SAVR patients (mean age 78 years) and 25% in TAVR patients (mean age 84 years). In the SAVR cohort, the incidence of delirium for 0, 1, 2, and $\geq$3 of the Rudolph model was 42%, 44%, 64%, and 71% respectively (p-value 0.05). Predictive discrimination of the Rudolph model was fair (C-statistic 0.61). In the TAVR cohort, delirium incidence for 0, 1, 2, and $\geq$3 was 7.7%, 28%, 22%, and 32% respectively (p-value 0.16), with comparable predictive discrimination (C-statistic 0.58). In the SAVR cohort, predictive performance improved with the addition of each frailty measure: CFS (C-statistic 0.69), gait speed (C-statistic 0.70), grip strength (C-statistic 0.67), and chair stands (C-statistic 0.67). In the TAVR cohort, predictive performance improved with the addition of gait speed (C-statistic 0.65) and chair stands (C-statistic 0.63).

Conclusions: The Rudolph model performed well in SAVR patients, but less so in more frail and complex TAVR patients. The addition of frailty measures to the Rudolph model, in particular, gait speed, improved accuracy of the prediction in both SAVR and TAVR patients.

D191 Student Presentation
Weight trajectories in adults with early stage colon cancer: A comparison of younger and older patients
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Background: Obesity is a known risk factor for colon cancer, but less is known about weight trajectories in colon cancer survivorship and factors that may be associated with weight gain. This study examined weight trajectories in adults with early stage colon cancer in the first two years of survivorship and explored age as a potential risk factor for weight gain. In addition, we compared older (age 65 plus) and younger adults with regard to their colon cancer diagnosis, tumor grade, and primary treatment.

Methods: Patients diagnosed with early stage (I-III) colon cancer from 2000 to 2016 were eligible for this study if they were cancer free

three years prior to and three years after their diagnosis. Patient data was extracted from Epic@UNC and entered into a REDCap database. Patient characteristics, cancer pathology, treatments, body mass index (BMI), and weight change in kilograms were compared between older and younger patients using chi-square tests, student t-tests, and log-binomial regression models.

Results: The final sample consisted of 57 patients, mean age 67 (range 36-92), 75% female, and 61% white. There were no significant differences between older and younger patients with regard to colon cancer stage, grade or treatment. There were also no significant differences between age groups with regard to proportions who were obese (BMI $\geq$30) at colon cancer diagnosis (48% of younger versus 43% of older, p=0.224), at the end of primary treatment (50% versus 34%, p=0.441), or two years post primary treatment (55% versus 48%, p=0.797). Similar proportions gained more than 2 kg of weight within the first year post primary treatment (52% of younger versus 68% of older, p=0.486) and in year two (55% versus 65%, p=0.720).

Conclusions: Weight gain trajectories within the first two years of survivorship do not appear to differ between older and younger adults with colon cancer. In both age groups, high BMI is observed at both colon cancer diagnosis and in survivorship. Interventions to prevent weight gain in colon cancer survivorship should be considered for both younger and older adults.

D192 Student Presentation
Predicting adjuvant therapy outcomes in geriatric surgical oncology patients
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BACKGROUND: The Sinai Abbreviated Geriatric Evaluation (SAGE) is an assessment of cognition, function and frailty that can be easily performed in the clinic. Recently published data have shown that preoperative SAGE scores are predictive of postoperative complications. The aim of this study was to determine whether preoperative SAGE scores in elderly surgical oncology patients correlated with a patient's ability to complete adjuvant chemotherapy without complications.

METHODS: This is a retrospective study from prospectively-maintained data. Patients were included if they were $\geq$75 years old, underwent surgical management of a solid organ malignancy, and received adjuvant chemotherapy or radiation. SAGE scores (0-3; frail-normal) were obtained by a designated nurse practitioner prior to surgery. Tolerance of treatment was defined as the absence of grade 3 or 4 complications according to the Common Terminology Criteria for Adverse Events. Completion was defined as having received all planned cycles of treatment. A Chi-squared analysis was used to test whether SAGE scores correlated with treatment tolerance and completion.

RESULTS: A total of 78 patients were included in the cohort. Average age was 79.8 years ± 4 (range 75-90), 74% were female. The most common malignancies were thoracic (31%), gynecologic (29%), and gastrointestinal (14%), with the remainder comprised of hepatobiliary, soft tissue, orthopedic and head and neck malignancies. Average SAGE score was 2.3 ± 0.8 (range 0-3). SAGE scores were distributed as follows: 0 (N=3), 1 (N=12), 2 (N=23), 3 (N=40). 73% of patients completed treatment and 44% tolerated without significant complication. Correlations between SAGE score and treatment completion (P=0.3323) or tolerance (P=0.1453) were not statistically significant. Surprisingly, the 15 patients with inferior SAGE scores had high rates of treatment completion (86%) and tolerance (60%).

CONCLUSIONS: Preoperative SAGE scores do not predict outcomes from adjuvant therapy following oncologic surgery in geriatric patients. Frail patients with low SAGE scores are able to successfully complete adjuvant treatment. When considering treatment options following surgery, adjuvant therapy should not be withheld based on SAGE alone.

D193 Student Presentation
Long-Term Performance of Hearing Aids Patients Based on Pre-Treatment Hearing Ability
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Background: Hearing loss is highly prevalent among older adults, and when untreated is associated with depression, anxiety, social isolation, increased falls, and early mortality. While hearing aids constitute the primary treatment, there is a lack of research on long-term objective outcomes and adverse effects of this treatment.

Methods: In this cohort study, 3000 patients with a diagnosis of sensorineural hearing loss (SNHL) were screened (1/07-6/18). Patients with at least five years of follow-up and other criteria were included (N=448). We recorded participants' demographic information, audiogram pure-tone thresholds (0.25-8kHz), 3-frequency pure-tone-averages (PTA), speech recognition thresholds (SRT), and word recognition score (WR) at each appointment. We created a new measure, the 3-frequency OSHA average (OSHA), by averaging pure-tone thresholds measured at 2-4kHZ to represent hearing ability at frequencies where noise-induced hearing loss most likely occurs.

Results: At their first visit, unaided patients (n=383) had a PTA of 23.08 +/- 13.05dB and an OSHA of 35.69 +/- 13.30dB, and both measures were significantly greater (p < 0.001) in aided patients (n=65) who had a PTA of 35.75 +/- 12.29dB and an OSHA of 49.79 +/- 14.49dB. We used a subpopulation of unaided (n=158) and aided (n=34) patients with 5 years of follow-up in subsequent analyses. The PTA increase in unaided patients (3.74dB +/-0.66dB) was lower than the increase in aided patients (8.32dB +/- 1.37dB) over 5 years (p <0.01). The OSHA increase in unaided patients (4.60 +/-0.68dB) was also lower than the increase in aided patients (8.70 +/- 1.05dB) (p < 0.01). The SRT of unaided (5.49 +/-0.74dB) was also lower than the increase in aided (11.91+/- 1.59dB) patients (p < 0.001). When these changes over five years were converted to rates of change (dB/year), no significant between-group differences were found for any study measure.

Conclusions: Patients treated with hearing aids experience greater progression of 5-year hearing loss, especially in the PTA frequency range (0.5-2kHz) and the OSHA frequency range (2-4kHz). However, the difference was only significant when measured at five-year follow-up rather than year to year. In addition, this five-year decline was most prominent at 2-4kHz, suggesting future work should investigate whether hearing aids can lead to noise-induced hearing loss.

D194 Student Presentation, Encore Presentation
Qualitative program evaluation of an Emergency Department-initiated fall prevention intervention
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Falls are the leading cause of injury-related mortality in older adults, yet in-Emergency Department (ED) fall prevention programs are lacking. This study examines participant and caregiver experiences with a novel in-ED/follow-up fall prevention protocol.

Methods

This qualitative program evaluation of a pilot randomized control trial tested the feasibility and acceptability of GAPcare: The Geriatric Acute and Post-acute Fall Prevention Intervention. Seniors (>64 years old) who presented to two academic EDs post-fall were eligible for inclusion. The intervention consisted of a personalized physical therapy (PT) and pharmacy consultation with referral to outpatient services. We conducted semi-structured interviews of participants randomized to the intervention arm and/or their caregivers, depending on participants' cognitive status. Our interview guide focused on experiences with the intervention and recovery. Investigators independently coded and analyzed transcripts to elicit themes.

Results

We conducted 16 interviews with patients (n=10; mean age 83, range 67-96; gender 11 F, 5 M) and caregivers (n=6; gender 5 F, 1 M). Qualitative analysis identified the following themes: 1) Patients with prior knowledge of their medications or caregivers present in the ED appeared to benefit most from the pharmacy intervention. 2) Understanding how medication side effects can lead to falls was perceived as helpful. 3) Communication with other providers post-discharge was reported to facilitate implementation of pharmacy recommendations. 4) While most patients had had prior experiences with PT and valued its utility in acute injury recovery, they did not fully recognize its role in preventing falls. 5) Reported barriers to PT uptake were coordination of home PT and finances. 6) The PT consult helped patients recognize the need for additional assistance with activities of daily living and informed their use of PT services after discharge.

Conclusion

Pilot qualitative data suggest the positive potential of older adults accepting in-ED pharmacy consultations. However, seniors may underestimate the impact that PT consultations can have on fall prevention. Caregivers can aid the acceptance of in-ED consultations and help patients implement necessary changes to prevent future falls.

D195 Student Presentation
Antihypertensive Prescribing Trends and fall Risk in Geriatrics
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Background:

Geriatric HTN management balances BP control and avoiding adverse events and polypharmacy. Most patients (pts) ≥60 yo. use multiple meds. Without geriatric guidelines for 1st-line meds, decisions are clinical. This study identifies agents used for HTN in older adults, and assesses relative safety.

Methods:

IRB approved cross-sectional chart review of 139 pts ≥60 y.o. at PACE-GNO for ≥3 mos sorted into cohorts by no. of drugs: 1, 2, 3, or >3, class assesed and falls measured.

Results:

Of 57 pts on ACEi- 7 fell (30%), 39% of falls. Of 83 pts on CCB- 14 fell (17%), 32% of falls. Of 42 on BB- 13 fell (31%), 30% of falls. BPs were not available. See Table 1 for meds used (%).

Discussion:

JNC 8 1st-line meds are ACEi/ ARB, thiazides, or CCB, so we expect these in highest proportion, but the frequency does not match. CCB and ACEi are 1st line while loop diuretics (LD) and BB are not. In adults >60 years old, LD are relatively contraindicated due to volume loss. Combo α/β blockers are unexpected as α blockers are on Beers Criteria. LD and BB do not appear as 1st line agents unless comorbid CHF, but other drugs in CHF therapy are not represented. Three of the 4 common meds have a high fall rate, with 39% of people who fell using ACEi. The prescribing patterns observed in this population somewhat reflect JNC 8, but variations are critical. LD, BBs and combo α/β blockers are not 1st line but overused in this population. Shown here, LD and combo α/β blockers do not pose the same threat as ACEis, CCBs, or BBs despite known risk of orthostatic hypertension (the former via volume depletion and later by reduced sympathetic tone). BBs, however, are over represented in prescriptions and in falls—with 31% of people on a BB falling. Unfortunately, ACEis and CCBs are associated with falls at higher rates than other agents and are recommended as 1st line agents. These data caution the safety of the most popular meds, and indicate need for close follow up.

Table 1- Top Meds per Cohort (percent)

1 Med Cohort	2 Med Cohort	3 Med Cohort	>3 Drug Cohort	All Enrollees
CCB (36)	ACEi (49)	CCB (71)	CCB (47)	CCB (60)
ACEi (24)	CCB (47)	LD (42)	α/β combo (36)	ACEi (41)
LD (16)	BB (36)	ACEi (36)	LD (31)	LD (35)
BB (12)	LD (27)	α/β combo (29)	ACEi (29)	BB (30)

CCB: Ca channel. blocker, ACE: angiotensin converting enzyme; LD: Loop diuretics; BB: β blocker

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D196 Resident Presentation, Encore Presentation
Geriatric Patients on Methadone Maintenance Therapy have Reduced Serum Albumin

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Background: Methadone maintenance therapy (MMT) has been utilized since the 1970's as a treatment modality in patients abusing opioids. Many of these patients are now over 65 years old. Unfortunately, there is currently a dearth in research involving geriatric populations currently on MMT, despite increasing patient numbers.

Methods: This study was a retrospective chart review of patients admitted to medicine over the age of 65. Case patients include patients on MMT for opioid use disorder with a large proportion positive for Hepatitis C (HCV). We created a subgroup of MMT positive/HCV positive geriatric patients as our index population. Twenty-two patients met our inclusion criteria for this subgroup. We then created age-controlled gender-matched populations for comparison – MMT positive/HCV negative, MMT-negative/HCV positive, MMT negative/HCV negative. We utilized two-way between subjects ANOVA to examine differences in liver function(AST and ALT), renal function (GFR) and nutritional status (Albumin).

Results: We found there was a significant difference among our index population and age-matched gender-controlled peers. Post hoc testing showed hepatitis C infection significantly affected AST and ALT levels in patients co-morbid for MMT and hepatitis C while MMT did not significantly affect either. Hepatitis C infection also significantly increased AST and ALT in patients not on MMT as well. Renal function was not affected by either MMT or hepatitis C. Post hoc analysis also revealed albumin levels to be significantly decreased in patients comorbid for MMT and HCV, and those not infected with HCV as well. We further found HCV infection did not decrease albumin levels significantly regardless of MMT status.

Conclusion: Geriatric patients comorbid for MMT and hepatitis C infection have lower albumin compared to age-controlled peers with this decrease independent of hepatitis C infection. The mechanism by which albumin is reduced is unclear. A higher powered study with larger patient pools will be needed to tease out how and why this occurs. We will continue with expanding our patient pools in order to explore what indolent effects MMT may have in this patient population.

D197 Student Presentation
Walkability among different senior centers in Los Angeles

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Background: Though walking for exercise can be a powerful way for older adults to reduce stroke risk, many minority seniors live in neighborhoods with low walkability. Our goals were to use data from a stroke risk factor reduction randomized controlled trial (RCT) of minority seniors to: 1) measure and compare walkability domains of 4 different low-income neighborhoods; 2) measure the association between walking levels and neighborhood walkability.

Methods: We conducted a cross-sectional analysis using baseline interview and FitBit Zip pedometer data of 233 minority seniors enrolled in a NIH-funded RCT, "Worth the Walk". Neighborhood Environment Walkability Scale (NEWSA) surveys were completed

in language of choice by participants at each of four senior centers; Watts Labor Community Action Committee (Watts), St. Barnabas (Koreatown), Chinatown Service Center (Chinatown), and Mexican American Opportunity Foundation (MOAF) (Montebello). We compared NEWSA mean subscale scores across senior centers using unadjusted regression models and followed up with pairwise comparisons with Sidak adjustments for age and sex. We measured Spearman correlations between mean steps per week and NEWSA survey scores.

Results: No senior center scored consistently high or low across subscales. MAOF participants reported highest walkability in subscales of land-use mix and street connectivity but scored poorly in walkability due to traffic hazards. CSC scored lowest walkability on land-use mix but highest walkability from (fewest) traffic hazards. Steps per day measured by FitBit Zip pedometer were not correlated with any NEWSA subscales.

Conclusions: In these 4 diverse neighborhoods, we found walkability to be a multidimensional construct: each site demonstrated different strengths and weaknesses across domains. Participants who perceived their neighborhoods to be less walkable did not walk more than participants reporting more walkable neighborhoods, suggesting that many seniors are resourceful in overcoming neighborhood barriers to walking.

D198 Student Presentation
The Effects of Depression on Postoperative Outcomes for Patients Undergoing Abdominal Surgery

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Background

Psychosocial factors have been used as predictors of adverse outcomes after surgery. Of these psychosocial factors depression is concerning due to its high prevalence in the U.S (6.7%). Previous studies found that depression is associated with increased morbidity and higher readmission rate after receiving cardiovascular and orthopedic surgery. Since it has not been researched, this study aims to determine the effects of depression on abdominal surgery outcomes.

