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P4 Encore Presentation

Do aggressive treatments in the last week of life harm quality of death?

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BACKGROUND. Most Americans die in hospitals where giving aggressive treatments to patients approaching death is common. Yet the mental and physical distress associated with such treatments near death has not been studied.

METHODS. Data from the Coping with Cancer study (CwC) were obtained from interviews with 243 advanced cancer patients and their caregivers.

Following the patient's death, the primary informal (e.g., spouse, adult child) or formal (e.g., nurse) caregiver who was most knowledgeable about the patient's last week of life reported which aggressive treatments the patient received in the last week of life (intensive care unit, ventilator, resuscitation, feeding tube, non-palliative chemotherapy, antibiotics), the duration of hospice care received, and various measures of quality of death.

RESULTS. Receiving a greater number of aggressive treatments in the last week of life was associated with more psychological distress ($p=.003$), more physical distress ($p<.0001$), lower overall quality of death ($p=.03$), and lower probability of dying in the patient's preferred place ($p<.0001$), controlling for the patient's sex, age, race, and the source of the report (nurse or family member). Adjusting for these covariates, receiving a longer duration of hospice care was associated with less physical distress ($p<.0001$), higher overall quality of death ($p=.01$), and greater probability of dying in the patient's preferred place ($p<.0001$).

CONCLUSIONS. Aggressive treatments for advanced cancer patients in the last week of their lives are associated with worse quality of death and a lower likelihood of dying in the place of the patient's choice, whereas greater duration of hospice

P26

Systematic Outpatient Screening (SOS) for the Elderly.

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Supported By: American Board of Internal Medicine; Frank Kroboth, UPMC

PURPOSE: Evaluate how internal medicine residents use a novel quality assessment tool developed by the ABIM called the "Care of the Vulnerable Elderly" Practice Improvement Module (PIM) to perform

health screening in the geriatric population of their resident continuity clinic.

METHODS: First and second year internal medicine residents at the University of Pittsburgh Medical Center with primary care continuity clinics at either the University or the VA Primary Care clinic were enrolled as subjects. Each subject used the “Care of the Vulnerable Elderly” PIM to review five charts of their outpatients over the age of 65. Definition of performance was based on the aggregate percentage of charts documenting completion of specific geriatric screening measures within the last year. Demonstration of > 90% documentation was designated “Very Good”, and < 30% documentation was designated “Poor”.

RESULTS: 39 subjects enrolled and completed the PIM. There were 17 first year and 20 second year residents. The subjects performed “Very Good” in the following areas: screening for chronic medical conditions; screening for smoking; measuring height, weight, and systolic blood pressure; documentation of medications; smoking cessation counseling; alcohol cessation counseling; and assessing if urinary incontinence is “bothersome”. The subjects performed “Poor” in the following areas: screening for fall risk; hearing assessment; assessing postural hypotension; balance evaluation; rigidity testing; bradykinesia testing; preventative care with home safety evaluation and seat belt counseling; and documentation of code status and surrogate decision maker.

CONCLUSIONS: The “Care of the Vulnerable Elderly” PIM can be used for self-assessment of geriatric screening in resident primary care continuity clinics. First and second year residents at the University of Pittsburgh Medical Center performed very well in screening measures that are applicable to all adult patients, but the residents performed poorly in screening areas specific to a geriatric population. To further investigate the utility of the PIM as a self assessment tool in residency programs, we are conducting a pre-post intervention study to see if an educational intervention based on the data collected in the PIM can change resident practice in the clinic.

P28

Which is more fatal, hip fracture or breast cancer? Survival after Hip Fracture and Breast Cancer: A Comparison Using the SOF Database.

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BACKGROUND: Breast cancer and hip fracture are both important health conditions of late life but decision makers and the general public may be more sensitive to the mortality risk of breast cancer (BCa) than hip fracture (HipFx).

AIM AND HYPOTHESIS: We compared survival following an incident HipFx and a diagnosis of invasive Breast Cancer to test the hypothesis that hip fracture will be associated with worse survival than breast cancer.

METHODS: Women with a confirmed diagnosis of BCa or HipFx were identified from the Study of Osteoporotic Fractures, a longitudinal cohort study of 9,704 women, all age 65 or older at enrollment. Follow-up of the cohort is over 95% complete. Incident HipFx were confirmed from radiographic reports and invasive BCa, by pathologic report. Time from

diagnosis to death or last follow up was determined by subtracting the time at diagnosis from the total follow-up time. BCa and HipFx survival were compared using univariate and multivariate survival analysis. Covariates available in SOF included demographics, general health, functional status and cognitive mental status.

RESULTS: There were 457 incident BCa cases and 803 incident HipFx cases during a mean of 12.4 (\pm 2.9) years of follow-up. HipFx cases were older, with higher education, lower BMI, decreased mental status and less weight change, then BCa cases. Total mortality was 48.1% (386) after HipFx and 25.1% (94) after BCa ($p < 0.0001$), with significantly different survival estimates (Log Rank 134.63, $p < 0.0001$). Mortality Rates per 1,000 person years are 40.5 for HipFx, 15.4 for BCa, and 27.9 for the remaining cohort. The survival difference persisted after adjustment for BMI, age, education, mental status, weight change since age of 25, functional status, self rated health and amount of time spent on feet. Likelihood Ratio 226.16, $p < 0.0001$, HR 0.376 (0.295, 0.480).

CONCLUSIONS: Older women are at a greater risk of death following hip fracture compared to breast cancer. Increased awareness of mortality associated with hip fracture is needed to promote preventive measures.

P36

Centrally Active ACE Inhibitors May Slow Cognitive Decline: The Cardiovascular Health Study.

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Supported By: This research was conducted while Dr. Sink was a Hartford Geriatrics Health Outcomes Scholar and supported by the Kulynych Center for Cognition Research and the Claude D. Pepper Center at WFU. Collection of the CHS data was funded by NHLBI contracts (N01-HC-85079 through N01-HC-85086, N01-HC-35129, and N01-HC-15103).

SIGNIFICANCE: Animal studies suggest that angiotensin converting enzyme inhibitors (ACEi) that are centrally active (i.e. cross the blood brain barrier) may protect against dementia beyond hypertension (HTN) control, possibly via brain anti-inflammation. Thus, we hypothesized that older adults taking centrally active ACEi for HTN would have a reduced risk of dementia and cognitive decline compared to those on other anti-HTN drugs.

METHODS: 1142 Cardiovascular Health Study participants with treated HTN who were free of dementia at baseline were followed for a median of 6 yrs. Those with heart failure were excluded ($n=68$). Cox proportional hazards models were used to estimate the risk of incident dementia associated with cumulative exposure to ACEi as a class and to centrally active vs non-centrally active ACEi as time-dependent predictors, while incorporating a 1-yr lag between exposure and outcome. Similarly, analyses of covariance with repeated measures were used to determine the change in Modified Mini-Mental State Exam (3MSE) scores. Analyses were adjusted in stepwise fashion for demographics, health behaviors, comorbidities, baseline 3MSE, incident stroke, and annual systolic BP and use of other anti-HTN drugs.

RESULTS: The mean age was 74.8 yrs (sd 4.9). Most participants were women

(64%) and white (76%). 414 were exposed to ACEi and 640 were not. There Were 159 cases of incident dementia. Compared to other anti-HTN drugs, there was no association between exposure to all ACEi and risk of dementia (HR 1.02, 95% CI 0.88-1.18) or difference in 3MSE scores over time (0.14 points/yr, p=0.16). The results were unchanged after adjusting for potential confounders. However, centrally active ACEi were associated with 50% less decline in 3MSE scores compared to other anti-HTN drugs (Table).
CONCLUSIONS: Compared to other anti-HTN drugs, centrally active ACEi are associated with slower rates of cognitive decline. A larger sample may be needed to detect an impact on dementia risk.

P40

Abnormal cerebral bladder control connections in women with urge incontinence (and effect of age).

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PURPOSE: To investigate cerebral “connectivity” involved in bladder control. We postulated that connections in those with normal bladder function (controls) differ from those with urge urinary incontinence (UUI).

METHODS: We examined functional MRI responses to bladder infusion sufficient to cause strong urgency in women aged 26 – 85 years (10 UUI, 10 controls). Two regions (right insula [RI processes afferent bladder sensation] and anterior cingulate gyrus [ACG- involved in emotional arousal]) exhibited the most prominent response and were selected for connectivity analyses. We used ‘physiophysiological interactions’ (PPI) analysis to map connections between these two regions and others. Regression was used to determine the effect of age.

RESULTS: Controls had positive connections between RI-ACG and the left insula/inferior frontal gyrus, thalamus, pons and cuneus (Figure-left); correlations for each area increased with age. By contrast, interactions between RI-ACG and other regions were negative in women with UUI and were shifted to the inferior parietal area (Figure-right) and adjacent temporal-occipital (i.e. precuneus) and limbic (i.e. para/hippocampus) regions; these also became stronger with age.

CONCLUSION: Connectivity between RI-ACG and other regions differs between women with normal bladder function and those with UUI. Different signs (negative vs. positive) and patterns (parietal vs. frontal) of connectivity, as well as the correlations with age, suggest that CNS changes may underlie UUI and contribute to the age-related risk of UUI.

P44

Magnitude of Meaningful Change in Mobility Performance Tests: Effects of Initial Performance (Health ABC Study).

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Performance tests have increasing value in aging research and possibly clinical care. To be most useful, these measures must be interpretable, including understanding the meaning of a change over time. Using distribution- and anchor-based methods, we estimate magnitudes of meaningful change over 3 years in four performance tests and assessed the effect of baseline performance on these estimates. METHODS: Year 1 and 4 data from the Health, Aging and Body Composition (HABC) study included 6-meter (m) gait speed (GS), 400-m walk time (400MWT), Short Physical Performance Battery (SPPB), HABC Physical Performance Battery (HABC-PPB), and two separate 7-level, self-report measures of mobility: (1) difficulty/ease in climbing 10 steps and (2) walking 1/4 mile. Meaningful change was calculated using effect size (small=0.2 or substantial=0.5 times baseline standard deviation (SD)) and anchor-based methods (self report change of 0=no, -1 to -2=small, -3 or more=substantial decline). Anchor-based analyses were repeated after stratification by median baseline performance into slower and faster groups. RESULTS: At baseline, 48% were male and had a mean age of 74 and mean GS of 1.18 meters/second (m/s). Table gives estimates of meaningful change using effect size and walking 1/4 mile as anchor. Patterns persisted for the other anchor, climbing 10 steps. CONCLUSIONS: The magnitude of meaningful performance change is consistent between slower and faster baseline performers. Estimates for small and substantial change for GS (about 0.05 and 0.1 m/s) and SPPB (0.5 and 1 point) are consistent with prior work in smaller samples. For 400 MWT, first estimates of small and substantial change would be about 12 and 28 s, and for HABC-PPB would be about 0.12 and 0.22 point.

A41

Associations of Physical Function and Fall Frequency in Older Caucasian Women.

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PURPOSE: To determine the relationship of physical function and fall frequency.

METHODS: Participants included 9,676 Caucasian women (mean age= 71.5 years, range: 65-89) enrolled in the Study of Osteoporotic Fractures (SOF). Eligible SOF participants included community-dwelling women in/near Pittsburgh, Baltimore, Minneapolis, and Portland. Measures of physical function were collected at baseline, including number of Instrumental Activities of Daily Living (IADL) with difficulty, hand-grip strength, timed chair-stands, timed toe-tapping, step-up score (number completed), usual walking speed, tandem-stand score with eyes open (TSEO) and eyes closed (TSEC) scored as poor- unable on semi-tandem, fair-unable on full-tandem, and good-able on full-tandem). Baseline data on a wider range

of medical and lifestyle factors were also assessed. Data on the number of falls were self-reported every four months using post-card mailings over four years (99.7% complete) and fall rates were calculated (# falls/woman-years). Multivariate poisson regression models (MV) with Generalized Estimating Equations were used to calculate the Risk Ratio (RR), or the ratio of fall rates, associated with poorer (or better) physical function after controlling for other physical function factors, age, anthropometrics, geriatric conditions, medications, and lifestyle factors.

RESULTS: Women reported on average 499 falls per every 1,000 woman-years observed and 30% had a falls history at baseline. Physical function measures that were independently associated with fall frequency in the MV included ($P \leq .05$, for all): more IADL difficulty (RR=1.16, per 1 unit), fair TSEO (RR=0.82, vs. poor), good TSEO (RR=0.76, vs. poor), faster walking speed (RR=1.08, per 1 SD), and more step-ups (RR=.95, per 1 SD). An association of faster walking speed and decreased fall frequency (RR=.88, per 1 SD) was inversed after adjustment for other physical function factors.

CONCLUSION: More IADL difficulty and poorer performance on an eyes-open tandem stand and slower stepping were all associated with more frequent falls; however, slower usual walking speed was associated with less frequent falling. Slower usual walking may be a marker of decreased likelihood to become or remain unstable while walking.

A62

Identifying Barriers and Solutions to Effective Nursing Physician Communication: A Qualitative Study.