Methods

This was a cohort study of patients undergoing abdominal surgery at Johns Hopkins hospitals who were entered into the American College of Surgeons National Surgery Quality Improvement Project (NSQIP) registry. The study consisted of patients aged 18-89 receiving abdominal surgery between 2013 and 2018 entered into the NSQIP database. Patients receiving emergency surgery were excluded from the study. Data pulled from the database include demographic information, hospital stay characteristics, and postoperative occurrences. Diagnoses of depression were determined by ICD9/10 codes and use of antidepressants prior to surgery. Major outcomes analyzed include length of stay (LOS), major complications (Clavien-Dindo II-IV) and 30-day readmission. Outcomes were analyzed with a linear regression model.

Results

A total of 1251 patients were included, of which 369 met depression criteria. 400 patients were aged 65+. The depression group had higher proportions of females (60.4%, p<0.001), and of Caucasians (82.9%, p<0.001), and a lower median age at time of surgery 57.8, p=0.035). All other factors were equal between groups. Depression was associated with an increased LOS (IRR 1.21, 95% CI 1.15,1.29, p=0.000), increased odds of readmission within 30 days(OR 1.51, 95% CI 1.5,1.53, p=0.000) and increased odds of major postoperative complications (OR 1.93, 95 CI 1.64-2.27, p=0.00).

Conclusions

Findings from the study suggest that depression increases the LOS and increases the risk of major complications and of being readmitted to the hospital following abdominal surgery. Improving

upon and developing new treatment for the psychosocial aspect of the patients health may lead to improvement in overall postoperative health outcomes.

D199 Student Presentation
Undiagnosed Corneal Ectasia in Cataract Patients

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Background: Corneal ectasia is a thinning disorder in which part of the corneal stroma thins and bulges outward. Considering the cornea's role in focusing light, abnormalities in the corneal surface can result in suboptimal vision after cataract surgery and patient dissatisfaction. Identifying ectasia prior to surgery allows for more guided treatment and improves surgical outcomes. The objective for this study was to evaluate the prevalence of previously undiagnosed forme fruste corneal ectasia (FFCE) in consecutive patients presenting for cataract surgery. High rates of undiagnosed FFCE would warrant screening for ectasia in all patients prior to cataract surgery.

Methods: This is a retrospective study of a single surgeon practice. All patients underwent preoperative corneal tomography testing of both eyes via the Orbscan II (Bausch & Lomb, Orbtek Inc.). Patients with a prior history of corneal surgery, known FFCE, and any other corneal conditions that may impact tomography data were excluded. Tomography was evaluated based on a series of criteria consisting of established tomographic patterns and evidence-based Orbscan II indices with diagnostic value for FFCE (elevated posterior float ≥ 0.035 mm, central K > 47.2 D, sim Kmax ≥ 47 D, thinnest point ≤ 510, irregularity index at 3 mm ≥ 1.5 D and at 5 mm ≥ 2 D). Patients who met ≥ 3 criteria in either eye were considered to have abnormal corneas. Patients who met ≥ 3 criteria, with at least two being "high suspect" criteria, were considered to have FFCE. Patients who met < 3 criteria were considered normal.

Results: 178 patients met inclusion criteria for the study (mean age 70.92 ± 9.32; 60.7% female). 24 (13.5%) met criteria for FFCE preoperatively, while 64 (35.9%) met criteria for abnormal corneas. The mean posterior floats in the eyes of normal, abnormal, and FFCE patients were 0.027 ± 0.009, 0.03 ± 0.009 (p <0.001), and 0.043 ± 0.012 (p <0.001), respectively. The mean value for the thinnest points in normal, abnormal, and FFCE eyes were 574.66 ± 38.02, 551.01 ± 39.88 (p <0.001), and 531.56 ± 42.21 (p <0.001), respectively.

Conclusions: This study documented that a significant proportion of patients exhibited previously undiagnosed corneal abnormalities or FFCE at the time of their preoperative visits for cataract surgery. Study results support screening with tomography for all preoperative cataract patients in order to rule out FFCE and other possible corneal abnormalities that may impact refractive outcomes.

D200 Resident Presentation
Functional Trajectories After Traumatic Injury Among Older Trauma Intensive Care Unit Patients

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Background: Adults age 65 and older account for about one-third of trauma cases presenting to North American hospitals according to the National Trauma Data Bank. Understanding long term post-injury functional trajectories among this group will assist with prognostication and resource utilization.

Methods: This study was a prospective analysis of trauma patients sixty-five years and older who were admitted to the trauma surgery intensive care unit (TSICU) at a Level I regional trauma center from July 1st 2017-September 30th 2017. Patient demographics and injury characteristics were collected. Low-energy trauma was defined as a fall from standing height. Patients or close family

members were contacted for a brief phone interview 12 months after hospital discharge. The Katz Index of Independence in Activities of Daily Living (ADLs) and the Lawton Instrumental Activities of Daily Living (IADLs) functional assessments were performed.

Results: 133 older patients were admitted during the 3-month study period, with median age of 77 (IQR 70-83), median injury severity score of 17 (IQR 10-26), and median hospital length of stay of 9 days (IQR 5-14). 75% (100) experienced high-energy and 25% (33) low-energy trauma. 114 (86%) patients survived to hospital discharge of whom 47 were discharged home and 56 to skilled nursing facilities. Eleven (10%) patients died after hospital discharge, and 64 (56%) patients or family members completed the one-year post-injury functional assessments by telephone. Forty-nine (77%) respondents were living at home, 7 in assisted living facilities, and 3 in skilled nursing facilities. Forty-five (70%) respondents were fully independent in their ADLs, and 34 (53%) were fully independent in their IADLs. Thirty-five (55%) respondents reported that they had not fully recovered to their pre-injury level of physical function.

Conclusions: Most respondents were living at home one year after their injury and independent with all ADLs. However, about half were not fully independent in all IADLs and half reported that they had not recovered to their pre-injury level of physical function. Strategies to improve post-discharge functional outcomes are needed.

D201 Student Presentation
Life-space decline and resilience during lung cancer treatment in older adults

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Background: Older adults with lung cancer are at increased risk of treatment toxicity. However, the impact of lung cancer treatment on life-space decline and resilience (ability to withstand or recover from decline) is unknown.

Methods: This ongoing cohort study of adults age ≥ 65 with advanced non-small cell lung cancer starting a new non-curative systemic treatment (chemo-, immuno-, and/or targeted therapy) is recruiting from the University of California, San Francisco and San Francisco VA. Patients underwent geriatric assessments including self-reported Life-Space Assessment (LSA) prior to treatment initiation and at 1 and 2 months during treatment. LSA scores can range from 0 to 120 (greater mobility within one's environment). Clinically significant decline was defined as a 5-point decrease or death. Resilience was defined as maintenance of pretreatment life-space or recovery to within 5 points. We used chi-square and t-tests to identify pretreatment characteristics associated with life-space decline and resilience.

Results: As of 11/30/18, our cohort included 51 patients (mean age 75, range 65-94). Lung cancer treatment included immuno- (38%), chemo- (34%), and targeted (28%) therapy. Prior to treatment initiation, mean LSA score was 66 and 35% of patients were homebound (LSA score <60); 22% were dependent in ≥ 1 ADL, 35% had an abnormal Timed Up and Go (TUG), and 37% reported high morning fatigue. At 1 month, life-space declined in 62% (mean LSA decline of 20 points) and was maintained in 38%. ADL dependence, abnormal TUG, and high morning fatigue were associated with life-space decline. Among patients with life-space decline at 1 month, 61% recovered their life-space at 2 months. Among patients who maintained their life-space at 1 month, 64% continued to maintain it at 2 months. Receipt of non-chemotherapy treatment was associated with life-space resilience.

Conclusions: Clinically significant life-space decline is common among older adults with lung cancer, even those receiving immuno- or targeted therapy. While the majority of patients recovered at 2 months, interventions to increase resilience are needed, particularly among those receiving chemotherapy.

D202 Student Presentation
Relationship Between Two Frailty Assessments and Lung Allocation Scores in Patients Being Evaluated for Lung Transplantation

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BACKGROUND: Frailty status has been shown to predict outcomes in patients undergoing lung transplantation. However, the best method for measuring frailty in this population has yet to be determined. The purpose of this study was to explore the relationship between a chart-based frailty index and an objective measure of physical frailty in lung transplant candidates. We additionally explored the association between both frailty measures and a standardized measure of post-transplant mortality risk known as the lung allocation score (LAS).

METHODS: We evaluated a cohort of 22 lung transplant candidates at UCLA between 2017-18. A chart-based frailty index composed of 14 functional health-related domains, including weight loss, fall risk, cognitive impairment, mood disorders, and others, was derived by medical chart data extraction. Physical frailty was assessed by the short physical performance battery (SPPB) and included gait speed, balance, and chair stand. The LAS score was calculated for each patient based on pre-transplant data. The association between the two frailty scores with each other, as well as with LAS, was evaluated using Pearson correlation analysis.

RESULTS: Of the 22 lung transplant patients, 54.5% were male. The most common etiology of end-stage lung disease was idiopathic pulmonary fibrosis (36.4%). Two of the lung transplant patients had missing SPPB scores, 1 had a missing LAS, and 0 had missing chart-based frailty index scores. The average SPPB, chart-based frailty, and LAS scores were 8±3, 5±2, and 45±15, respectively. The chart-based frailty index and the SPPB were positively correlated with each other ($r2=0.19$, $p=0.05$). Both frailty measures were positively correlated to LAS (SPPB: $r2=0.40$, $p<0.01$; chart-based frailty index: $r2=0.20$, $p<0.05$). Neither the SPPB nor the chart-based frailty index correlated with age.

CONCLUSIONS: Functional health-related deficit data gathered during a comprehensive transplant candidacy assessment may be an appropriate surrogate marker of physical frailty. Additionally, physical frailty and functional health-related deficits may be more strongly related to severity of lung disease than age. Studies to determine the prognostic role of these frailty assessments prior to lung transplant are ongoing.

D203 Resident Presentation
Intensive vs. low-intensity treatment for older patients with acute myeloid leukemia: what is considered when selecting treatment?

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Background

AML is a disease of older adults. The optimal treatment for this population is unclear given a lack of head-to-head trials comparing intensive vs. low-intensity treatment. Practice patterns vary which may lead to potential over- or under-treatment of older adults with AML. Our long-term goal is to build a conjoint-based decision aid for community oncologists and older adults with AML. This preliminary study aimed to identify factors affecting choice of treatment intensity.

Methods

We conducted semi-structured qualitative interviews with 13 community oncologists and 10 patients age ≥60 years diagnosed with AML. Patients were recruited from a single institution and oncologists were recruited via email. Interviews were audio-recorded, transcribed, and analyzed using directed content analysis. Using Atlas.ti, 2 investigators independently coded all transcripts and resolved discrepancies through iteration. Factors were classified into four categories (patient, disease/treatment, physician, and organizational) based on the Zafar decision-making framework.

Results

Median oncologist age is 37 years (range 34-64), 8 are female, 5 have practiced >15 years, and 12 treat <10 older patients with AML annually. Median patient age is 71 years (64-80), 4 are female and all are white. At the time of the interview, 8 patients had received intensive chemotherapy, 2 had received low-intensity treatment, 2 had received both, and 3 had undergone stem cell transplantation. Only 2 patients recalled being offered different treatment intensity. Table 1 displays potential factors affecting decisions-making.

Conclusion

Factors potentially affecting choice of treatment intensity identified in this study, many of which may be evaluated using a geriatric assessment, will be used to develop a conjoint-based decision aid to assist in individualized treatment decision-making.

Table 1: Factors influencing decision of treatment intensity

PHYSICIANS	PATIENTS
PATIENT FACTORS Chronological age Clinical gestalt or overall health Comorbidities Functional status Performance status Frailty Patient preference & motivation Patient's ability to make decisions Cognition Emotional health Caregiver	PATIENT FACTORS Chronological age Overall health Quality of life Social support Insurance
DISEASE/TREATMENT FACTORS Inpatient vs. outpatient Disease aggressiveness, presentation & biology Treatment tolerability/toxicity Treatment success	DISEASE/TREATMENT FACTORS Inpatient vs. outpatient Disease aggressiveness, presentation & biology Treatment tolerability Treatment success Time to remission
PHYSICIAN FACTORS Clinical expertise Physician beliefs/preference	PHYSICIAN FACTORS Trust in physician/team/center Oncologist
ORGANIZATION FACTORS Distance to treatment center Infrastructure Transplant availability Clinical trial availability Local Practice pattern	ORGANIZATION FACTORS Distance to treatment center Infrastructure Access to doctors/facilities

D204 Resident Presentation
Prevalence and Indicators of Self-Reported Cognitive Dysfunction (CD) in Older Adults with Newly-Diagnosed Gastrointestinal (GI) Malignancies – results from the Cancer and Aging Resilience Evaluation (CARE) Study

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Background: Cognitive dysfunction (CD) is poorly described in older adults with GI cancers. The purpose of this study was to quantify the prevalence and identify baseline determinants of patient-reported CD in older adults with GI cancers.

Methods: This analysis draws from the CARE Study and includes patients aged ≥60y with a diagnosis of GI malignancy. Patients underwent a Geriatric Assessment (CARE survey). CD was measured via the Patient-Reported Outcomes Measurement Information System

(PROMIS®) Short Form 4a Cognitive Function survey. Descriptive statistics utilized to examine the prevalence of CD and dichotomized into normal/mild (scores of 12-20) and moderate/severe (mod/sev) impairment (scores of 4-11) with bivariate associations examined to identify potential indicators of CD.

Results: 159 older adults with newly diagnosed GI malignancy completed the CARE survey. Mean age of 69.6 ± 7.2 and 59.7% male. Most common cancers included colon (24.5%) and pancreatic cancer (22.6%). Overall mean PROMIS-SF4a raw score 7.5±4 with 82.4% endorsing mod/sev symptoms. CD was negatively correlated with higher social activity limitations (ρ=-0.414, p<0.01) and higher PROMIS Global Physical and Mental Health scores (ρ=-0.405, p<0.01 and ρ=-0.495, p<0.01, respectively). Mod/sev CD was also associated with Activities of Daily Living (ADL) impairment (36.7% vs 63.3%, p=0.01), instrumental ADL impairment (IADL) (27.7% vs 72.3%, p<0.01) and performance status ≥2 (37.7% vs 62.3%, p<0.01). Anxiety (51.5% vs 48.5%, p<0.01) and depression (71.4% vs 28.6%, p<0.01) were correlated as well. No significant association was found with type or stage of cancer.

Conclusions: In older adults with newly-diagnosed GI malignancies we found a high prevalence of patient-reported CD that was associated with increased social activity limitations, ADL/IADL impairments, and mental health issues. Future longitudinal assessments of cognition during/after chemotherapy are planned to identify reliable predictors of CD and to facilitate potential intervent

D205 Resident Presentation
Frailty and Post-Intensive Care Syndrome in older adult survivors of critical illness
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Background: Older adults make up an increasing proportion of patients treated in intensive care units (ICUs). ICU survivors suffer with Post-Intensive Care Syndrome (PICS), the hallmark of which is the co-occurrence of impairments across physical, neuropsychiatric and cognitive domains of health. Pre-hospital frailty (PHF) has been under-explored as a predictor of PICS. This study aimed to examine the relationship between PHF and PICS in critically ill older adults.

Methods: In a prospective observational cohort study of older adults (age≥ 50) admitted for non-elective medical/surgical critical illness, baseline questionnaires about demographics, activities of daily living, instrumental activities of daily living, frailty markers were administered upon enrollment to patients/surrogates. Investigators quantified PHF within 3 days of ICU admission using the Clinical Frailty Scale (range is 1-9; 4 is vulnerable; >4 is frail) and PICS was assessed at 3- and 6-months after discharge using the EQ-5D (problems in all three physical domains at 3- or 6-month assessment defined as PICS-physical), the telephone Montreal Cognitive Assessment (MOCA-T < 17 at 3- or 6-month defined as PICS-cognitive) and the Hospital Anxiety and Depression scale (HADS anxiety > 8 or HADS depression > 8 or EQ-5D problems in anxiety/depression at 3- or 6-months defined as PICS-neuropsychiatric).