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PURPOSE: Geriatrics demands effective interdisciplinary communication to provide quality patient care, yet communication between nurses and physicians has historically been considered poor. Therefore this study was designed to identify the problematic areas of communication between nurses and physicians to determine how an educational intervention might be used to solve these problems.

DESIGN: A convenience sample of nurses and physicians from the University of Pittsburgh Montefiore Hospital and VA Pittsburgh Healthcare System was used. Results were triangulated through literature review, observation, interviewing, and open-ended questions on surveys.

RESULTS: All participants readily attested to areas of ineffective Communication between nurses and physicians. Common barriers elucidated included bad behavior, and personal attitude (20%), time pressures including lack of time spent with other professions (13%), a hierarchical system (11%), lack of clarity of communication (7%) and poor role recognition (7%). Solutions generated included scheduling time to meet with the other profession, outwardly acknowledging respect for the other profession and respecting existing differences in knowledge and training. Potential methods for teaching these skills included role play, case studies, and periodic combined training at the student level.

CONCLUSION: While ineffective communication is felt to be pervasive, most participants were optimistic that solutions could be found to teach better interprofessional communication, a skill upon which geriatrics is intrinsically dependent.

A82**Expanding Mental Health Services for the Depressed Elderly.**

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Supported By: University of Pittsburgh

INTRODUCTION: While effective treatments for depression have expanded in recent years, depression is frequently unrecognized in older adults and even when diagnosed, treatment is often inadequate. The problem is especially serious among African American (AA) elders, where rates of diagnosis and treatment are lower than for Caucasians (C). The goal of this study was to identify potential social barriers to effective mental health treatment and to explore community based health and social service agency resources that might help reduce barriers to depression recognition and treatment in AA and C elders. **METHODS:** A mixed-method design including questionnaires with 5-point Likert rating scale and semi-structured interviews, including both open ended questions and structured multiple choice items, were conducted with 26 members of 10 community-based primary care and social service agencies in Western Pennsylvania. Qualitative data were analyzed using iterations of theme coding by consensus.

RESULTS: Of 11 potential barriers, 8 were rated as ‘very important’ by 60% or more of the respondents. Most frequently cited were access to safe and affordable housing, transportation, and access to mental health services, as well as co-occurring mental health and substance abuse problems. In open-ended responses, the most frequently mentioned concerns were lack of financial resources, accessibility of services, and mental health stigma. Coordination of mental health care and mental health awareness staff training were the most frequently mentioned resources to reduce barriers.

DISCUSSION: Older adults face many barriers to adequate mental health care. Increased collaboration between social service agencies and primary care settings may improve access and reduce barriers.

A100 Encore Presentation**Subcortical cerebrovascular disease and treatment response in late-life depression.**

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Supported By: AFAR/NIH T35 AG026778, MH067710, MH071944, and AG024827

PURPOSE: Subcortical circuits mediate mood, cognition and physical function (especially motor speed). We hypothesized that elders with major depression and with sub-cortical cerebro-vascular disease (scCVD) expressed as motor slowing and cognitive impairment would be more depressed and less likely to respond to standardized treatment.

METHODS: Community dwelling adults, aged 60 or greater, who met DSM-IV criteria for Major Depression, received open-label venlafaxine-XR under protocolized conditions for 12 weeks. Inclusion criteria included a Mini-Mental Status Exam (MMSE) score > 18 and a Hamilton Depression Rating Scale (HDRS) score > 15 for subjects not currently receiving an antidepressant or > 11 for subjects receiving an antidepressant. Additional assessments included Physical Performance test (PTT), Mattis Dementia Rating Scale (MDRS; total and

subscale scores), and EXIT. Descriptive statistics were used to describe the sample. Correlations were used to examine the relationship between baseline cognitive and physical function impairment with both baseline and week 12 depression severity.

RESULTS: Participants (n=67) were mainly Caucasian (93.4%) and female (67.2%) with a mean (SD) age of 74.2 (7.6) years. Baseline characteristics included mean (SD) score on the HDRS of 18.9 (3.7), MDRS-total score 134.5 (8.4), MDRS-attention 35.6 (1.4), MDRS-initiation 34.8 (4.0), MDRS-conceptualization 35.7 (3.1), PPT 22.2 (5.6) and 50 foot timed walk 18.8 (9.3) seconds. Of the 53 study completers, 71% achieved a final HDRS < 10. Baseline cognition and physical function impairment was not associated with HDRS score at baseline or at week 12.

CONCLUSIONS: Our data suggests that, in community dwelling elderly with major depression, clinical evidence of scCVD is not associated with depression severity and does not predict treatment outcome. Hence, clinicians should remain optimistic when treating elders with cerebrovascular disease. There are several limitations to this study that will be discussed, including the inability of many subjects to complete the PPT.

A110

The Role of Sleep Disturbances of Aging in Falls and Balance Disorders.

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Supported By: AFAR and T35 AG026778

PURPOSE: Among the elderly population, falls and balance problems are a major cause of morbidity and mortality. An increased incidence of falling has been associated with a number of risk factors; however, there has been little study regarding the relationship of sleep disturbances of aging to falling. The aim of the present study is to determine if there is a relationship between sleep problems, falls and balance, and other adverse outcomes in the elderly.

METHODS: Data were obtained from a completed cohort study of 497 People with an average age of 74, 56% male and 44% female. The independent variables daytime sleepiness, nighttime sleep disturbances, and doctor diagnosed sleep disorders were chosen as markers for sleep quality and were used in both dichotomous and ordinal forms, according to the self-reported functional limitations they placed on patients. The outcomes studied cross-sectionally included having had a fall or fallen more than once during the year, having had an injury due to a fall, fear of falling, and balance performance. Prospective outcomes included having had a fall or having fallen more than once, balance performance, and change in balance performance, all at one year, and death at seven years.

RESULTS: At baseline, 43% of patients reported daytime sleepiness, 41% difficulty sleeping at night, and 6% a physician-diagnosed sleep disorder. Daytime sleepiness was associated at baseline with fear of falling, falling more one time, and poor balance performance. At one year associations were seen with poor balance performance and having fallen more than once, and at seven years, death. Difficulty sleeping at night and the presence of a diagnosed sleeping disorder were associated with fear of falling at baseline. Diagnosed sleeping disorders were also associated with death at seven years and with having fallen more than once.

A113**Analysis of White Matter Disease in an Alzheimer's Disease Cohort.**

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STUDY: White matter hyperintensities (WMH) frequently are found on MR brain scans in the elderly and have been associated with cognitive impairment. Most previous studies of WMH have used visual and semi-quantitative rating scales to evaluate WMH on brain scans. In this study we use automated volumetric measurements of WMH to assess the extent and distribution of WMH, and correlate these with clinical measures of dementia and cognitive function, including the Mattis Dementia Rating Scale. We report findings from a study (n=11) of WMH in Alzheimer's disease (AD) patients from the Alzheimer's Disease Research Center (ADRC).

METHODS: MR scans from a 1.5T GE Signa scanner at the MR Research Center were acquired from subjects meeting criteria for AD as diagnosed by the ADRC. The scans were analyzed using an automated labeling pathway and white matter localization process. This process uses a T1-weighted high-resolution image (SPGR) and T2-weighted FLAIR image sensitive to WMH. The FLAIR image is used to segment WMH and the SPGR is used to localize the WMH to 17 prominent white matter tracts. The total volume of WMH (normalized for brain volume) was correlated to ADRC evaluation of WMH and clinical tests of dementia and cognitive function. WMH in specific white matter tracts were also correlated to clinical measures of dementia and cognition.

RESULTS: Total WMH volume correlates with the Mattis Dementia Rating Scale ($p=0.017$). WMH localized in the white matter tracts of the anterior thalamic radiation, corpus callosum, and the uncinate fasciculus show a significant correlation with Mattis scores.

CONCLUSION & SIGNIFICANCE: Automated volumetric measures of WMH can provide sensitive information for WMH volumes in AD subjects. They can also provide data on the spatial distribution and localization of WMH.

A132**Sensory Impairments and Step Width Variability.**

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Supported By: Paul B. Beeson Career Development Award in Aging and University of Pittsburgh Claude D. Pepper Center

PURPOSE: In our previous work, we showed that impaired lower extremity vibration and self-reported impaired vision were related to less step width variability. Our purpose was to confirm this association

using a more sensitive measure of vision.

METHODS: Participants included 38 community-dwelling older adults (mean age = 78.9(6.8), 71% female, 5% black). Mean step width and variability of step width (standard deviation of steps) were determined from a 4-meter computerized walkway. Vibratory sense at the great toe was measured using a 125 Hz tuning fork and visual acuity was recorded using a Snellen eye chart. Independent t-tests were calculated to compare mean step width and step width variability between people with intact and impaired (diminished/absent) vibration. Pearson correlation coefficients were calculated to compare step width variability and visual acuity.

RESULTS: Compared to individuals with intact vibration, individuals with impaired vibration had similar step widths (0.22 and 0.22; $p=0.83$) but were less variable (0.035 and .026; $p=0.04$). Poorer visual acuity was associated with a greater mean step width ($r=0.343$, $p=0.14$, $n=20$) and less step width variability ($r = -0.433$, $p=0.06$, $n=20$). The coefficient of variation, a measure of variability examining the standard deviation in relation to the mean (sd/mean), illustrated the association between visual acuity and step width variability ($r = -0.512$, $p=0.02$, $n=20$).

CONCLUSIONS: Older adults with impaired vibration or poor visual acuity had less step width variability but only those with impaired visual acuity demonstrated a greater mean step width. Older adults with impaired vibration and poor visual acuity may use different compensatory strategies.

B7

Body Composition and Physical Function in the Lifestyle Interventions and Independence for Elders Pilot (LIFE-P) Study.

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PURPOSE: To evaluate the association between measures of sarcopenia, adiposity and physical function both cross-sectionally and longitudinally in a subset of LIFE-P participants.

METHODS: Two-hundred sixty-nine LIFE-P participants (29.6% men) from the Cooper Institute (Dallas, TX), U of Pittsburgh (PA), and Wake Forest University (Winston-Salem, NC) clinics had lean, bone and fat mass measured using dual-energy x-ray absorptiometry at baseline and at the 12-month post-randomization visit. Study participants were sedentary adults (70-89 years) who could walk 400m in < 15 min. and had a short-physical performance battery (SPPB) score < 10 (out of 12). Body mass index (BMI), % body fat, arm and leg non-bone lean mass (aLM) divided by ht², and body-fat adjusted aLM were related to grip strength, 400m walk time, and SPPB score stratified by gender and adjusted for age, race, site and multiple comorbidities using linear regression.

RESULTS: In women, (mean age: 76.6 \pm 4.1 years; mean BMI: 28.8 \pm 5.0 kg/m²) BMI was associated with a longer 400m walk time ($p = 0.03$), and aLM/ht² and aLMfat-adj were both directly associated with grip strength ($p < 0.03$ for both).

In men, (mean age: 76.4 \pm 3.9; mean BMI: 29.7 \pm 4.1) similar albeit non-significant associations were observed between BMI and walk time, and lean mass measures and grip strength. Both lean mass measures were associated with significantly better SPPB score ($p=0.02$ for both). Longitudinally, there were no significant correlations between change in lean or fat mass and change functional measures. Although the exercise intervention led to significantly better SPPB performance compared to the health education control in the overall trial, there were no significant differences in the change in body composition over 12 months by intervention group.

CONCLUSION: In this population of sedentary adults at high-risk for mobility disability, body composition was associated with function cross-sectionally. However, over a 12-month period, perhaps due to the relatively modest changes in body composition observed, body composition changes were not associated with changes in functional measures.

B56

Gait Speed Predicts Decline In Attention And Psychomotor Speed In Older Adults: the Health Aging and Body Composition Study.

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PURPOSE: Attention and psychomotor speed are pivotal to plan motor strategies, and predict dementia, disability and death in older adults. We have previously demonstrated that physical performance is cross-sectionally associated with these cognitive functions in community-dwelling seniors. However, the direction of this association remains unclear. The aim of this study was to investigate whether gait speed predicts subsequent impairment in attention and psychomotor speed.

METHODS: We included in the analysis 2776 participants in the Health ABC study (mean age \pm SD 73.5 \pm 2.8, 53% women, 37% blacks). Usual pace gait speed was measured at baseline. The Digit Symbol Substitution Test (DSST), which assesses attention and psychomotor speed, was administered at baseline and after 5 years. We used logistic regression to calculate risk of cognitive decline of DSST (>1 SD from mean change) across quartile of gait speed. Baseline covariates included demographics, anthropometric measures, physical activity, depression and other comorbidities, and global cognitive function (assessed with the Modified Mini-Mental Status Exam [3MS]). The analysis was further adjusted for 5-years change in 3MS.

RESULTS: After 5 years, 389 (17.1%) participants had declined of at least 1 SD (9 points) in the DSST. Compared to those in the highest quartile (>1.35 m/s), participants in the lowest quartile of gait speed (<1.05 m/s) were more likely to decline in the DSST independent of baseline covariates (OR [95%CI] 1.74

[1.21-2.51], p for trend across quartiles=0.006). Further adjustment for 5-year change in 3MS did not modify the strength of the association.