Results: Of the 302 enrolled, 176 survived to 6-month assessment (mean age (standard deviation (SD) 65.8 (10.3); 56.3% female). PICS was prevalent: 103/176 (58.5%) with PICS-physical; 50/120 (41.7%) had PICS-cognitive; 87/158 (55.1%) had PICS-neuropsychiatric. PHF was associated with co-occurrence of PICS (55.7% of frail patient had ≥ 2 PICS impairment domains versus 32.0% in patients without frailty, p=0.002). PHF was more strongly associated with PICS-physical (80.0 % versus 40.2%, p<0.001) and PICS-cognitive (54.6 % versus 33.8%, p=0.027) than with PICS-neuropsychiatric (61.3% versus 52.2%, p=0.264). In multivariate models adjusting for age, gender, severity of illness, education and pre-hospital cognitive impairment, PHF remained significantly associated with the co-occurrence of PICS in survivors (adjusted OR (95% confidence interval) 3.1 (1.5-6.6), p=0.003).

Conclusion: PHF assessed in the ICU setting may help inform the prediction of PICS in older adult survivors of critical illness.

D206 Resident Presentation
The Association of Frailty With All-cause mortality Among Elderly With Acute Coronary Syndrome: A Systematic Review and Meta-Analysis
P. Putthapiban,[1] W. Sukhumthammarat,[2,1] P. Rattanawong,[3] W. Vutthikraivit.[4] *1. Internal Medicine, Einstein Medical Center, Philadelphia, PA; 2. Medicine, Einstein Medical Center, Philadelphia, PA; 3. Internal Medicine, University of Hawaii, Honolulu, HI; 4. Internal Medicine, Texas Tech University, Lubbock, TX.*

Background: Numbers of elderly patients with cardiovascular disease especially acute coronary syndrome (ACS) are growing. It is crucial to identify predictors of adverse outcome following ACS. We conducted a systematic review and meta-analysis of the frailty status and mortality in this group of patients.

Methods: We comprehensively searched the databases of MEDLINE and EMBASE from inception to November 2018. The studies that reported mortality in ACS patients who were evaluated and classified by frailty status were included.

Result: Twelve studies from 2011 to 2018 were included in this meta-analysis involving 11,870 subjects (mean age: 74.88 year-old, 59.5 % of male). Frailty status was evaluated using different methods including Fried Frailty Index. Frailty was statistically associated with increased incidence of early mortality pooled HR 2.00, 95% CI: 1.43-2.80, P < 0.001, I^2=53.8%) and late morality (pooled HR 2.45, 95% CI: 1.97-3.05, p <0.001, I^2=24.7%).

Conclusion: Frail status is a poor prognostic factor of elderly who suffering from ACS in both early and late all-cause mortality. Frailty may be used to predict outcome of ACS in aged population and further studies for potential intervention is warranted.
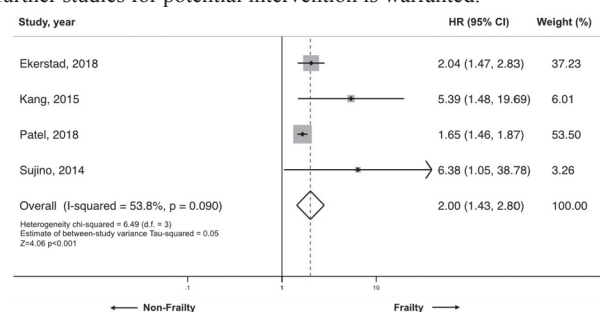
Figure 1 : HR for early all-cause mortality because of frailty in acute coronary syndrome patients
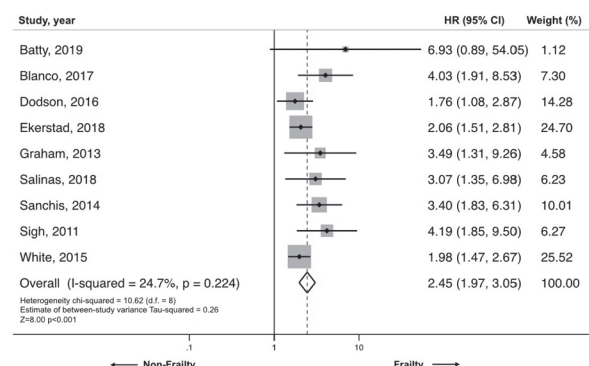
Figure 2 : HR for late all-cause mortality because of frailty in acute coronary syndrome patients

D207 Student Presentation
Withdrawn

D208 Resident Presentation
Fall Risk associated with Mechanical Lifts in Nursing Homes
S. Seecharan,[1,2] J. Genese,[1,2] C. Arana,[1,2] A. Liggett,[1] N. Kulsum,[1] R. Ahmad.[1,2] *1. Family Medicine, UHS, Binghamton, NY; 2. Geriatrics, UHS Wilson Hospital, Johnson City, NY.*

Background:
Use of mechanical lifts for patient transfer has decreased incidence of work related injuries, increased efficiency of transfers, improved patient comfort and safety, are cost effective, reduce pressure ulcers and have been proposed to decrease patient falls. However, little data is available on fall risk reduction and mortality benefit. This case control retrospective study examines fall rate linked to mechanical lifts like the Hoyer lift in Nursing Homes.

Methods:
Case Control Data was collected from 3 Nursing Homes in Upstate New York, coded as N1, N2, N3. 71 patients using Hoyer Lifts between ages 65 and 100 were examined with controls for September 2017 to 2018. Controls were matched for age, sex, number of medications, unit location. Number of falls were noted.

As needed medications were included if used for 48 hours continuously. Topical medications and vitamins were excluded.

Results:
A chi Squared analysis with 95% confidence was calculated, comparing the number of patients who had no falls with those that had at least one fall during their stay for Hoyer lift and Control groups. Total number of falls in the Hoyer lift group was 0.78 falls/ stay (Fall Rate) compared to 2.24 in the control group (Chi squared test statistic 0.000087 with critical value 0.0500). Fall Rate for Hoyer lifts in each of the 3 nursing homes for actual and expected rates was compared with each other using a Chi Squared statistic at 95% confidence. The actual fall rates for N1, N2 and N3 were 6,6, and 10 respectively.

Conclusions:
The patients in the non Hoyer Control group are more likely to experience a fall than those in the Hoyer Group.

The Hoyer lifts at each nursing home is no more or less likely to experience a fall than patients in another nursing home in the study.

Limitations:
Paper charts made it difficult to source data. 17 Hoyer lift patients were excluded from the study, as they did not fit control criteria. Only 54 of 71 had controls. Patient eligibility for using Hoyer lifts was not screened in the control data. Further study on standardizing controls to these criteria can be investigated. The study was limited by size. 15 deaths were noted in the Hoyer lift patients with 2 in the control set. Further investigation is needed as this mortality may not be purely attributed to Hoyer use. Further investigation can be done to link hospitalizations to falls.

D209 Student Presentation
Opioid Toxicity Characteristics of Older Adults Presenting to the Emergency Department
S. Jeong,[1] J. Kirk,[2] J. LaCoss,[2] S. Sanchez-Reilly,[3] S. Lee.[4] *1. Long School of Medicine at UT Health San Antonio, San Antonio, TX; 2. Palliative, University Health System, San Antonio, TX; 3. Geriatric / Palliative, University Health System, San Antonio, TX; 4. Research and Development Service, Veterans Affairs, San Antonio, TX.*

I. Background
Opioids are an effective analgesic as first-line therapy for moderate to severe, persistent pain among older adults ($\geq$65, OA). However, opioids can lead to dependence and side effects can result in morbidity and mortality. Thus, careful practice standards must be applied when prescribing opioids. The aim of this study is to evaluate the pattern of opioid overdose and abuse in OA presenting to the ED.

III. Methods:
Retrospective chart review of all patient visits with a diagnosis (ICD-10-CM) of opioid overdose from 09/01/2015 to 08/31/2016 in the emergency department of a tertiary hospital.

IV. Results:
29 of 1073 visits with a diagnosis of opioid overdose were OA. N = 29. Four patients had a diagnosis of active opioid abuse, of which 3 were readmitted with overdose, 3 had past opioid abuse, and 18 had no history of opioid abuse. Of those 18, 9 patients were being treated for acute pain in the setting of recent surgeries or non-healing wounds and 9 were on opioids chronically for malignancy, lower extremity pain, cirrhosis or osteoarthritis. There were no deaths from overdose. When stratified with age, there is no significant difference in opioid abuse between younger and older patient visits. However, OA received naloxone significantly more often than their younger counterparts (p-value= 0.0282).

V. Conclusions and Implications:
The low occurrence of opioid overdose and abuse identified in the emergency department and zero mortality indicates a low overdose and abuse risk prescription practice among OA. Additionally, there were no repeat overdose visits/admissions in those without a previous diagnosis of opioid use disorder. Of those with opioid overdose, OA are more likely to be treated with naloxone than younger patients, likely due to evidence of organ dysfunction, or physicians' lower threshold to treat. Future prospective studies must evaluate: 1) Opioid prescription data and patient sources of opioids to refine OA opioid prescription practices and 2) Short and long-term effects of naloxone administration among OA to develop safer administration protocols.

D210 Student Presentation
Differences in Frailty Status in Heart versus Lung Transplant Candidates
S. Jaladanki, L. Shih, N. Ventigan, A. Ardehali, R. Biniwale, J. Schaenman, D. Goldwater. *David Geffen School of Medicine, Los Angeles, CA.*

Purpose: Frailty, a syndrome of fatigue, muscle wasting, and weakness, is a common syndrome in patients with end-stage organ disease with implications for outcomes after transplant. The pathophysiology of frailty as it relates to advanced organ disease remains unclear. Understanding the difference in frailty phenotypes between individuals with end-stage heart versus lung disease may help elucidate differences in frailty mechanisms. This study explores differences in frailty phenotypes among individuals with end-stage heart or lung disease being considered for transplantation.

Methods: In a single-center prospective study, frailty was assessed in heart and lung transplant candidates using Fried's Frailty Phenotype (FFP) and the Short Physical Performance Battery (SPPB). The FFP score is based on self-reported weight loss, fatigue, and physical activity, as well as measures of gait speed and grip strength. The SPPB score consists of measures of gait speed, balance, and lower extremity strength. Using previously established cutoffs, an FFP score of 0 = non-frail; 1-2 = pre-frail; and 3-5 = frail, while an SPPB score of 0-6 = frail; 7-9 = pre-frail; and 10-12 = non-frail. T-tests were used to test the difference between total frailty scores and individual domains.

Results: Out of 41 lung transplant candidates, 33 completed both SPPB and FFP assessments, while 8 completed SPPB assessment only. Out of 15 heart transplant candidates, 14 completed both the SPPB and FFP assessments while 1 completed SPPB only. In the heart transplant group, 33% were classified as frail by SPPB criteria, while 57% were classified as frail by FFP. In the lung transplant group, 16% and 60% were classified as frail by SPPB and FFP, respectively. There were no differences between the average frailty scores in the heart and lung transplant groups (SBBP heart: 7.7 ± 2.9; SPPB lung: 7.5 ± 2.7; FFP heart: 2.9 ± 1.3; FFP lung: 2.7 ± 1.2). On average, lung transplant candidates had faster gait speeds (0.8 ± 0.24 m/s) than heart transplant candidates (0.65 ± 0.29 m/s; p < 0.04). No significant differences between groups were identified in the other frailty domains.

Conclusions: Although the total frailty scores as measured by the SPPB and FFP may not differ between heart and lung transplant candidates, significant differences may be found in individual frailty domains.

D211 Resident Presentation

A Systematic Review of the Safety of Providing Invasive Mechanical Ventilation at Home for Older Adults

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Background: Older adults are more vulnerable to adverse effects of hospitalization, and home based care has been proposed as an alternative to traditional inpatient care. However, it is unknown whether home is a safe option for older adults who are dependent on mechanical ventilation. This systematic review aims to determine the safety of older adults on home invasive mechanical ventilation (HIMV).

Methods: An electronic search of PubMed, Embase, Cochrane Library, CINAHL, LILACS and Scopus databases from inception to June 2017 was completed. Two independent reviewers screened titles, abstracts and full-text articles using eligibility criteria. We selected studies with older adult cohorts (mean age ≥ 60 or with reported age stratification) and with outcomes focused on readmission rates and events of ventilator failure at home.

Results: A total of 2,496 titles and abstracts that were identified, and 30 full-texts were reviewed. There were 4 studies on HIMV (total n = 476 patients) that fulfilled the inclusion criteria. Studies were conducted in France, England and the United States. The following results were found: i) 50% of a cohort of patients required 1 to 3 hospitalizations in a year; ii) the incidence of reported home ventilator failure varied from 4% to 71% with only a few patients experiencing adverse effects from the failure; iii) there was decreased utilization of hospital resources after initiation of HIMV.

Conclusion: Home has the potential to be a viable alternative for older adults dependent on invasive mechanical ventilation. However, given the limited amount of data regarding its safety profile, home care can be a daunting option for patients, their families and even health care providers. Rigorous studies on the risks and benefits of being cared for at home for this complex and vulnerable population are still needed.

D212 Resident Presentation

PROPHYLACTIC PROBIOTICS AND SYNBIOTICS FOR PREVENTION OF VENTILATOR-ASSOCIATED PNEUMONIA IN CRITICALLY ILL PATIENTS: A SYSTEMATIC REVIEW AND META-ANALYSIS

W. Sukhumthammarat,[1] P. Putthapiban,[1] W. Vutthikraivit,[2] P. Rattanawong.[3] *1. Internal Medicine, Einstein Medical Center, Philadelphia, PA; 2. Internal Medicine, Texas Tech University, Lubbock, TX; 3. Internal Medicine, University of Hawaii, Honolulu, HI.*

Background: Ventilator-associated pneumonia (VAP) is one of the most common complications in patients who are mechanically ventilated in the intensive care unit with high associated cost and poor patient outcome. Current data suggest that the use of prophylactic probiotics is cost-effective for preventing VAP. However, the efficacy of probiotics still controversial. The purpose of this updated systematic review and meta-analysis is to evaluate the efficacy of probiotics and synbiotics for preventing VAP in critically ill patients

Methods: Databases from PUBMED, EMBASE and manually from identified articles reference lists were searched for all relevant randomised controlled trials (RCT) from inception to November 2018. Data from each study were combined using the random-effects, generic inverse variance method of DerSimonian and Laird to calculate Odds Ratio (OR) and 95% confidence intervals (CI).

Results: From 161 articles were screened, Twelve RCTs (N=1,660) were included in the meta-analysis (mean age: 57.4-year-old, 58.2% of male). Probiotics and synbiotics were statistically associated with decreased incidence of VAP (pooled OR 0.71, 95% CI: 0.58-0.88, P 0.002, I^2=31.6%).

Conclusion: Prophylactic administration of probiotics and synbiotics in mechanically ventilated patients could result in preventive effects on the incidence of VAP in Critically ill patients.
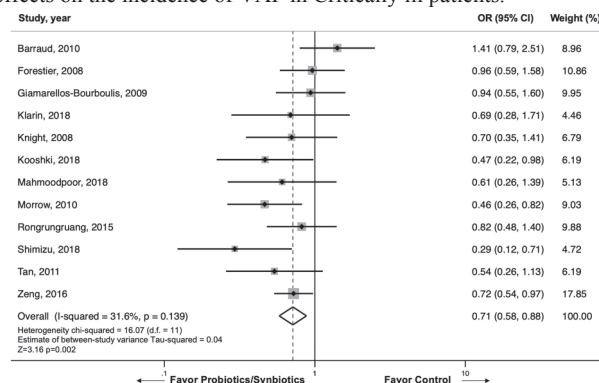
Figure: Forest plot of incidence of Ventilator-associated Pneumonia

D213 Student Presentation

FRAX Threshold for Osteoporosis Treatment in Frail Elderly

B. M. Churilla,[1] S. Perera,[1] S. Greenspan,[1] M. P. Kotlarczyk.[2] *1. University of Pittsburgh, Pittsburgh, PA; 2. University of Pittsburgh, Pittsburgh, PA.*

Background: The FRAX tool allows clinicians to consider treatment for individuals at high 10-year risk for major osteoporotic or hip fractures using clinical risk factors and dual x-ray absorptiometry (DXA) when available. With the emergence of trabecular bone score (TBS), its integration into FRAX could improve the algorithm's risk prediction. We sought to compare the number of people recommended for treatment based on FRAX risks determined with and without considering bone density and TBS.

Methods: The 10-year probability of a major osteoporotic (MO) and hip fracture (HF) was determined for 206 long-term care residents (age 81.2±7.5, 75% female) using the University of Sheffield's FRAX tool. FRAX probabilities for each individual were computed based on clinical risk factors and 1) body mass index (BMI) only, 2) bone mineral density (BMD) of the femoral neck (FN), and 3) trabecular bone score (TBS).

Results: FRAX-BMD and TBS adjusted FRAX-BMD yielded a similar number of recommendations. FRAX-BMI identified the most residents recommended for treatment.

Conclusions: Using BMI only appears to increase the number of residents in need of medical intervention for fracture prevention. When adjusted with TBS, the FRAX score yielded a similar number of residents recommended for treatment compared to the FRAX-BMD. Adjustment with TBS for the spine has little impact on the number of residents recommended for treatment.

	Bone Mineral Density (FRAX – BMD)	Trabecular Bone Score (FRAX – TBS)	Body Mass Index (FRAX – BMI)
Residents Recommended for Treatment. n(%)	MO: 40 (19) HF: 121 (59)	MO: 39 (19) HF: 129 (63)	MO: 91 (44) HF: 176 (85)

D214 Student Presentation

Community Pharmacist Intervention for Lower Urinary Tract Symptoms: A pilot study

E. Duong,[1] H. Marin,[1] Y. Al Hamarneh,[2] R. Tsuyuki,[2] A. Wagg,[2] K. Hunter,[3] M. Spencer,[4] J. Schulz,[2] C. A. Sadowski.[1] *1. Pharmacy, University of Alberta, Edmonton, AB, Canada; 2. Medicine, University of Alberta, Edmonton, AB, Canada; 3. Faculty of Nursing, University of Alberta, Edmonton, AB, Canada; 4. Medicine, University of British Columbia, Vancouver, BC, Canada.*

Background:

The detection, assessment and management of lower urinary tract symptoms (LUTS) in the community is suboptimal despite the significant burden experienced by older adults. Pharmacists are accessible primary healthcare providers who are well positioned to initiate the discussion and management of LUTS with patients. Our objective was to assess the feasibility of a community pharmacist assessment and intervention in patients with LUTS.

Methods:

This pilot study involved one community pharmacy site in Edmonton, Alberta, Canada. Adults ≥60 years were screened for LUTS at the pharmacy. Those with LUTS who signed the informed consent were randomized to the control or intervention groups. The intervention involved tailored recommendations to address LUTS, with follow-up at 3 and 6 weeks. Patients in the control group received usual care and healthy aging pamphlet, with follow-up at 6 weeks. Patients in both groups completed 3 validated questionnaires (the Patient Perception of Bladder Condition (PPBC), the Bladder Self-Assessment Questionnaire (B-SAQ), and the International Consultation on Incontinence Questionnaire (ICIQ-UI) short form) at baseline and at 6 weeks. The primary outcome was the change in PRBC. Follow-ups were performed via phone or in-person. Intervention feasibility was assessed via time utilization, billing and patient/pharmacy acceptance.

Results:

A total of 16 subjects were enrolled (8 in each group). The median (IQR) PRBC score for the control group increased from 2.0 (1.5-4.0) to 2.5 (2.0-4.0), and remained unchanged in the intervention group [2.0 (2.0-3.0) vs 2.0 (1.0-3.0)]. Most interventions focused on lifestyle (e.g. fluid consumption) and behavioral changes (e.g. scheduled toileting). The mean time spent with each subject was 32.7+/-8.5 min over 2 visits vs 89.7+/-19.2 mins over 3 visits in control and intervention groups respectively. In the control group, only 6% of the interactions were considered billable activities vs 21% of the interactions in the intervention group.

Conclusions:

A community-based pharmacist intervention to address LUTS was feasible and could potentially lead to improvements in patient outcomes.

D215 Student Presentation

The Association Between Physical Frailty and Fear of Falling in Community Dwelling Older Adults

A. P. Sween,[2,3] Z. Hindosh,[2,3] F. Stipho,[2,3] C. Tirambulo,[2,4] H. Ehsani,[2,1] J. Mohler,[2,1] N. Toosizadeh.[2,1] *1. Biomedical Engineering, University of Arizona, Tucson, AZ; 2. Arizona Center on Aging, University of Arizona, Tucson, AZ; 3. Physiology, University of Arizona, Tucson, AZ; 4. Public Health, University of Arizona, Tucson, AZ.*

Older adults become increasingly at risk of instability and falling, which often results in increased fear of falling. As a result, elders may decrease physical activities, which leads to a further decline in their physical fitness, putting them at risk for future falls and injuries. We investigated the association between physical frailty measured by a validated upper-extremity function (UEF) test and falls self-efficacy (FES-I) scores.

We measured the self-reported FES-I and administered the UEF Frailty/Function test in the NIH-funded Arizona Frailty Cohort of older adults aged ≥65 years. The FES-I, a 16-item questionnaire, assessed the fear of falling while performing daily activities (range: 16-64; low concern: 16-19; moderate concern: 20-27; high concern: 28-64). UEF involved 20-seconds of rapid elbow flexion while two motion sensors applied to the wrist and upper-arm of the dominant arm measured angular velocity. UEF continuous score was calculated based on slowness, weakness, flexibility, and exhaustion within the upper-extremity function (range: 0-1, non-frail: <0.3, pre-frail: 0.3-0.6, frail: >0.6). Multivariate ANOVA was used to investigate the association between FES-I as the dependent variable and physical frailty UEF as the independent variable, while adjusting for age, BMI, and sex.

Ninety-seven older adults (age range: 65-95) were assessed: 76 females (mean age: 78.4±8.2) and 21 males (mean age: 78.4±8.9). Among participants 47 (48%) were non-frail, 27 (28%) were pre-frail, and 23 (24%) were frail. The ANOVA model demonstrated an association between FES-I and UEF physical frailty ($p<0.004$, R=0.3827).

High fear of falling was positively associated with pre-frailty/frailty as measured by UEF, and may indicate the spiral of fear of falling and increasing social isolation associated with frailty. Elder fall education should emphasize this relationship, highlighting the importance of fall avoidance self-efficacy, including falls planning, positive thinking, counseling, and exercise techniques to promote well-being and resilience.

D216 Student Presentation

The Association between Physical Frailty and Polypharmacy in Community Dwelling Older Adults

C. G. Tirambulo,[1,2] H. Ehsani,[1,3] C. Sutherland-Mills,[1] Z. Hindosh,[1] A. P. Sween,[1] F. Stipho,[1] J. Mohler,[1,3] N. Toosizadeh.[1,3] *1. Arizona Center on Aging, Division of Geriatrics - College of Medicine, The University of Arizona, Tucson, AZ; 2. Mel and Enid Zuckerman College of Public Health, The University of Arizona, Tucson, AZ; 3. Department of Biomedical Engineering, The University of Arizona, Tucson, AZ.*

Geriatric polypharmacy is common and associated with poor health outcomes including falls, cognitive impairment, and other adverse events especially in elders with multimorbidity. Recent meta-analysis of 25 studies indicated a bidirectional relationship of frailty syndrome to polypharmacy as defined by ≥5 medications. Our validated upper-extremity function (UEF) test offers a robust objective screening tool for diagnosing frailty as an alternative to the Fried phenotype and has potential to highlight the role of polypharmacy in frail older adults. We investigated the relationship between physical frailty (UEF) and polypharmacy.

Participants were recruited from the NIH-funded Arizona Frailty Cohort of community-dwelling adults aged ≥65 years. UEF involved 20-sec of rapid elbow flexion while angular velocity was measured via two motion sensors applied to the wrist and upper-arm of the dominant arm. UEF continuous score was calculated for each participant, based on slowness, weakness, flexibility, and exhaustion within the upper-extremity function (range: 0-1). A self-reported medication list was obtained and a cut-off of >5 medications was used to identify the presence of polypharmacy. A multiple linear regression was used to associate physical frailty (UEF) with the number of medications, adjusting for age, sex, and BMI.

Ninety-seven older adults (age range: 65-95) were assessed: 76 females (mean age: 78.4±8.2) and 21 males (mean age: 78.4±8.9). Polypharmacy was present in 40% of participants. Of those with polypharmacy, 42.0% were pre-frail/frail versus 21.3% who were non-frail. The number of medications was significantly associated with physical frailty, $F(4,92)=12.83$, $p<0.05$, $R^2=0.358$.

UEF measured frailty was significantly associated with polypharmacy. Pre-frail and frail older adults with polypharmacy are at an increased risk of suffering from adverse health outcomes, including

longer hospital stays and greater readmission rates. Careful assessment of geriatric polypharmacy in older adults, especially those who are pre-frail/frail, is warranted and important.

D217 Student Presentation
Multimorbidity and Functional Status Among Geriatric Veterans

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Background: Older adults with multiple chronic conditions (MCC) have worse function and earlier mortality. Patterns of MCC and related functional status have not been well-described. **Methods**: Mixed methods, cross-sectional survey of patients ≥ 65 years attending appointments at a VA primary care clinic. Measures: Activities of Daily Living (ADL), Instrumental ADL (IADL), Short Physical Performance Battery (SPPB), MiniCog screen and a semi-structured interview on patient illness perceptions. Manual chart reviews abstracted medical history. **Results:** 127 participants, mean age 76±8 years with a mean 11.6±4.7 conditions, were consented and enrolled. The 5 most prevalent conditions were hypertension (85%), hyperlipidemia (70%), diabetes (46.4%), coronary artery disease (39.4%), obesity (35.4%). Market Basket (MB) analysis assessing patterns of MCC by "system" showed endocrine and cardiovascular (CV) conditions co-existing with a neurological condition (65.6% of patients), musculoskeletal condition (61.7%), genitourinary condition (53.9%), and GI condition (50.8%). For individual diseases, hyperlipidemia and hypertension co-occurred with visual impairment (28.1% of patients), coronary artery disease (27.3%), diabetes (27.3%), arthritis (23.4%), obesity (21.9%). Functional status by ADL was 5.7 ± 0.6 (range 0-6) and IADL 6.5 ± 1.6 (range 0-8). SPPB, 7.9±3.3, was similar across the five top MB rules for organ systems and inversely associated with age (R^2=0.25, p<.001). Individuals with positive MiniCog (16%) were older (83.2±8.0 vs. 75.2±7.9, p<.001) with worse SPPB scores, 5.05±3.4 vs 8.5±3.0, p<.001. Of 48 participants queried about illness perceptions, 78.7% felt younger than actual age, but physically hindered by MCC. 58.3% thought of comorbidities independently rather than interrelated. **Conclusions:** The most common patterns of MCC were hypertension, hyperlipidemia, and 1 other disease. The most common patterns across organ systems were CV + one of 4 other systems (neurologic, musculoskeletal, GU or GI). Functional status by ADL/IADL was high, but by SPPB in a range associated with future loss of mobility (<9) and did not differ by pattern of MCC. Age was inversely associated with SPPB and those with positive MiniCog were older with worse SPPB. Greater appreciation of interrelationships among conditions may be important for reducing treatment burden and improving self-management.

D218 Student Presentation
Understanding Physical Elder Abuse: A theoretical model of predisposing risks, resilience factors, acute precipitants, and inciting events

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Background: Efforts to improve physical elder abuse identification, intervention, and prevention would benefit from a theoretical model to inform research and practice. While, previously proposed theoretical models have suffered by combining many types of elder abuse, focusing solely on physical elder abuse may increase the utility of a theoretical model.

Methods: We propose a new theoretical model to understand risk of physical elder that integrates previously proposed theories and existing evidence.

Results: Our model conceptualizes the risk of physical elder abuse to be impacted by: (1) predisposing risks (such as perpetrator mental illness, history of victimization, etc.), (2) resilience factors (such as social connections, availability of resources, etc.), (3) acute precipitants (new functional dependence, changes in finances, etc.) and (4) inciting events (arguments over household chores, finances, etc.). Each older adult has a baseline risk of abuse based upon predisposing risks and resilience factors. With the occurrence of acute precipitants, many of which may be related to progression of cognitive impairment and/or functional dependence, older adults may cross a threshold where physical abuse may occur and an inciting factor may result in physical abuse.

Conclusions: We hope that this theory of physical elder abuse will help facilitate future research and evidence-based prevention, screening, and harm reduction programs.

Figure 1: Threshold Model for Physical Elder Abuse with Case Example
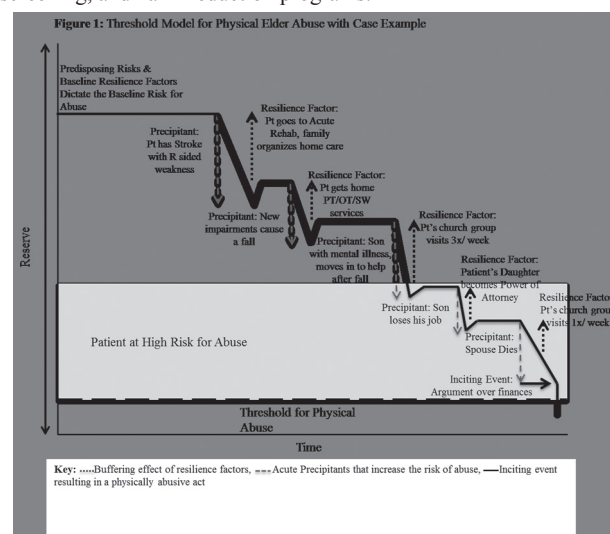
D219 Resident Presentation
Exploring the diagnostic performance of SARC-CalF-3 for sarcopenia screening amongst well community dwelling older adults.

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Background

The 5-item SARC-F scale has good specificity but poor sensitivity for sarcopenia detection. Addition of calf circumference measurement (SARC-CalF) may improve screening performance in clinical practice. Shortening SARC-CalF to a 3-item questionnaire was recently reported to reduce screening time whilst maintaining diagnostic value. We aim to compare diagnostic performance of SARC-CalF-3 versus SARC-CalF-5 as a screening tool amongst community dwelling older adults without functional impairment.

Methods

We studied 193 community-dwelling older adults (mean age: 67.9 ± 7.8 years) in the GERILABS cohort study. Gold standard sarcopenia diagnosis was based upon Asian Working Group for Sarcopenia (AWGS) criteria. Calf-circumference was combined with 5-item SARC-F in a 20-point scale (SARC-Calf-5). We removed "rising from chair" and "falls" items to combine with calf-circumference to form a 12-point scale (SARC-CalF-3). Receiver operating characteristic (ROC) curves and sensitivity(Sn)/specificity(Sp) comparison was done for sarcopenia diagnosis between SARCF, SARC-CalF-5

and SARC-CalF-3. We then compared standard and ROC-determined cutoffs for SARC-CalF-5 and SARC-CalF-3.

Results

Sarcopenia prevelance was 25%, 0.5%, 13.5% and 12.4% for AWGS, SARC-F, SARC-CalF-5 and SARC-CalF-3 respectively. Compared to SARCF (AUC 0.51,0.41-0.61), screening performance for sarcopenia was significantly improved with SARC-CalF-5 (AUC 0.68,0.59-0.77, p<0.0001) and SARC-CalF-3 (AUC 0.69,0.60-0.78, p<0.0004). Using standard cutoffs, both SARC-CalF-5 ($\geq$11:Sn22.9%, Sp 89.7%) and SARC-CalF-3 ($\geq$7:Sn12.5%, Sp95.2%) performed better compared to SARC-F (Sn2%, Sp100%). Sensitivity improved with use of ROC-determined cutoff for both measures compared to standardized cutoff (SARC-CalF-5, $\geq$3:Sn 62.5%, Sp73.8%; SARC-CalF-3, $\geq$4:Sn64.6%, Sp73.1%).