CONCLUSIONS: In this cohort of well-functioning, community dwelling seniors, usual pace gait speed predicted a decline in DSST after 5 years, independent of global cognitive function and other covariates.

B72

Coronary Atherosclerosis Is Associated With Reduced Physical Function In Older Women, But Not In Men.

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PURPOSE: The relationship between non-invasive measures of atherosclerosis and physical performance in older adults is still unclear. Coronary artery calcification (CAC) is closely related to the extent of atherosclerotic disease by angiography or autopsy. The aim of this study was to examine the association between CAC levels and physical performance in community-dwelling older adults without clinical cardiovascular diseases.

METHODS: We included in the analysis 387 community-dwelling older participants in the Cardiovascular Health Study (CHS), without clinical cardiovascular disease (mean age+SD 78.7+3.77, 35% men). Coronary artery calcification (CAC) was measured using electron beam tomography, according to the Agatston scoring method. In the same period, physical performance (15-foot usual pace gait speed, chair stand and tandem stand) was assessed. Differences in physical performance across CAC quartiles were investigated in the whole cohort and by gender. In a linear regression model with gait speed (m/s) as an outcome, log(CAC), demographics and comorbidities were tested. The association between CAC>100 Vs <100 and gait speed >1 Vs <1 m/s was analyzed with logistic regression.

RESULTS: No differences in physical performance were observed across CAC quartiles in the whole group. In gender stratified analyses, women only, not men, showed a progressively lower gait speed across CAC quartiles (those with CAC>220 walked more than 0.1 m/s slower than those with CAC<35, age-adjusted p for trend=0.017). The association between log(CAC) and gait speed proved significant after multivariable adjustment ($p=0.025$). A CAC>100 was associated with a higher risk of walking slower than 1 m/s (multivariable-adjusted OR 2.36, 95%CI 1.27-4.39). CAC was not associated with other measures of physical performance in both women and men.

CONCLUSION: In a sample of older community-dwellers without overt cardiovascular disease, coronary atherosclerosis was inversely related to usual pace gait speed in women, but not in men.

B93

Development of An Older Driver Screening Instrument.

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Short screening instruments have helped providers identify patients in need of evaluation for depression, cognitive impairment, alcohol abuse, and other

conditions. This study was conducted to develop a short screening instrument on driving safety that could be used in primary care settings.

METHODS: Items for the questionnaire on driving issues and abilities were taken from the 20 warning signs in a self-awareness checklist, "How Is Your Driving Health?" developed by the Maryland Research Consortium on older drivers (Department of Transportation and Highway Safety 809 582, National Highway Traffic Safety Administration, 2003). All patients referred to the Geriatric Evaluation & Management (GEM) clinic between 6/1/04 and 3/1/06 were given "Prescreening" questions related to issues and abilities on driving safety. Only 28 patients who still drove at the time of referral completed this questionnaire. Data analyzed included answers to the driving questionnaire, Mini-Mental Status scores (MMSE), CLOX 1 scores and driving recommendations made at the time of the GEM family conference based on neuropsychological testing. Descriptive statistics and associations between variables were determined.

RESULTS: Pearson correlations between the MMSE and the CLOX and self-reported driving ability score, were 0.10 and 0.30 respectively, suggesting that neither measure was strongly associated with self-reported driving ability, but that of the two, the CLOX was more, closely associated with patients' perceptions of their driving ability. Pearson correlations between the MMSE and the CLOX and driving recommendations were 0.05 and 0.26 respectively, indicating that the CLOX was more closely associated with driving recommendations than was the MMSE.

B127

Effects of Exercise or Weight Loss in Elderly subjects with Insulin Resistance.

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PURPOSE: As humans age they become more sedentary and gain weight, risk factors for Type II diabetes mellitus. Furthermore, as skeletal muscle ages, it suffers from sarcopenia, a degenerative loss of mass and strength. Yet, it remains uncertain whether muscle retains its plasticity in a diseased state like insulin resistance in the elderly as intervention such as weight loss or exercise has only been shown to change muscle in middle-aged adults. Hence, we plan to analyze the effects of either a weight loss or exercise intervention (WL or Ex) on muscle fiber type cross sectional area (CSA) and fiber type ratio (individual fiber type count/overall fiber type count) in overweight or obese, sedentary, and insulin-resistant elderly adults.

METHODS: Healthy subjects (65-75 years old) with insulin resistance and no history of diabetes were recruited and randomized into a 12 week program of either aerobic exercise or weight loss through diet. Muscle biopsies were obtained pre and post-intervention from the left vastus lateralis of subjects after an overnight fast. Ratios of type I and type II fibers were determined with primary anti-fast and anti-slow myosin antibodies and counted with analysis software (MVIA). Muscle fiber type CSAs were assessed using the same images and measured with MVIA.

RESULTS: The 12-week Ex intervention resulted in a ~25% increase in the Type I muscle fiber ratio ($p < 0.01$) and a ~60% decrease in the Type IIX ratio

($p < 0.02$) whereas the Type IIA ratio did not decrease significantly ($p < 0.56$). No significant differences were observed with regards to fiber type CSA as less than a 3% decrease was observed in Type I CSA, an 11% decrease in Type IIA CSA, and a slight ~4% increase in Type IIX CSA. In the 12-week WL intervention, a slight ~7% increase was seen in Type I ratio, ~11% decrease in Type IIA ratio, and a ~39% increase in Type IIX ratio, all with no significance. In terms of fiber type CSA with weight loss, large decreases were seen in Type I CSA, ~12% ($p < 0.07$) and Type IIA CSA, ~17% ($p < 0.29$)

CONCLUSION: In summary, Type I fiber type ratio increases and Type IIX fiber type ratio decreases in response to Ex in overweight or obese, sedentary, and insulin-resistant elderly individuals. Weight loss in this same population does not seem to evoke fiber type ratio changes, although it may trend towards smaller fiber type CSAs.

C26

Energy Cost of Abnormal Walking.

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Supported By: University of Pittsburgh Older American's Independence Center

PURPOSE: Minimal hip extension, greater trunk flexion and less heel first foot contact are common abnormalities of gait of older adults with mobility disability. To understand the physiological burden of abnormal walking, the energy cost of walking was examined by gait abnormalities.

METHODS: Community-dwelling older adults with mobility disability who volunteered to participate in studies of walking were included, mean age, 79.7; SD, 5.9 years, $n=44$. Postural abnormalities were determined from videotape review of the subjects walking, using the modified Gait Abnormality Rating Scale criterion-based item scores, levels 0-2, for hip extension, trunk flexion and foot contact (item reliability, generalized Kappa, .676). Using the Medgraphics VO2000® metabolic measurement system to analyze expired gases, mean oxygen rate was determined for 3 minutes of treadmill walking at self-selected gait speed and physiological steady state. The energy cost of walking was calculated as: mean oxygen rate/walking speed, ml/kg-m. Mean comparisons of energy cost across levels of postural abnormality, with test for linear trend were performed.