Conclusions

The SARC-CalF-3 offers ease of screening while maintaining the superior performance of SARC-CalF-5 compared with SARC-F for sarcopenia screening in well community dwelling older adults. The use of ROC-adjusted cutoffs further improved sensitivity with acceptable tradeoffs in specificity.

D220 Student Presentation
Geriatric Syndromes and Inflammation in Older HIV-infected Adults with Cognitive Impairment

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Background: Nearly half of the HIV-infected population in the US is now older than fifty years of age with at least 6% over the age of 65. Between 35-50% live with mild to moderate cognitive impairment. Older HIV-infected adults also have a substantial burden of non-AIDS medical conditions (HANA) and are at risk for frailty, geriatric syndromes, and early mortality compared to HIV-uninfected peers. We sought to define the magnitude of geriatric conditions and multimorbidity in HIV-infected adults over age 60 who are living with symptomatic cognitive impairment. In a subset of participants, we examine associations between these geriatric conditions and inflammation.

Methods: We recruited 141 participants from the HIV Elders Study at UCSF between 2013 and 2017 who were HIV-infected, virally suppressed, 60 years or older, and clinically diagnosed with Mild Neurocognitive Disorder (MND). We conducted standardized assessment of geriatric conditions and everyday function and investigated multimorbidity burden using the Veterans Aging Cohort Study (VACS) index.

Results: Among HIV-infected older adults with MND 58% report incontinence, 55% meet criteria for pre-frailty, and a substantial proportion report dependence with iADLs (52%) or ADLs (41%). The mean (SD) VACS Index score is 33 (14), suggesting a 13.8% 5-year all-cause mortality risk. Among geriatric conditions examined, the VACS index associates with neopterin, a marker of monocyte activation (p<0.010). No associations were found between neopterin or soluble (s) CD163 and other geriatric conditions.

Conclusions: HIV-infected older adults with symptomatic cognitive impairment carry a substantial burden of other geriatric conditions. Our work supports the need for comprehensive geriatric systems of care for cognitively impaired individuals aging with HIV.

D221 Student Presentation
Frailty, Physical Function Impairment, Comorbidity Burden, and Falls are Predictive of Mortality Among Middle-Aged Adults with HIV

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Background:

Higher than expected rates of frailty and functional impairment are described among people with HIV (PWH). Whether these impairments, particularly among middle-aged PLWH, are predictive of poor outcomes including death are not well established.

Methods:

PWH ages 45-65 with ART-suppressed HIV-1 RNA were evaluated in 2010-2011 (baseline) using the Fried Frailty Phenotype (composite, grip strength alone), Short Physical Performance Battery ([SPPB] composite, chair rise alone), 400-m walk, Veterans Aging Cohort Study (VACS) Index, and fall history. Medical records were reviewed in 2018 to determine participant vital status. Hazard ratios were used to estimate survival by baseline frailty, function, comorbidity burden, or falls, stratified by age $\geq$/<50 years. Patients without confirmed date of death were censored at last follow-up visit.

Results:

Of 351 participants, 299 (85%) identified as male, 52 (15%) as female, 16% were Black and 19% Hispanic. At baseline, the mean (SD) age was 51.5 (5.2) years and the majority (58%) had a CD4 count of >500 cells/μL. 23 (7%) were frail and 164 (47%) pre-frail, 103 (29%) had $\geq$1 fall in the prior year, 74 (21%) had an SPPB score of $\leq$10, 33 (9%) had a weak grip strength.. The mean time to complete 5 chair stands was 10.5 (4.5) seconds and 400m walk was 284 (78) seconds. All physical function measures except grip strength were associated with mortality (Table).

Conclusions:

In middle-aged adults with suppressed HIV, frailty, physical function, falls, and comorbidity burden (VACS Index) are associated with long-term mortality.

Baseline Test	Hazard Ratio (95% CI)
Frailty/pre-frailty (vs nonfrail)	3.16 (1.40, 7.32)*
Weak grip	1.24 (0.43, 3.55)
400-m walk time/30 sec	1.13 (1.50, 1.20)**
Chair rise score ≤3 (vs 4)^	2.80 (1.37, 5.76)*
SPPB (per 1 unit)	1.23 (1.07, 1.41)*
VACS Index/10 points	1.61 (1.28, 2.02)**
Falls in prior year	2.79 (1.38, 5.65)*

*p<0.05; **p<0.001; ^ ≤3 points corresponds to 11.2 seconds or slower

D222 Student Presentation
Geriatric Training Priorities and Barriers Among Health Care Professionals in a Rural and Remote State

A. Slosser, C. McKibbin, C. Carrico, M. E. Longstreth, K. A. Richardson, R. Barry. Psychology, University of Wyoming, Laramie, WY.

Background: Despite increasing numbers of health care consumers aged 65 and older, the United States faces a shortage of health care providers with expertise and training in geriatrics. Programs such as Geriatric Workforce Enhancement Programs (GWEPs), funded by the Health Resources and Services Administration, may address gaps in geriatric health care through training and partnerships with health care professionals and their older patients (Busby-Whitehead et al., 2016). Assessing needs, priorities, and barriers amongst participants comprises critical first steps in GWEP planning. **Methods:**

A paper-and-pencil needs assessment was issued by the Wyoming GWEP and was completed by health care professionals (*n*=83) state-wide. Descriptive statistics were calculated. **Results:** Most respondents held Baccalaureate (*n*=36, 43.4%) or Master's (*n*=22, 26.5%) degrees. Participants represented a variety of disciplines, including nursing (*n*=24, 28.9%) and mental health (*n*=17, 20.5%), and nearly one-third (*n*=25, 30.1%) worked in a primary care setting. Although most participants (*n*=60, 72.3%) characterized 75-100% of their patients as aged 65 or older, less than half (*n*=33, 39.8%) had received formal training in geriatrics. Frequently endorsed barriers to accessing geriatric training included distance (*n*=38, 45.8%) and travel expense (*n*=27, 32.5%), as well as cost (*n*=35, 42.2%) and time constraints (*n*=27, 32.5%) associated with trainings. Despite these barriers, 71.1% (*n*=59) of participants indicated geriatric trainings were "very important," and 45.8% (*n*=38) had received support or training from the Wyoming GWEP. Participants rated their interest in a variety of geriatric training topics (1="none" to 4="strong"). Alzheimer's disease (*M*=3.5, *SD*=0.7), anxiety and depression (*M*=3.5, *SD*=0.7), and ethics (*M*=3.4, *SD*=0.8) emerged as areas of highest interest. **Conclusions:** These findings are consistent with national reports of professionals with little formal training in geriatrics providing services to growing numbers of older adult patients. Health care professionals' responses point to a high need for specialty training in a variety of geriatric care topics, despite many barriers. These results underscore the need for continued support of programs that facilitate geriatric trainings, such as GWEPs, as well as innovative training opportunities and delivery methods.

D223 Student Presentation
Informal Caregiving Priorities and Barriers in a Rural and Remote State
A. Slosser, M. E. Longstreth, K. A. Richardson, R. Barry, C. Carrico, C. McKibbin. *Psychology, University of Wyoming, Laramie, WY.*

Background: Individuals with chronic illness or disability may require care that extends beyond paid health services. Often, this care is provided by family and friends, in the form of informal caregiving. Informal caregivers may struggle to identify and access supportive resources for themselves and their care recipient (Black et al., 2014), especially in rural and remote regions (Innes et al., 2011). Understanding the needs and barriers experienced by informal caregivers in rural and remote areas is essential for addressing service gaps in these communities. **Methods:** The Wyoming Center on Aging conducted a paper-and-pencil needs assessment among interested individuals (*n*=38) statewide. Of these, 16 identified as informal caregivers. Descriptive statistics were calculated, and qualitative analyses identified themes among open-ended items regarding barriers. **Results:** Respondents identified as informal caregivers for a friend or family member with a chronic illness (*n*=8; 50.0%), Alzheimer's disease or dementia (*n*=3, 18.8%), or both (*n*=5, 31.2%). Participants rated their interest in a variety of geriatric educational topics (1="none" to 4="strong"). Anxiety and depression (*M*=3.5, *SD*=0.7), Alzheimer's disease and dementia (*M*=3.3, *SD*=0.8), health behavior change (*M*=3.3, *SD*=0.8), and community resources (*M*=3.3, *SD*=0.8) emerged as areas of highest interest. Themes among barriers to improving quality of life for older adults in Wyoming included high costs of care, scarcity among resources, difficulty accessing resources, and limited knowledge of available resources. Similar themes were identified among barriers for informal caregivers, but stigma emerged as an additional theme. **Conclusions:** Understanding needs of informal caregivers is essential for designing and delivering high-quality interventions, particularly in rural and remote areas. Results identified a high priority for increasing education about topics such as anxiety and depression, Alzheimer's disease, and health behavior change. High interest in education about community resources complements findings regarding barriers, such as limited knowledge of and access to resources. These findings lend support to initiatives such as Geriatric

Workforce Enhancement Programs, which facilitate efforts to meet needs identified by informal caregivers.

D224 Student Presentation
Diabetes Mellitus and Alzheimer's disease and Related Dementia Care in Older Adults: A Systematic Literature Review
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Background: Forty percent of Americans are expected to develop type 2 diabetes mellitus (DM) within their lifetime, and up to one third of older adults with DM face co-occurring cognitive impairment and/or Alzheimer's disease and Related Dementia (ADRD). These co-morbidities create significant challenges in management for both patient and care partner, which is further compounded by a lack of consensus regarding optimal care. We conducted a systematic literature review to better characterize the evidence guiding care for older patients with DM-ADRD.

Methods: We used the PRISMA method to guide this systematic review. A specialized librarian searched PubMed (Medline) using relevant search terms related to the management of DM and ADRD. This process yielded 2,158 DM studies and 1,401 ADRD studies. We included studies that were applicable to adults over 60 years old, published within the past 5 years, conducted within a primary care setting and written in English. Our review returned 267 DM and 104 ADRD focused results, of which 50 DM and 40 ADRD studies were included after abstract and full text review requiring two expert votes. Additionally, through expert opinion, we identified an additional 40 DM and 60 ADRD studies for inclusion.

Results: Based on this evidence, we identified methods for screening, diagnosis and management of patients with DM and ADRD as well as general principles related to care partner support, geriatric care, geriatric syndromes and goals for blood pressure and lipid management.

Conclusion: A review of the literature suggested the importance of individualizing care while monitoring and managing care partner stress, geriatric conditions, cognitive changes, complication risks, and glycemic, blood pressure, and cholesterol targets in order to achieve high quality care. The next steps are to use this information to generate decisional guidance for providers of older adults with DM-ADRD.

D225 Student Presentation
End-of-Life Healthcare Utilization among Elderly Hispanics with and without a Diagnosis of Alzheimer's Disease and Related Dementias
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Background: Little is known about the patterns of end-of-life (EOL) health care for older Hispanics with or without a diagnosis of Alzheimer's disease and related dementia (ADRD). Our objective was to investigate the frequency of acute hospital admissions, intensive care unit (ICU) use, and ventilator use during the last 30-days of life of deceased older Hispanic Medicare Beneficiaries with and without an ADRD diagnosis.

Methods: We used Medicare claims data linked with survey information from 1,056 participants (mean age of death 85.1 years) of the Hispanic EPESE. Multivariable logistic regression models were used to estimate the odds for hospitalization, ICU use, and ventilator use in the last 30-days of life for decedents with ADRD compared to

those without ADRD. Generalized linear models were used to estimate risk ratio for length of hospital stay (LOS).

Results: Within the last 30-days of life, 64.5% of decedents had an acute hospitalization (59.1% ADRD, 68.0% no ADRD), 34.1% had an ICU stay (31.3% ADRD, 35.9% no ADRD), and 17.2% used a ventilator (14.9% ADRD, 18.6% no ADRD). ADRD was associated with significantly lower hospitalization (OR=0.66, 95% CI=0.50-0.88) and shorter LOS (RR=0.76, 95% CI=0.64-0.89).

Conclusion: Hospitalization, ICU stay, and ventilator use are common at the end of life for older Hispanics. The lower hospitalization and shorter LOS of decedents with ADRD indicate a modest reduction in acute care use. Future research should investigate the impact of EOL planning on acute-care use and quality of life in terminally ill Hispanic older adults.

D226 Student Presentation
Functional medication management challenges experienced by older adults living at home: A scoping review.
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1. Faculty of pharmacy, University of Alberta, Calgary, AB, Canada; 2. Faculty of Rehabilitation Medicine, University of Alberta, Edmonton, AB, Canada; 3. : Alberta Strategy for Patient-Oriented Research (SPOR) SUPPORT Unit Knowledge Translation Platform, University of Alberta, Edmonton, AB, Canada.

BACKGROUND:
Managing medications can be difficult for older adults while experiencing decline in their sensory and physical abilities. This can lead to increased risk of medication errors, poor adherence and early loss of independence. The purpose of this scoping review is to summarize the frequency and range of physical and sensory functional challenges experienced by older adults when managing medications at home.

METHODS:
The Arksey and O'Malley framework of scoping reviews was used. Searches of Medline, Embase, CINAHL PsycINFO, Conference Proceedings Citation Index and ProQuest Dissertations & Theses Global from 2000 through January 2018 were conducted. Studies included described physical or sensory challenges for those 65+ years who were taking medications at home. The study selection and data extraction were performed independently against published criteria by two reviewers.

RESULTS:
From a total of 4363 citations, 28 studies were included. Most publications included details about practical problems identified by older adults with medication use. The most common challenges with medication were with the use of oral medication packaging (n=11), pulmonary devices (n=11), eye drops (n=4) and injections (n=2). Majority of studies used performance based assessment (n=13) followed by interviews, surveys and questionnaires (n=9) and finally qualitative assessment (n=6).

CONCLUSIONS:
Older adults experience many practical difficulties when administering their medications at home; with oral medication packaging and pulmonary devices presenting the most challenges. As the Canadian population ages, increased support will be required to help older adults manage their medications as independently as possible.

D227 Student Presentation
Tools to assess functional medication management in older adults living at home: a scoping review.
H. Abed,[1] A. Jones,[2] L. Bialy,[3] M. Makowsky,[1] C. A. Sadowski.[1]
1. Faculty of pharmacy, University of Alberta, Calgary, AB, Canada; 2. Faculty of Rehabilitation Medicine, University of Alberta, Edmonton, AB, Canada; 3. Alberta Strategy for Patient-Oriented Research (SPOR), University of Alberta, Edmonton, AB, Canada.

BACKGROUND:
Older adults with physical and sensory decline can experience difficulty managing medications at home. This can lead to increased risk of medication errors, poor adherence and early loss of independence. The purpose of this scoping review is to map and identify gaps in the published tools designed to assess older adult's ability to manage their medications at home.

METHODS:
The Arksey and O'Malley framework of scoping reviews was used. Searches of Medline, Embase, CINAHL PsycINFO, Conference Proceedings Citation Index and ProQuest Dissertations & Theses Global from 2000 through January 2018 were conducted. Studies included described assessment tools to assess physical or sensory challenges for those 65+ years who were taking medications at home. The study selection and data extraction were performed independently against published criteria by two reviewers.

RESULTS:
From a total of 4363 citations, 15 studies were included. From these studies, 15 tools met the pre-defined criteria. These tools can be divided into two categories: performance-based tools using patient's own medications (n=4) or placebo medications/ simulated medication kits (n=7) as basis for assessment and questionnaire-based tools (n=4). The medication management skills assessed by the tools includes ability to identify medication, access medication from a package, comprehend instructions, recall information, and administer medication. Most of the tools (n=9) were designed for administration by a health care professional.

CONCLUSIONS:
Even though there are several tools reported in the literature, there is no gold standard tool to evaluate physical and sensory functional limitation with older adults managing their medications at home. Many gaps in patient self-management can be identified in the existing tools that assess functional medical management. Healthcare professionals should be encouraged to use a validated tool to assess older adult's ability to manage medication independently so that early deficits can be recognized and supportive interventions can be developed.

D228 Resident Presentation
Finding Bright Lights in delivering End of Life Care in the Veteran Affairs Health system: the Importance of Background Luminescence
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BACKGROUND VHA has made substantial investments in improving EOL care since 2008. As a learning organization, VA identifies high performers ("bright lights") to elicit effective practices. We hypothesized that WHERE a VA medical center was located could affect its performance on EOL care measures, which have substantial geographic variation.

METHODS *Populations*: All VA decedent users, and all VA decedent users age 65+ enrolled in Medicare (MC). Comparator population: MC Fee for Service decedents age 65+ from the MC 5% file, standardized to the VA decedent user population. *Years*: 2008-2014. VAMCs were mapped to their corresponding Dartmouth Atlas Health Referral Region (HRR).

EOL Measures: % Hospice, % late hospice, % hospital death, community days in last 180 days.

Impact of HRR on EOL measures determined by linear, panel and quantile regression, with age, race and gender as covariates.

Results Compared to MC FFS beneficiaries, by 2014 Veterans had equivalent use of hospice (51%), less use of late hospice (10% vs. 21%), fewer in-hospital deaths (19% v 21%), equivalent Community days (141.3 v 141.6). In panel analysis, HRR, age 85+, and year were significant, with positive trends in all measures. The HRR % explained 61-65% of variation in VAMC hospice use, 54-59% of in-hospital death, and 51-55% of Community Days, depending on year. Nearly half of the VAMCs with performance most above their HRR background were below average VHA performance. (Fig)

Conclusion Location matters. Some VAMCs who perform best compared to their local markets are below average VHA performance on EOL measures. As value becomes more integral to payment and performance incentives, local benchmarks should be used to identify the highest performers.
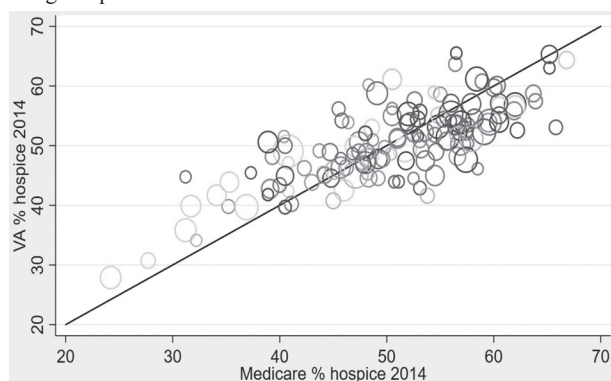
D229 Student Presentation
Factors associated with de-prescribing acetylcholinesterase inhibitors (AChEIs) in older nursing home (NH) residents with severe dementia

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Background: Despite evidence that use of AChEIs in severe dementia has limited utility and potential for adverse events, deprescribing of these agents remains inconsistent and deprescribing practices are poorly understood. We sought to identify which patient, provider, and system-level factors are associated with de-prescribing.

Methods: Analysis of 2015-16 data from Medicare claims, Part D prescriptions, Minimum Data Set v3.0, Area Health Resource File, and Nursing Home Compare. The sample consisted of non-skilled NH residents aged ≥65 with severe dementia receiving AChEIs within the first 14 days of NH admission (n=37,106). Cox-proportional hazards models with time-varying covariates were used to identify patient, provider, and system-level factors associated with de-prescribing, defined as ≥30-day gap in AChEI supply, accounting for censoring due to death, discharge, and end of data.

Results: The sample was primarily white (78.7%), female (75.5%), and ≥80 years old (77.4%) with median follow-up time of 187 days. The most commonly prescribed AChEI was donepezil (77.8%) followed by transdermal rivastigmine (14.6%), oral rivastigmine (4.1%), galantamine (2.2), and donepezil/memantine (1.3%). The de-prescribing rate was 20.4%. Factors associated with increased likelihood of de-prescribing were new NH admission, older age, difficulty being understood, aggressive behavior, poor appetite, weight loss, mechanically altered diet, limited prognosis designation or hospice use, hospitalization in 90 days prior, antidepressant use, benzodiazepine use, and northeastern region. Factors associated with decreased likelihood of deprescribing included memantine, use of strong anticholinergics, polypharmacy, rurality, and primary care prescriber vs. geriatric specialist.

Conclusions: De-prescribing AChEIs was associated with patient, provider, and system-level factors. Our findings provide insight into potential drivers of de-prescribing AChEIs, identify system-level barriers to de-prescribing, and help to inform covariates that are needed to address potential confounding in studies evaluating the potential risks and benefits associated with de-prescribing.

D230 Resident Presentation
An Analysis of Shared Decision Making for Atrial Fibrillation following the Medicare Mandate for Left Atrial Appendage Closure

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Background
Older adults with atrial fibrillation (AF) face complex decisions for stroke reduction therapy, including anticoagulants and left atrial appendage closure (LAAC). The Centers for Medicare and Medicaid Services national coverage decision mandated *"a formal shared decision making interaction with an independent non-interventional physician using an evidence-based decision tool on oral anticoagulation in patients with non-valvular AF prior to LAAC… documented in the medical record."* However, little is known about how this mandate is being implemented in clinical practice.

Methods
We conducted a retrospective chart review of shared decision making (SDM) documentation for all patients who received a percutaneous LAAC procedure in a tertiary hospital following implementation of the mandate (CAG-00445N) through November 2017. Analysis of SDM documentation included identifying if the mandate criteria were met, including: 1) documentation by a non-proceduralist, 2) ocurrence prior to the procedure, 3) use of an evidence-based decision aid for oral anticoagulation, 4) documentation of inability to tolerate long-term oral anticoagulation, and 5) documentation in the electronic medical record.

Results
We reviewed the medical record of 47 sequential patients electing to proceed with percutaneous LAAC. All charts had some form of SDM documented; however, the majority did not have explicit documentation of SDM by a non-proceduralist. No decision aids specific to LAAC closure were utilized; instead, either the CHADS2-VASc and HAS-BELD scores were cited in all cases. Alternatives to LAAC were discussed, but in no case did documentation include "no treatment" as an option for stroke prevention. Documentation of patient values, quality of life and goals of care were included in 15% of discussions.

Conclusions
SDM has the potential to help patients and families engage in more informed decisions about stroke reduction therapy in atrial fibrillation. However, review of documentation raises several questions regarding the quality of these discussions. As older adults are increasingly being presented with invasive options, it is important to determine the optimal approach to assure that patients are truly aware of the risks and benefits of the therapy.

D231 Student Presentation
Nurse Practitioner Involvement in Medicare Accountable Care Organization: Impact on Quality of Care

N. Huang, Y. Lin, M. Raji, J. Goodwin, Y. Kuo. *University of Texas Medical Branch, Galveston, TX.*

BACKGROUND

Evidence showed that Nurse Practitioners (NPs) improve processes of care for elders with chronic diseases, but it is unclear how NP participation in Medicare Accountable Care Organizations (ACOs) affects quality of care for ACO enrollees. We examined the 3-year trend (2014-2016) and outcomes of NP's involvement in ACOs.

METHODS

Our study focused on ACOs in Medicare Shared Savings Program (MSSP). We used data from ACO provider and beneficiaries' files, Medicare provider/outpatient claims, and ACO 2014-2016 performance data. Three levels of NPs' scope of practice/prescribing were determined using publicly available data. For each ACO, we calculated FTE (from Evaluation and Management services) per 10,000 beneficiaries for MD-PCPs and for NPs separately. Data was analyzed for ACO characteristics and care quality/medical utilization measures, stratified by tertiles of NP involvement. Three different generalized estimating equation models (with incremental adjustments for patients, providers and ACO factors) were used to examine the association between NP involvement and care quality/medical utilization measures.

RESULTS

MSSP ACOs increased from 331 in 2014 to 432 in 2016, mostly in rural areas. NPs' involvement increased more substantially than MDs' during the period. NP involvement was the highest in larger ACOs, rural areas, and states with unrestricted NP practice regulations. Greater NP involvement was associated with fewer readmissions and higher scores on measures of preventive care, chronic disease management, and medication management. Higher NP involvement was associated with fewer MD services, more non-MD services, and more outpatient emergency department visits.

CONCLUSIONS

Higher NP involvement in ACOs was associated with improvement in some quality of care measures but with increase in emergency department visits. With NP's growing scope-of-practice and involvement in ACOs, more research is needed to understand NP's role in processes and outcomes of care.

D232 Student Presentation
Assisted Living Regulation: Physician Involvement in Resident Admissions

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Background

Physicians are highly involved in nursing home resident admissions; they are required to provide an initial assessment to determine level of care needs and inform clinical care plans. It remains unclear, however, what role a physician assumes at the time of resident admission into assisted living (AL). While AL residents generally require less medical care than residents of nursing homes, researchers suggest many individuals enter AL with memory impairment and other ongoing health problems. In this study, we examined state regulatory requirements pertaining to the physician role at time of AL resident admission, the variation of this role from state to state, and how this role has changed over time.

Methods

We sourced state-level regulations concerning AL resident admission using NexisUni. We coded the regulatory text to determine whether states required an admission assessment, whether the assessment must be performed by a physician, and what the assessment must include. We plotted amendments from 2007-2017 to analyze state adoption trends.

Results

Of the states sampled (N=20), 85% required a resident assessment to be performed as part of the admissions process. Among these states, most (94%) provided explicit statements about the time limit for admission assessment (e.g., no later than 30 days post-admission). Some states required that the assessment provide a current list of diagnoses and medications and report presence of Alzheimer's disease or a related disorder. Of the states that required a resident assessment, 29% required that the assessment be performed by a physician, while 42% allowed the assessment to be performed by any health care practitioner. We found no amendments to these regulations from 2007-2017.

Conclusions

Physician role at the time of resident admission into AL is variable. While many states require physician involvement, it remains unclear what the scope of this role entails. Given the continued growth of AL and diversification of resident population, continued focus on the role of physicians is needed and the development of practice guidelines should be considered. In our future research we will examine the association between physician role and resident outcomes.

D233 Resident Presentation
Do Not Resuscitate: What does it mean?

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Introduction: Do-Not-Resuscitate (DNR) patients in the acute setting experience significantly poorer outcomes compared to non-DNR patients. So, is it ethically right to provide aggressive medical care for the DNR population despite high mortality? This study was conducted to investigate the outcomes of patients with DNR status on admission.

Methods: Single center, retrospective cohort analysis of 538 patients with DNR orders on hospital admission from January 1 to June 30, 2017 at Saint Barnabas Medical Center. Demographics, comorbidities as well as outcomes such as palliative care use, critical care interventions, length of stay, cost and mortality were extracted from the electronic medical record. Chi-square and independent sample t-tests were used to calculate significance, with a 95% confidence interval.

Results: A total of 12572 patients were admitted, of which 538 were DNR (4.28%). All-cause mortality was 2.05% (258/12572) versus 24.5% (93/538) in the DNR cohort. Palliative care, hospice and chaplaincy services were all severely underutilized (45.2%, 29.2%, 32.5% respectively). Overall, hospital length of stay (LOS) was 7.5d, with alive patients having significantly longer LOS than those that died (6d vs 5d respectively, p=0.003); total cost of hospitalization was higher in patients who died but results were not statistical significant ($13,606 in dead vs $12,839 in alive, p=0.20). Mortality was significantly higher in those requiring ICU admission, (54/89, 60.1%), [OR 7.34], renal replacement therapy (8/15, 53.3%), [OR 3.68], mechanical ventilation (37/45, 82.2%), [OR 19.38], P-value<0.001], non-invasive mechanical ventilation (40/99, 40.4%), [OR 2.56], and vasopressors (27/35, 77.1%), [OR 12.79].

Conclusion: Our analysis reveals that only a minor fraction of patients have DNR orders on admission, and these patients were 12 times more likely to die during hospitalization, especially if they required aggressive interventions. Early goals-of-care discussions are prudent necessitating a significant cultural change so that appropriate resources can be allocated to alleviate pain and suffering while providing comfort care at the end of life.

D234 Student Presentation

Family Caregiving Networks in the Context of Hospice Utilization

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Background

Hospice care confers well-documented benefits to patients and their families, but it is underutilized: many patients do not use it at all or enter care too late to receive value. Unpaid family caregivers comprise the majority of caregivers, yet knowledge about how the family unit influences hospice enrollment at the end of life is limited. Here, we assess how amount of family caregiver support before death affects hospice utilization. We hypothesize that increased family support (measured by total hours of unpaid care) is associated with increased hospice use.

Methods

This is a prospective cohort study using data drawn from the National Health and Aging Trends Study (NHATS) waves X-Y, linked to Medicare claims data. NHATS drew a random sample of individuals ages 65 years and older, representing 96% of all older adults in the U.S. The analysis examined the association between total hours of unpaid care received and likelihood of hospice use using a multivariable logistic regression model adjusting for key demographic, clinical and functional characteristics. Analyses were conducted for all individuals who received help before death and stratified by disease type. All analyses adjusted for NHATS sample weights.

Results

We identified 1,532 individuals who died within 1 year and received help with self-care, mobility, medical, or household activities from any type of caregiver (paid or unpaid). On average, decedents who did not use hospice reported 2.21 caregivers in their network, while those who did use hospice reported 2.43 caregivers. Our unadjusted model showed an association between receipt of 40+ hours of unpaid care and subsequent hospice use (OR 1.455, p=0.001), but this relationship was no longer significant in adjusted models. Among decedents with a cancer diagnosis, 40+ hours of unpaid care was associated with subsequent hospice use (OR 1.802, p=0.04).

Conclusions

Other than those individuals with cancer, we did not see an association between caregivers support and subsequent hospice use. This suggests that family caregiver support is not driving hospice use overall. Future research should examine what other aspects of caregiver network and availability may be associate with hospice decision making. Better understanding of disparities in hospice use can facilitate timely access to care for older adults with serious illness who can benefit from hospice at end of life.

D235 Student Presentation

Health Care-Seeking Behaviors of Medicare Beneficiaries with Functional Hearing Loss

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Background Hearing loss has implications on poor health outcomes. This study explores the consequences of functional hearing loss on health access through the health care-seeking behaviors of older adults.

Methods This is a cross-sectional cohort study of a nationally-representative sample of community-dwelling Medicare beneficiaries using the 2015 Medicare Current Beneficiary Survey. Functional hearing loss was identified from self-reported trouble hearing. Multivariate logistic regression analyzed outcomes including perceived delay in accessing care, seeking immediate care, disclosing illness to others, worrying about health, avoiding treatment, and attempting to seek care for the delayed problem.

Results Of the 10,848 participants included in the study, 4,429 (40.8%) had a little trouble hearing and 801 (7.4%) had a lot of trouble hearing. Controlling for predisposing characteristics, enabling factors, and perceived need for care, participants with a little (OR=1.61; 95% CI=1.33-1.95, p<0.0001) or a lot of trouble hearing (OR=2.01; 95% CI=1.44-2.80, p<0.0001) were found to have significantly greater odds of delaying health care. Conversely, those who reported hearing aid use had significantly decreased odds (OR=0.55; 95% CI=0.39-0.78; p<0.001) of delaying health care as compared to those with no trouble hearing.

Participants with a little trouble hearing had decreased odds of seeking medical attention immediately upon feeling sick (OR=0.77; 95% CI=0.68-0.88; p<0.0001) and increased odds of keeping information about illness to themselves (OR=1.15; 95% CI=1.01-1.33; p<0.05). No significant differences in odds were found in functional hearing loss and worrying about health, avoiding treatment, and attempting to obtain care for the delayed problem.

Conclusions Hearing loss is independently associated with a perceived delay in accessing health care, and there may be systematic deterrents that contribute to the perceived delay. Hearing aids may improve these health care-seeking behaviors among Medicare beneficiaries with hearing loss.

D236 Student Presentation

A Social Network Analysis of Nursing Home Medical Staff Organization

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Background: Medical staff (physicians (MDs), nurse practitioners and physician assistants (NPPAs)) practicing in a nursing home (NH) provide medical management of NH residents' conditions. The commitment, communication and interactions that underlie Medical Staff Organization (MSO) in US NHs may influence quality of care and resident outcomes. An important first step for exploring the relationship between MSO and resident outcomes is identifying a valid and feasible approach for measuring MSO. The study objective was to develop claims-based measures of MSO using resident-sharing networks among NH primary care providers (PCPs) and validate those measures by comparing to surveys of NH MSO.