RESULTS: Energy cost was greater with a greater reduction in hip extension and greater trunk flexion; no trend for energy cost with abnormal foot contact

CONCLUSION: The high energy cost of abnormal walking may restrict physical function and physical activity of older adults. Promoting physical activity and preventing decline of physical function of older adults may need to start with improving the biomechanics of walking.

C58

Evaluation of an Inpatient Geriatric Teaching Service.

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Medical residents need to be better prepared to care for the increasing number of elderly patients in hospital. Inpatient teaching has traditionally focused on acute care issues with little emphasis on problems encountered in caring for the elderly.

AIM: To determine the impact of a new Geriatric Teaching Service (GTS) on

resident comfort with caring for elderly inpatients.

METHODS: Residents were asked to complete a short survey at the beginning, and end, of a one-month rotation on the GTS. Teaching focused on inpatient geriatric issues and was directed by a geriatrician. Questions related to comfort level with: managing medical care of elderly inpatients, communication with elderly patients, communication with families, speaking about end-of-life decisions, prescribing for the elderly, and handling discharges to the nursing home. Responses were sought on a 5-point Likert scale ranging from “not at all” to “very”. Wilcoxon rank sum-sign and Fisher’s exact tests were used to make between- and within-group comparisons of responses and percentages. **RESULTS:** Twelve interns and 11 residents completed the survey. Residents reported higher comfort levels than interns at the beginning of the month only with managing medical care ($p=0.004$). At the end, the percentage of trainees who were fairly, or very, comfortable with medical care was 87%, patient communication 87%, family communication 74%, end-of-life decisions 61%, prescribing 83% and NH discharge 78%. More interns reported improved comfort levels than residents in all areas. Interns demonstrated greater improvement than residents with regard to “managing medical care”, end-of-life decisions” and “prescribing” (see table).

CONCLUSIONS: To our knowledge this is the first study to document the impact of dedicated inpatient geriatric teaching on trainees’ comfort with managing elderly patients. Preliminary results indicate both interns and residents benefited. Not surprisingly, the impact was greater on interns, particularly with respect to managing medical care, talking about end-of-life decisions and prescribing for the elderly.

C68

Effectiveness of an Online Initiative to Reverse the Impending Shortage of Geriatric Mental Health Researchers.

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OBJECTIVE: The number of people over age 65 with psychiatric disorders in the US is estimated to be 15 million by 2030. The NIMH funded Web site MedEdMentoring.org was created in response to this impending need for more geriatric mental health researchers. The site’s objectives include creating a sustainable mentoring education resource through offline and online enduring materials; developing a content clearinghouse offering

tools to maintain, launch, and enhance career development; and helping to prepare the geriatric mental health research workforce. We sought to determine the progress toward these objectives in the year following the site launch.

METHODS: Users were asked to rate the helpfulness of specific site features and the relevance and uniqueness of the site, how they have used the materials offered, and what they would like to see added.

RESULTS: User ratings were highest for the slide library, presentations, and career autobiography features. Only 2 respondents named other sites with similar content. Responders were impressed with the large amount of material and resources available. Slides and other materials have been downloaded by users for teaching, research, proposal writing, and mentoring purposes. Overall comments were extremely positive: eg: “excellent site, especially for those interested in geriatric psychiatry.”

CONCLUSION: MedEdMentoring.org is a unique online resource that provides its users with “one-stop” access to tools and information for geriatric mental health researchers at all stages of career development, thus encouraging people to select this field as a career path.

C94

The Influence of Androgen Deprivation Therapy on Physical and Cognitive Function in Men with Prostate Cancer.

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Supported By: NIH/NIDDK K24 (DK062895). NIH/NCRR M01 (RR000056). NIH/NIA P30 (AG024827). NIH/NIA T32 (AG021885).

PURPOSE: To determine the impact of androgen deprivation therapy (ADT) on the change in physical and cognitive function over one year in men with prostate cancer.

METHODS: Observational study of community dwelling men, aged 50 and older. Two cohorts of men with nonmetastatic prostate cancer were examined: 1) patients with no ADT (n=13) and 2) patients on ADT (n=35). Decline in physical and cognitive function were assessed by 1) ‘Digit Symbol Substitution test’ (DSST), 2) ‘9-hole peg test’ (PEG), 3) ‘Short Physical Performance Battery’ (SPPB) and 4) gait speed [GS: meter/second (m/s)]. Comparisons between ADT and no ADT groups were performed using t-tests and analysis of covariance.

RESULTS: The mean age was 70.6□7.1. The baseline GS was 1.04□0.19 m/s (mean□SD), DSST score 43.9□10.4, dominant hand PEG 24.7□4.3 seconds and the SPPB score 9.90□1.42. See table for the change in outcome variables over one year for patients on ADT vs. no ADT. Additional analysis revealed that the mean decline in GS for the patients on ADT for less than 6 months was -0.26□0.27 m/s, while it was -0.25□0.25 m/s for the patients on ≥6 months of ADT (p > 0.05).

CONCLUSION: ADT was associated with a significant decline in gait speed compared to men on no ADT. Prior duration of ADT exposure did not affect decline over one year. There was no effect observed on DSST, PEG, or SPPB. Limitations of the study include the small sample size, short duration of follow-up and limited assessment of gait speed. Further studies are needed to investigate the roles of ADT, hypogonadism and mobility in this cohort.

C111**The Prevalence of Appropriate Vitamin D Use in Nursing Home Residents.**

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Supported By: John A. Hartford Foundation, Pittsburgh Claude D. Pepper Older Americans Independence Center, P30 AG024827.

BACKGROUND: Falls and fractures are a major cause of morbidity and mortality in nursing home residents. Adequate vitamin D supplementation in nursing home residents may reduce the incidence of falls and fractures. Appropriate vitamin D dosing in nonacademic nursing homes is not currently known.

PURPOSE: To determine the prevalence of appropriately dosed vitamin D in two nonacademic nursing homes.

METHODS: We performed a cross-sectional study of residents in two western PA nursing homes during September 2006. Data on all formulations and doses of vitamin D (D2, D3, combinations with multivitamins, calcium supplements, and medications) prescribed was collected from their respective contract pharmacies. We defined the minimum appropriate dose of vitamin D as 800 IU per day. Descriptive statistics were used to characterize vitamin D use.