Methods: The cohort was a nationally representative sample of 1,467 NHs with surveys of MSO conducted in 2009-2010. Medicare Part B claims of PCPs for care of residents in these NHs were used to define NH specific networks in which links between two PCPs were identified if they had claims for the same resident within 60 days. We measured network density (overall connectivity), centralization (the extent to which resident-sharing was concentrated among only a few PCPs) and MD-NPPA co-management (the likelihood of resident-sharing between MDs and NPPAs). We expected that density, centralization and co-management would be positively correlated with survey-reported closed practice model, medical director engagement, and NPPA involvement, respectively. Beta regression models were used to test these associations controlling for NH characteristics.

Results: On average, a NH network had 15 PCPs and 20 resident-sharing links, resulting in a mean density of .20 (range 0-1), centralization of .41 (range 0-1) and likelihood of MD-NPPA co-management of .22 (range -1 to 1). Mean density was 5% (P-value=.10) higher in NHs with closed versus open practice model. Mean centralization was 25% (P-value<.001) higher in NHs with strongest versus weakest medical director engagement. Mean likelihood of MD-NPPA co-management was higher by 3% (P-value<.001) with one unit higher ratio of number of NPPA visits to physician visits.

Conclusions: Resident-sharing networks estimated from claims data provide meaningful information about NH MSO. These network measures can be used to examine the impact of NH MSO on resident outcomes across all NHs and over time.

D237 Student Presentation
Longitudinal Associations Between Loss of Activities of Daily Living and Mental Health Status Among Patients in Medicare Managed Care

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Background: Although there is a strong cross-sectional association between independence in Activities of Daily Living (ADLs) and mental health, it is largely unknown how the loss of specific ADLs, or the combination of ADLs, influences mental health outcomes. We hypothesized that each ADL impairment would, after adjusting for covariates, have a roughly equal effect on declines in mental health among participants in a large survey of Medicare Managed Care recipients.

Methods: We analyzed 144,662 participants in Cohort 17 of the Medicare Health Outcomes Survey. Participants completed baseline and follow-up surveys in 2015 and 2017, respectively. Linear regression models estimated the effects of loss of ADL independence on change in Mental Component Summary (MCS) score.

Results: Across all ADLs, there was an adjusted decrease in MCS for each ADL lost ranging from 0.6 to 2.9 on a 100-point scale. All the coefficients were highly statistically significant ($p < 0.001$). Loss of independent ability to eat (2.9-point decline), to bathe (2.6-point decline), and to toilet (1.4-point decline) showed the greatest declines in MCS score. We also analyzed a summative loss of ADL function. MCS decreased by 1.3 ($p < 0.001$) for each additional loss of ADL independence. The coefficients suggest a substantial effect on mental health outcomes. In another Medicare Managed Care sample, each one-point decrease in MCS was associated with 7% higher healthcare expenditures and 15% greater rate of hospital inpatient visits[1].

Conclusion: Loss of ADL independence was associated with large declines in mental health, with three ADLs (bathing, toileting, and eating) showing the largest effects. Additional research can help to characterize the causes of ADL loss, to explore how older adults cope with it, and to identify ways of maximizing resilience during it.

References

[1] Group HSA. Report on a Longitudinal Assessment of Change in Health Status and the Prediction of Health Utilization, Health Expenditures, and Experiences with Care for Beneficiaries in Medicare Managed Care. 2006.

D238 Student Presentation, Encore Presentation
The effect of sleep disordered breathing on cognitive function in patients with normal pressure hydrocephalus

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Background: Both normal pressure hydrocephalus (NPH) and sleep apnea (SA) are associated with cognitive deficits.[1,2] The former specifically in executive function, memory and attention domains.[3] We wanted to explore the specific cognitive domains affected in NPH patients with and without SA.

Hypothesis: Patients with both NPH and SA have lower scores in attention, memory and recall domains of the Montreal Cognitive Assessment (MoCA) test.

Methods: A retrospective chart review of patients with presumed NPH who were admitted to The Johns Hopkins Hospital between the years 2016 and 2018 for extended lumbar drainage (ELD). All patients were administered the MoCA and 33 obtained polysomnograms.

Results: Analysis was performed using STATA 15.1. Independent variable was SA and dependent variable was individual MoCA domain scores. Covariates include demographic and anthropometric measurements. In our sample 52.7% were male, 83.3% white.

26 (73.3 %) had polysomnograms. 69.2% had SA (apnea hypopnea index of more than 5 per hour).

We used unpaired t-tests to analyze differences in MoCA scores in patients with and without SA. Visual spatial p=0.22, Naming p=0.35, Attention p=0.41, Language p=0.49, Abstraction p=0.28, Recall p=0.88, Orientation p=0.79.

Conclusion: In patients with NPH, there was no statistically significant difference in MoCA scores in those with sleep apnea.

Our results suggest that sleep apnea does not affect cognition in patients with NPH.

Bibliography

1. Lal C et al. Neurocognitive impairment in obstructive sleep apnea.

Chest. 2012;141:1601-10.

2. Attier-Zmudka J et al. Normal Pressure Hydrocephalus, Sleep Apnea syndrome and quality of life in an octogenarian. J Am Geriatr Soc. 2016;64:1922-3.

3. Picascia M et al. Spectrum of cognitive disorders in idiopathic normal pressure hydrocephalus. Functional Neurology. 2016;31:143-7.

D239 Student Presentation
Depression, Anxiety and Postoperative Cognition in Older Adults

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Background: Up to 40% of older adults undergoing surgery are at risk of developing postoperative cognitive dysfunction (POCD), generally defined as a > 1 or 2 standard deviation (SD) drop in cognitive performance from before to >1 month after surgery. Older adults also frequently develop postoperative delirium, an acute form of cognitive impairment that is associated with preexisting depression. Whether depression is associated with POCD is less clear. Thus, here we evaluated the association between POCD and depression/anxiety symptoms in older adults.

Methods: 110 non-cardiac surgical patients age 60+ were enrolled as part of a prospective observational cohort study. Quality of life (QOL) and cognitive testing was administered at baseline and 6 weeks +/-3 weeks after surgery. The Center for Epidemiologic Studies-Depression and State-Trait Anxiety Inventory-State scales were included to measure depressive and anxiety symptoms, respectively. Cognitive scores were combined by factor analysis into four cognitive domains, and the means of these domain scores yielded the continuous cognitive index (CCI), a representation of overall cognitive function. POCD was treated as a dichotomous outcome defined as 1-SD drop from before to 6 weeks after surgery in ≥1 cognitive domain; CCI was measured before and 6 weeks after surgery.

Results: Of 103 participants with complete data, 27.2% (n=28) met criteria for POCD. Baseline measures of anxiety and depression were not correlated with CCI change from before to after surgery across all patients. However, specifically in those patients with POCD, there were significant Spearman's correlations between CCI change and both baseline depressive symptoms ($r =.60$, p<.001) and change in depressive symptoms ($r =-.59$, p=.001).

Conclusions: Our findings suggest that in patients with POCD, baseline depression severity is predictive of cognitive impairment 6 weeks after surgery. Future POCD research in older adults should incorporate depression screening measures and adjust for baseline depression severity.

D240 Student Presentation
Implementation of evidence-based therapeutic practices for assisted living residents with dementia

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Background: The majority of persons with dementia display reactions to the environment (also called behavioral and psychological symptoms of dementia; BPSDs) that indicate a mismatch between environmental demands and the ability to cope. Reactions include agitation, apathy, and depression, and are sometimes treated with off-label medications rather than practices aimed to modify the environment. One reason evidence-based practices are rarely used is because there are no "how-to" guides to inform care. Because dementia is common in assisted living (AL), and previous research found AL staff are not familiar with such practices, this project developed a guide for the implementation of four evidence-based practices and evaluated implementation in four AL communities. Results have implications for care in the nation's 30,000 AL communities.

Methods: We conducted a focus group with administrative staff of four AL communities to identify the practices they wanted to implement. We then conducted a literature search to identify literature that showed a positive effect using the practices, and compiled the methods into an evidence-based guide for implementation. Staff were trained in implementation, and implementation was monitored for two months by interviewing the staff who oversaw care. In addition, residents' families were interviewed.

Results: AL staff identified four practices of interest: aromatherapy, natural light, music, and robotic pets, which were developed into a user-friendly "how-to" guide for implementation. Families (N=148) were familiar with aromatherapy and music (roughly 75% of families), and a similar percent supported use of the practices. Staff reported using aromatherapy with half of the residents, robotic pets with one-third, and music and light therapy with fewer than 20%. They reported aromatherapy was "somewhat" successful, natural light "quite" successful, and music and robotic pets "extremely" successful in lessening behaviors. Common barriers to use included difficulty keeping aromatherapy diffusers out of residents' reach, staff burden for light therapy, and residents' being afraid of the pets.

Conclusion: Therapeutic practices can be implemented in AL communities, but if they are to be widely used, attention must be given to staff perceptions and burdens.

D241 Student Presentation
The Effects of Stimulation of Innate Immunity with CpG-ODN in a Tauopathy Mouse Model, rTg4510

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Background: Alzheimer's disease (AD) is the most common form of dementia affecting 5.7 million individuals in the U.S. alone. While treatment approaches have predominantly focused on the reduction of amyloid beta plaques, there has been a concerted shift to also target tau pathology, another major pathological marker of AD. There is no current treatment for AD, however profound efforts have been made in developing an immunotherapy approach. We have focused on activating Toll-like receptor 9 (TLR9), a stimulatory receptor of the innate immune system, in attempts to ameliorate the immune system's dysfunctional clearance. Our earlier studies revealed that stimulation of the innate immunity via TLR9 agonist, CpG ODN, in 3xTg-AD mice can alleviate all pathological hallmarks of AD (Ab, tau, CAA) and improve behavioral deficits without toxicity. Given the importance of tau related pathology, we designed an experiment to more directly determine the effect of CpG-ODN on tau pathology. This was done through rTg4510 mice, a tauopathy mouse model which develops robust forebrain tangle pathology without concurrent amyloid pathology.

Methods: The rTg4510 mice were injected with either the TLR9 agonist Class B CpG-ODN or saline at monthly intervals (3 to 11 months of age). After the treatment period, immunohistochemistry and biochemical analyses (western blot) were performed. Peripheral immune response analyses (Th1/Th2 Luminex technology) are underway.

Results: Histological evaluation of CpG-ODN effect on hippocampal and cortical brain regions revealed region specific reductions in PHF1 and MC1 immunoreactivity in CpG-ODN treated animals. Preliminary western blot analyses showed a significant reduction in total PHF1 phospho-tau levels (low-speed supernatant fraction) in the CpG-ODN-treated group in comparison to the saline-treated animals. Additionally, CpG-ODN treatment was not associated with increased insoluble tau pathology in sarcosyl fractions. Unlike previous attempts to simulate innate immunity, our method of immunomodulation demonstrated a modest, yet beneficial, effect on tau related pathology.

Conclusions: Overall, the present findings, together with our earlier research, demonstrate promising preclinical evidence for the potential use of TLR9 ligand CpG ODN as a disease modifying drug for Alzheimer's disease and other tau related dementias.

D242 Student Presentation
Mood, Cognition, & Motor Effects of Hormone Replacement Therapy In Women with Parkinson's Disease

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Parkinson's disease (PD) is a neurodegenerative disease of central nervous system dopamine depletion that has a greater prevalence in men. Estrogen is thought to be neuroprotective and as such, may attenuate the debilitating motor, cognitive, and mood symptoms associated with PD in women. Existing literature shows positive effects of hormone replacement therapy (HRT) on motor symptoms in PD, but the effects of HRT on mood and other non-motor symptoms in PD women are inconclusive. While estrogen use has demonstrated a serotonin-modulated anti-depressant effect in non-PD women, it is hypothesized that dopamine may predominantly modulate depression in PD, yet the effects on other mood and cognitive symptoms are unknown. Therefore, the objective of this study was to evaluate differences in mood and cognitive symptoms in women with PD on or off HRT (PD HRT+/PD HRT- respectively).

Twenty-six PD HRT+ and seventeen PD HRT- participants completed a questionnaire characterizing hormone replacement therapy use. Participants completed self-report measures of mood (i.e., depression, anxiety and apathy) as well as cognitive and motor evaluations. Statistical analyses included independent t-tests, Mann-Whitney U tests, and linear regressions.

Results revealed PD HRT+ women were significantly more depressed (p=0.023), but exhibited similar levels of anxiety (p=0.75) and apathy (p=0.69) compared to PD HRT- women while controlling for age. Furthermore, PD HRT+ women exhibited poorer (trend) attention (p=0.055), and better (trend) motor skills (p=0.079) while controlling for age and depression.

While there was a trend improvement in motor function with HRT, overall, this study did not confirm a neuroprotective effect of HRT on mood, cognitive, or motor symptoms in PD. In contrast, HRT appears to have a negative effect on depression and possibly on cognition/attention. Our results may reflect a difference in how estrogen interacts with reduction of dopamine in PD; future work to explore this possibility is warranted. Though the lower PD prevalence in females suggests a protective effect of endogenous estrogen prior to developing PD, it may be that exogenous estrogen use in PD women only offers additional protection limited to motor function, while at the expense of deleterious mood and cognitive effects

D243 Student Presentation, Encore Presentation
Mental Health and Elder Abuse among Congregate Meal Participants in NYC

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Background: Elder abuse is prevalent yet no studies have examined elder abuse rates and correlates in community-dwelling adults receiving congregate meal services. This study sought to determine the rates of and factors associated with self-reported elder abuse among congregate meal participants (CMP). We predicted: 1) higher rates of self-reported elder abuse among CMP compared to those described in prevalence studies; 2) analogous elder abuse correlates to those described in the literature; and 3) higher rates of depression, anxiety, and hoarding behavior among CMP who self-reported elder abuse compared to those who did not.

Methods: Cross-sectional data were collected from one-time surveys administered in-person at 8 New York City senior centers to community-dwelling adults ages 60+ (N=244) who spoke English (66.4%), Spanish (10.7%), Chinese (16.0%), or Russian (7.0%). Participation was offered to all attendees of the centers Bivariate and multiple logistic regression analyses were conducted to identify factors independently associated with elder abuse.

Results: One in six (16.7%) of CMP self-reported elder abuse. Mental illness, social isolation, and mobility limitations correlated with elder abuse, while living with others, lower income, cognitive impairment, and poor physical health did not. Further, CMP who reported abuse had significantly higher rates of depression (44% vs. 14%; p<0.001), anxiety (33% vs. 8%; p<0.001), suicide risk (33% vs. 7%; p<0.001), and hoarding behavior (44% vs. 17%; p<0.001) compared to CMP who did not report abuse. In the multivariable models, anxiety (OR=3.233; p=0.029), hoarding behavior (OR=4.484; p<0.001), and social isolation (OR=3.968; p=0.030) remained as independent predictors of elder abuse, while depression did not (OR=2.351; p=0.078).

Conclusions: This study documents a high prevalence of elder abuse in community-dwelling adults receiving congregate meals. These findings highlight the need to understand differences among victims and tailor interventions appropriately. Further, signs of anxiety, social isolation, and/or hoarding behavior among older adults who utilize congregate meal services represent potentially important indications for elder abuse screening among these adults at congregate meal sites.

D244 Student Presentation
Can Machine Learning Predict Electroconvulsive Therapy (ECT) Efficacy in Older Adults?

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Background: Despite high ECT efficacy, some older patients' depression may not respond to standard protocols. Our study sought to retrospectively identify patients as ECT-responsive prior to treatment.

Methods: We trained a decision tree classifier to predict patients as depression remitters after a course of ECT. We used subject data from the Consortium for Research in ECT Continuation (CORE) trial to train the model (n=298, mean age = 56), and the Prolonging Remission in Depressed Elderly (PRIDE) trial to externally validate the model (n=172, mean age = 70). Both trials included a standard course of ECT to achieve depression remission, and these data were used for developing a model to predict post-ECT remission. We identified 36 common baseline variables including demographics, Hamilton depression scale scores, and neurocognitive testing. The model was internally validated using 5-fold cross-validation, which splits the CORE training dataset into 5 portions, and uses 4 portions to train the model and 1 portion to validate the model. This is performed on all 5 portions. The model was externally validated by training the model using the CORE dataset, and then predicting the outcomes of the PRIDE dataset. The accuracy, sensitivity, specificity, positive predictive value (PPV), and negative predictive value (NPV) of both validations were primary outcomes measured.

Results: See table.

Conclusions: Using the PRIDE validation data, a negative test result indicates a patient is twice as likely as being ECT resistant compared to a positive result (9.6% vs 19.2%; 9.6% = 1 – PRIDE PPV); however, large variances in specificity and NPV in the internal cross-validation suggest a lack of ECT-resistant data. Our approach applied to larger datasets may yield insights that avoid ineffective ECT protocols for certain patients and achieve faster remission. We were limited by the small number of subjects, variables available for model development, and differences in ECT parameters between the trials.

Results

Metric	CORE (Internal Cross Validation; MEAN(SD))	PRIDE (External Validation)
Accuracy	74.5% (5.7)	58.1%
Sensitivity	81.6% (4.9)	57.4%
Specificity	35.3% (18.4)	62.5%
Positive Predictive Value (PPV)	87.0% (3.6)	90.4%
Negative Predictive Value (NPV)	29.2% (19.6)	19.2%

D245 Student Presentation
Museum-based Art interventions for people with dementia and their caregivers: A systematic review

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Background: Since the program "Meet me at the MOMA" inspired a world-wide movement of museum-based art therapy programs for people with dementia, several studies have evaluated the impact of these programs on dementia-related outcomes. There has not yet been a systematic review specific to outcomes of museum-based programs for people with Alzheimer's Disease and related dementias and their caregivers.

Methods: With the assistance of a medical librarian, we constructed a comprehensive search of Scopus, PubMed, PsychInfo, and Embase. We also hand searched grey literature and references from previous papers. Titles and abstracts were screened by at least two independent reviewers. We included articles from all years in English or Spanish on museum-based or art gallery- based programs for older individuals with dementia or Alzheimer's disease that reported qualitative or quantitative data related to participant or caregiver outcomes. We excluded interventions that utilized only music, literary, and performance arts and programs in medical care settings or nursing homes. Details abstracted from full text review by two reviewers summarize setting, sample size, design, population, description of intervention, description of outcomes.

Results: Our search returned 1751 results, 509 were duplicates and 1241 underwent title/abstract review. 35 articles met criteria for full-text review, and of those, 14 met criteria for data abstraction. Most studies relied on qualitative methods to describe themes, and only seven utilized mixed-methods. When quantitative outcomes were reported, various scales were used to measure quality of life for participants and caregivers, apathy, mood, cognitive status and satisfaction. Control groups were only used in four studies, two included pre-post designs, one included a randomized wait-list control, and one used unstructured social activity with no art involved. In all studies participants and caregivers expressed high satisfaction with programs.

Conclusion: Despite the popularity and suggested benefits of museum-based art programs for people with dementia, there is great variability in how programs are delivered and assessed and data on health outcomes are lacking. Future studies with appropriate control groups are needed to determine the impact of museum-based art programs on patient-centered dementia outcomes.

D246 Student Presentation
Effect of Targeted Transcranial Magnetic Stimulation on Memory Performance in Older Adults with Amnestic Mild Cognitive Impairment

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Background

As the world population ages, there have been more challenges than ever for the health care system globally. Alzheimer's disease (AD) is the most common form of dementia and aging is the most important risk factor.

Transcranial magnetic stimulation (TMS) is a technique that is currently used in treating depression and related psychiatric disorders. It generates an electric current focally in the designated area in the brain, and can alter the brain neural connections, electrophysiological activities and neural function. There has been success for its use in treating depression clinically, and there are also reports that TMS can improve cognitive function in healthy adults[1,2].

Methods

Our behavior tests are 2 hours long in total and consist of three different tests of relational memory. The major goal is to test the relational memory change after we give the volunteers transcranial magnetic stimulation.

The study recruits healthy older adults (age 65 and above) and young adults (age 19 to 35) and gives them behavior tests to see what their normal relational memory is. We are also recruiting patients with mild cognitive impairment and running behavior tests on them in order to get a baseline from these patients. After completing the tests on our first volunteers, we found out that our third test, the face-word pairs test, was too hard for the recruited healthy older adults. We made a small modification to our tests and decided to show the older adults the face-word pairs twice instead of only once. Their performances improved significantly after this modification.

Conclusions

Difficulty to recruit and coordinate with volunteers, the time-consuming process to run the behavior tests prior to rTMS sessions and the delayed installation of repetitive TMS, we were not able to complete this project. We have collected data of the baseline performances of healthy older and younger adults and practiced the rTMS operation among ourselves. The next step is to continue to recruit patients with MCI and continue the project as planned. We expect there would be an increase in the performance of behavior tests after the repetitive transcranial magnetic stimulation on older patients with mild cognitive impairment. If so, rTMS would possibly be a promising way to stop the transition of mild cognitive impairment to Alzheimer's disease.

D247 Resident Presentation
Medication Doses at the End of Life in Persons with Dementia

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Background: There exists little research about differences in end-of-life needs for persons with and without dementia. This project aims to review the medication dosage for symptom management in end-of-life care for persons with dementia.

Methods: A retrospective chart review was conducted of the last 48 hours of life for persons who died at the Topeka VA Medical Center from January 1, 2018 to May 31, 2018. Of the 20 persons (95% men, average age 74 years) who died in this timeframe, 5 (25%) had a primary or co-morbid diagnosis of dementia. Data gathered included diagnoses, symptoms present at the end of life and specific dosing of opiates, antipsychotics and benzodiazepines. A comparison was made between dosing requirements for persons with and without a diagnosis of dementia.

Results: During the last 48 hours of life, persons with a diagnosis of dementia required an average of 146.8 mg of parenteral morphine equivalents (PME), 40.9 mg of lorazepam, and 68.5 mg of haloperidol in comparison to 42 mg, 11.7 mg and 14.9 mg of the respective medication for those without a diagnosis of dementia.

Conclusions: Persons with a diagnosis of dementia required two to four times more opiates, benzodiazepines and haloperidol in comparison to those without dementia to manage symptoms at the end of life. The data suggests that there is a higher symptom burden at the end of life for persons with dementia. Further research is needed to explore the differences in symptomatology with this specific subset of individuals at the end of life. Limitations include small sample size, single site and a short study period.

References:

From admission to death: prevalence and course of pain, agitation, and shortness of breath, and treatment of these symptoms in nursing home residents with dementia. J Am Med Dir Assoc. 2015 Jun 1;16(6):475-81. doi: 10.1016/j.jamda.2014.12.016. Epub 2015 Feb 23.

Dying with advanced dementia in the nursing home. Arch Intern Med. 2004 Feb 9;164(3):321-6.

D248 Student Presentation
Intracellular cytokine signals as biomarkers of depression in older adults

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Background: Depression is one of the most common mood disorders worldwide and an important public health concern. A significant proportion of depression patients fails to respond to the currently available treatment, driving the need to investigate novel biological mechanisms for targeted identification and treatment. The purpose of this study is to examine whether lipopolysaccharide-induced (LPS) expression of intracellular cytokines (ICCs) in peripheral blood mononuclear cells (PBMCs) is a sensitive measure of inflammation that can be correlated to depressive symptoms in older adults.

Methods: This was a cross-sectional, secondary analysis of data from the Sleep Health Aging Research (SHARE) project. Our analysis included 180 Los Angeles community-dwelling older adults (>60 years old). Depressive symptoms were measured using the 10-item Center for Epidemiological Studies-Depression Scale (CES-D 10). PBMCs were isolated from each participant, and LPS-induced expression of interleukin (IL)-6 and tumor necrosis factor (TNF)-α in PBMCs was measured using flow cytometry. Circulating inflammatory markers in plasma including soluble TNF receptor 2 (sTNFR2), IL-6, and C-reactive protein (CRP) were also measured. After adjusting for covariates, multivariate linear regression was used to test the associations between inflammatory markers and depressive symptoms.

Results: Positive correlations, although not statistically significant, were observed between depressive symptoms and LPS-induced expression of pro-inflammatory cytokines: ΔTNF-α (adjusted $\beta = 0.040$, $p = 0.57$), ΔIL-6 (adj. $\beta = 0.082$, $p = 0.25$), ΔTNF-α + IL-6 (adj. $\beta = 0.078$, $p = 0.270$). Non-significant negative correlations were found between depressive symptoms and circulating inflammatory markers: ΔsTNFR2 (adjusted $\beta = -0.022$, $p = 0.79$), ΔIL-6 (adjusted $\beta = -0.089$, $p = 0.26$), ΔCRP (adjusted $\beta = -0.13$, $p = 0.094$).

Conclusion: Although the observed correlations were not statistically significant, in contrast to circulating inflammatory markers, the correlation of ICCs with depressive symptoms was in an expected direction, i.e., higher ICC expression correlating with higher depressive symptom severity. Inflammation measures via LPS-induced ICC expression may serve as more sensitive biomarkers of depressive symptoms in older adults and require further research.

Author Index

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Author Index

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Author Index

*Indicates presenting author

Author Index

Bulsara, M A99
Bunag, T A73
Burack, O C96
Burdee, S A101
Burgazli, C D176*
Burgh, E D28*
Burkart, J B172
Burkhardt, C A156*, A172
Burkholder, G B194
Burks, H B225
Burnet, D C109
Burnett, J D33*
Burns, E A120*, C5, D217*
Burton, T A86
Busby-Whitehead, J B126
Butler, D A158, A176
Butler, D C D22
Butler, J P43
Buttar, A B A31, C36, C107
Bynum, J C221
Byszewski, A A134

Cabral, K d A131, A196
Cabrera, D B193
Caffrey, A D138
Cahn-Hidalgo, D C114, C115
Cai, K A220
Cai, S P11
Callahan, C M A25
Callahan, K B166, B209, P1
Calton, B D83
Camera, L B109
Campbell, C B97
Campbell, J W A69*, B85, P21*
Campbell, L D126
Campbell, N C118
Campbell, P A69, P21
Campbell, R L B183
Campo-Arias, A A202
Campora, F A232
Cannesson, M B69
Cao, J A220*
Caplan, K D D174
Caprio, T C158
Carbajal-Madrid, P B122*
Carbone, D B172
Carder, P C209, D232
Carder, P C P8
Carlson, E A165
Carnahan, J A39*
Carr, D B1
Carrico, C D109, D222, D223
Carrillo, C D197
Carron, D A64
Casanova, M E A203
Caspers, C P25
Cassidy, E D92
Cassone, M B138, B149
Castaño, O A203
Casten, R A150

Castillo, C A102
Castillo, F A26
Castillo, G D90
Catalan, E B16
Cate, J D107
Catic, A B97, D10*, D174*
Cavalheiro, M A92
Cavallaro, P B181
Cazares, G C23
Ceide, M E A228*
Ceimo, J A2, A19, B21, B34, B49, C53
Cemballi, A C141
Cené, C D126
Cenzer, I S A122, B142, B152
Cerise, J E C200
Chalmer, R B B124*, D104
Chan, C D228
Chan, V B135, C58*
Chandler, A M A110
Chandra, A B39, C218, P42*
Chandra, L B63
Chandra, M D135
Chandrasekhar, R B202
Chandravanka, C D42
Chang, C A24, B120
Chang, D B175
Chang, L D160
Chang, R C213
Chang, T C75
Chansard, M B205
Chao, S A146
Chapman, M B D151, D152, D154*
Chase-Cantarini, S P43
Chau, T B114
Chaudhari, S B14, D45, D46, D55
Chaudhary, S D60
Chaudhry, R A78
Chaudhry, S I P32
CHAUHAN, S D139
Chauncey, T D158
Chaves, P H C128*
Chavez, A D119
Chavez, J B182*
Chawla, M C18*
Chehade, N P21
Chen, A M C62*
Chen, C A185*, C166
Chen, J A77, A111
Chen, L D164
Chen, M A49, A209
Chen, R B154
Chen, S C222*
Chen, Y A220, A231
cheng, h A167*, A168*, D180*
Cheong, Y B238
Chew, J D219
Chhabra, A D168
Chia, J D219*
Chiang, A B100
Childers, C P B184

*Indicates presenting author

Author Index

*Indicates presenting author

Author Index

*Indicates presenting author

Author Index

*Indicates presenting author

Author Index

*Indicates presenting author

Author Index

Gibson, K B138, B149*, B188
Gil Júnior, L A196
Gil, L A A131
Gill, D A19*, B21*
Gill, T A194, P4
Gillespie, S M B229, C217
Gilliam, M B56, C154
Gillon, L P10
Gilman, C B229
Gilmore, N J C76*
Girard, T D B190, B202
Girmay, B D224
Glaess, P C84
glassburn, s l A143, A166
GnanaDev, Y C60*
Goblirsch, M B30
Goehring, M T C113*
Goel, A R D193*
Gogineni, V M C8, C55*
Gogol, M B44*
Goldberg, E D194
Golden, A P36
Goldfeld, K D123
Goldlist, K A76*
Goldstein, F C A231
Goldstein, N C211
Goldwater, D D202, D210
Goliganin, D C191
Golightly, Y M D147
Gomes Correa, F A131, A196
Gomes, J D69
Gonçalves, C A127
Gonçalves, M A127
Gong, M C186, D205
Gooch, K A206
Goodlin, S C69
Goodnow, K D153
Goodwin, J D231
gopisetti, n D47
Gordon, N P D132, D134, D135, D136
Goroncy, A D153
Gossard, G B92*
Gottesman, R F D143
Gould, C A157, A180, C166
Goyal, P P39
Grace, T D100
Graf, S D158
Graham, A B9*
Graham, S C225
Granado, J A102
Graning, C B84
Granville, L C156*
Graupner, J P15*
Gravier, A B97
Gray, S C21, C121, C136, D148
Green, A D151
Green, A R D152, D154
Green, C C95
Green, M D160
Greenberg, S D167

Greendale, G A139
Greene, M D220
Greenough, W B D101, D211
Greenspan, S B215, C119*, D213
Gregorevic, K A126*
Gregory, M D105
Grelotti, D B194
Griebling, T C118*
Griesemer, I D126
Griffin, H B26*
Griffin, T B80
Griffith, D A151
Griffith, M B214
Griffiths, P B9
Griswold, M B148, D143
Groff, A D61
Grogan, M B172
Gross, A C229, D137
Gross, K B102
Growdon, M C44
Growdon, M E C71*
Grudzen, C D123, P25
Gryn, S B203
Guan, I D199*
Guan, J D181*
Guarino, J B32*
Gubens, M A D201
Gubner, J P12
Gudaitis, D C130, C189
Gudaitis, P C130, C189
Gudhe, R B126*
Guidera, J D98
Gulilat, M B203
Guo, J D242*
Gupta, K D35*
Gupta, R C33, C155, D74, D181
Gurvich, T A57
Gurwitz, J B139
Guth, A B129
Guy, M A101

Habayeb, S C35*
Haber, A A206
Hackney, M C79
Haddox, C B31
Hadker, N A206
Hadley-Strout, E A188
Hadley, L C165
Hafizah, N D219
Haghamad, A C75
Haines, T P A99, A133
Hajduk, A A116, P32
Hajjar, E A150
Hajjar, I A231
Hajjar, S D64*
Hall, K C188
Hall, O C131
Hall, R C188*
Hallen, S B6
Halley, M C187

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Author Index

*Indicates presenting author

Author Index

*Indicates presenting author

Author Index

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Author Index

*Indicates presenting author

Author Index

*Indicates presenting author

Author Index

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Author Index

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Author Index

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Author Index

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Author Index

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Author Index

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Author Index

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AUTHOR INDEX

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Author Index

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Author Index

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Author Index

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Author Index

*Indicates presenting author

Author Index

*Indicates presenting author

KEYWORD INDEX

KEYWORD INDEX

KEYWORD INDEX

Keyword Index

KEYWORD INDEX

KEYWORD INDEX

KEYWORD INDEX

KEYWORD INDEX

KEYWORD INDEX

Keyword Index

KEYWORD INDEX

KEYWORD INDEX

KEYWORD INDEX

KEYWORD INDEX

KEYWORD INDEX

KEYWORD INDEX