RESULTS: The study sample included 298 nursing home residents over age 60; 78% were women. Sixty six percent of all residents were taking some amount of vitamin D. Most vitamin D users were women (86%). Of residents on vitamin D, 76 (39%) received at least 800 IU per day, while 115 (59%) received between 400 and 799 IU daily, and 5 (2%) took less than 400 IU daily. Vitamin D dosing varied widely by prescriber. The most common formulation of vitamin D given was a calcium and vitamin D combination supplement (33%) followed by multivitamins (29%).

CONCLUSION: In this quality improvement pilot study, vitamin D dosing was found to be suboptimal in nursing home residents because few received an appropriate daily dose. More research is needed to understand facility and prescriber variability in vitamin D prescribing.

C114**Bridging the Gaps in Care Continuity.**

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Hospitalizations and transitions of care are recognized as potentially hazardous for older adults. The Pittsburgh VA Health system's Geriatric, Research, Evaluation and Clinical Center (GRECC), developed a clinical demonstration project in an effort to maximize appropriate use of health system resources and ensure continuity of care.

OBJECTIVE: To quantify the number of patients transferred from long-term care to acute care; to assess the reasons for transfer and if transfer could have been avoided.

METHODS: Patients transferred from the 300 bed VA long-term care facility, under the care of internists, to the acute care inpatient VA hospital over a four month period were flagged for consult by a GRECC geriatrician.

The geriatrician assessed the patient and the geriatric issues and facilitated communication between the inpatient and long-term care facility teams.

RESULTS: In the four months of the study, there were 73 transfers from the

long-term care facility to the VA hospital. The first 28 patients were analyzed for this study. The most frequent reasons for transfer were cardiac (25%), pre-planned procedures (25%), and infection (18%). Eight of 28(28%) were admitted to the ICU, and six to telemetry. Eleven of 28 patients were seen by the geriatrician and the issues addressed were medications, code status, palliative care needs, and mental status changes. Code status was changed to less aggressive care in 6 of 28 (21%) patients after admission. Five patients died in acute care, one in the ICU. The long-term care team communicated the reason for transfer in 12 of 28 cases (43%), but without geriatricians' input there was only one documented communication between the inpatient team and the long-term care team.

CONCLUSION: Most transfers were for cardiac and telemetry reasons or monitoring after a planned procedure. Although some transfers were unavoidable, discussion of the code status to limit transfers in end-stage patients could have potentially avoided twenty percent of the admissions. Further study is needed to determine the impact of this intervention on provider, patient and family satisfaction and outcomes.

C127

Cognitive Performance as a Predictor of Physical Performance in Older Adults.

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Supported By: Eli Lilly and Co.

BACKGROUND: Current literature suggests a cross-sectional association between cognition and physical performance. However, the longitudinal relationship is less clear. Our goal was to evaluate the longitudinal relationship between baseline cognitive performance and physical performance in non-demented older adults.

METHODS: A sample of community-dwelling older adults with MMSE scores > 24 at baseline and judged "not demented" underwent cognitive and physical performance assessment at baseline, with repeated physical performance assessments every 6 months for 18 months. The relationship between baseline cognitive function was assessed using the Mini Mental Status Exam (MMSE), Digit Symbol Substitution Test (DSST), STROOP test and Logical Memory (LM) test while change in physical performance was assessed by gait speed, the Short Physical Performance Battery (SPPB), Berg Balance Scale (Berg), 9 Hole Peg test (PEG) and the Get Up and Go (GUG) test. Associations were determined by linear regression, adjusting for baseline physical performance, age, and education. Proportions of variability were also calculated to assess the relative impact of baseline cognition, baseline physical performance, age, and education on 18-month physical performance.

RESULTS: The 237 participants had a mean age of 79.7 years; 80.5% were white and 74.6% were female. After correcting for baseline physical performance, age, and education only the DSST score was significantly associated with the 18-month PEG and marginally with the GUG scores. The MMSE was significantly associated with 18-month PEG score only. Baseline physical performance, age and education accounted for 41% of variability in 18-month decline, with baseline cognitive measures accounting for little variability (approximately 1%).

CONCLUSION: Despite previous cross-sectional association, performance on several cognitive measures at baseline was not a robust predictor of rate of decline in physical performance over 18 months in this sample. However, the data suggested a relationship on timed cognitive (DSST) and physical performance tests (PEG, GUG).

C146

Physical Activity and Participation during Rehabilitation and 6 month Functional Outcomes in Patients after Hip Fracture.

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Supported By: Physical Therapy Department, PODSI

PURPOSE: Physical activity and patient participation during rehabilitation in patients with hip fracture are thought to impact functional outcomes yet seldom are both consistently quantified by health care professionals. Our purpose was to examine the association between patient participation and a validated measure of physical activity during rehabilitation (rehab) and to examine the association between physical activity with functional outcomes at 6 months after hip fracture. We hypothesize that patients who are more active during rehab will have higher participation scores and better functional outcomes at 6 months after hip fracture compared to those who are less active.

METHODS: Patients included community dwelling older adults post hip fracture admitted to inpatient rehab. Activity and participation were measured during rehab sessions. Participation was measured using the Pittsburgh Rehabilitation Participation scale (PRPS; 1-6, higher values = better participation) and physical activity was measured using the Actigraph accelerometer. Physical activity was dichotomized by a median split into more and less active groups. The Hip Fracture Functional Recovery Scale (HFRS; 0-100, higher scores = better function) was administered at baseline (pre-fracture function) and 6 months after hip fracture to measure functional outcomes. Functional recovery was defined as the patients' percentage improvement in HFRS scores at 6 months considering pre-fracture HFRS scores.

RESULTS: Preliminary results in 14 patients (mean age 80.5 \pm 0.7 yrs) revealed more active patients (n=8) had a higher mean PRPS score at baseline than less active patients (n=6); 5.5 (excellent) and 4.1 (good) respectively (t = -2.9, p=0.026). In a subset of 10 patients with complete 6 month data, more active patients at baseline had higher mean HFRS scores and greater functional recovery at 6 months compared to less active patients (89.0 and 74.8; 92% and 84% respectively; t = -0.733 p = 0.48).

C147

Characteristics of Walking, Physical Activity, Fear of Falling and Falls in Community Dwelling Older Adults Based on Residence.

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Supported By: Claude D. Pepper Center & Physical Therapy Department

PURPOSE: Research focusing on community dwelling older adults often includes adults living in independent community residences (ICR) or senior

living residences (SLR). Walking, physical activity, fear of falling and falls may differ based on residence. It is important to identify these differences to design and understand research as well as plan and implement care. To explore the differences, we described and examined characteristics of walking, physical activity, fear of falling and fall history between community dwelling older adults with mobility disability by residence, ICR and SLR. We hypothesize that older adults living in ICR would be more active, experience less falls, be less fearful and have better walking abilities compared to those living in SLR.

METHODS: Community-dwelling older adults living in ICR (n=32, mean age 77.4 (5.5) years, 62% female) or SLR (n=18, mean age 83.9 (4.1) years, 83% female) who volunteered to participate in studies of walking abilities were included. Measures of walking (gait speed, walking confidence [Gait Efficacy Scale, GES]), self-reported physical activity (Survey of Fear of Falling in the Elderly, SAFFE, activity and activity restriction subscales), fear of falling (SAFFE fear subscale, global fear of falling question) and fall history were recorded. Descriptive analyses and independent T-tests were performed to determine differences in variables by residence.

RESULTS: Older adults in ICR and SLR exhibited similar mean gait speed (0.89 vs 0.92 m/sec), confidence (GES scores: 74 vs 72) and physical activity (activity scale 8.5 vs 8.1; restricted activity scale, 3.3 vs. 3.9). However, older adults in ICR compared to SLR reported more fear of falling during activity (fear subscale, 0.51 vs. 0.24; p=.03). Fall rates (44% vs. 33%; p=.42) and global fear of falling (17/32, 53% vs. 9/18, 50%; p=.93) for adults in ICR compared to SLR did not differ.

CONCLUSION: Expected relations between walking, physical activity, fear, and fall history may not hold true for community dwelling older adults living in SLR. Despite similarities in walking ability and physical activity between the two groups, fear of falling during activities differed by residence. Attention to residence may be necessary to clarify mobility factors in community dwelling older adults.

D35 Encore Presentation

Effect of Once-Yearly Infusion of Zoledronic Acid 5 mg in Postmenopausal Women With Osteoporosis:Results from HORIZON-PFT.

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Supported By: Novartis Pharma AG

The HORIZON Pivotal Fracture Trial was a multinational, 3-year, randomized, double-blind, placebo-controlled trial evaluating the potential of once-yearly zoledronic acid (ZOL) 5 mg, infused over 15 minutes, to decrease risk of fracture in 7736 postmenopausal osteoporotic women 65-89 years of age. Treatment with ZOL 5 mg resulted in significant relative risk reductions in morphometric vertebral fracture of 70% vs PBO (3.3% vs 10.9%; 95% CI

[62%, 76%]) and in hip fracture of 41% vs PBO (1.4% vs 2.5%; 95% CI [17%,58%]). Secondary endpoints, nonvertebral (excluding finger, toe, facial), clinical vertebral, and any clinical fracture (including nonvertebral, hip, and clinical vertebral), were significantly reduced by 25%, 77%, and 33% (all $P < .0001$), respectively. Bone mineral density increased significantly in ZOL vs PBO at total hip (6.0%), lumbar spine (6.7%), and femoral neck (5.0%) ($P < .0001$). While transient increases in serum creatinine ≥ 0.5 mg/dL over preinfusion levels were seen in a small fraction (1.3%) of patients in the ZOL 5 mg group, no cumulative impact on renal function was demonstrable. Hypocalcemia (serum calcium < 2.075 mmol/L) was observed in 2.3% of patients. Virtually all events occurred after the first infusion of ZOL and all were asymptomatic and transient. Adverse events occurring ≤ 3 days after infusion were more frequent after first infusion (44.7% ZOL, 14.7% PBO) but declined markedly on subsequent infusions. There were more atrial fibrillation serious adverse events in ZOL (1.3%) vs PBO (0.5%). Two cases of osteonecrosis of the jaw (1 in PBO, 1 in ZOL) were identified on adjudication; both resolved with antibiotic therapy and limited debridement. We conclude that once-yearly infusions of ZOL 5 mg over 3 years is highly effective in decreasing risk for osteoporotic fracture and is generally safe and well tolerated.

D43

Tiredness and Functional Trajectories.

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Supported By: NIA, Hartford Foundation, Merck Unrestricted Grant
 Fatigue and tiredness are common complaints among older adults and key components of the frailty syndrome, yet little is known about the relationship between fatigue and functional status. Our objective was to determine the effect of baseline tiredness on functional trajectory among a cohort of 492 persons aged 65 years or older and able to walk 4 meters. Participants were assessed 10 times over a 30 month period. At baseline, participants were asked if they experienced “feeling tired most of the time” during the prior month, and if so to rate the degree to which it limited their function on a four point scale from “not at all” to “quite a lot.” Functional status was assessed with three outcomes: the number of 16 I/ADLs with which participants have no difficulty or dependence, the MOS Physical Performance Index (PFI, range 0-100), and usual gait speed (meters/second). Hierarchical linear models were used to determine the effect of tiredness on each functional outcome at baseline and on the rate of decline over time. Models were adjusted for age, gender, race, education, cognition, BMI, comorbidity, and depressive symptoms. Increasing tiredness was associated with worse function at baseline for all measures (table). Function declined over time for all measures, but the rate of decline did not differ significantly by tiredness. Participants with tiredness remained at a lower functional level throughout follow-up. Tiredness is an important symptom associated with adverse functional outcomes. Further research is needed to determine the pathophysiology of tiredness and develop treatments.

D44

Dietary Fats and Incident Coronary Heart Disease in Older Adults: the Health ABC Study.

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Supported By: This work was supported by NIA contracts N01-AG-6-2101, N01-AG-6-2103, and N01-AG-6-2106; the WFU OAIC (P30 AG-021332); and the American Egg Board.

SIGNIFICANCE: Although dietary fat subtypes have previously been associated with risk of coronary heart disease (CHD) in middle aged populations, less is known about the association among older adults.

PURPOSE: The objective of this study was to determine the association between dietary fats and cholesterol and incident CHD among men and women in the Health, Aging and Body Composition Study (n=1,934, mean age 74.5, 55.5% female, 62.1% white).

METHODS: Dietary intake was calculated using an interviewer-administered 108-item food frequency questionnaire in 1998-99 and intakes of dietary fats were calculated as percentages of energy or per 1000 kcal. A CHD event was defined as a confirmed myocardial infarction, hospitalization for angina, or coronary death. The association between dietary fats and risk of CHD over a mean 5.4 years of follow-up was examined using Cox proportional hazard models adjusted for demographics (age, gender, race, education, field site), health behaviors (smoking, alcohol consumption, physical activity, BMI), energy and fiber intake, percent of energy from protein and other dietary fats, statin and oral estrogen (females only) use, multivitamin and vitamin E use, and prevalent diabetes and hypertension.

RESULTS: During follow-up, there were 169 (8.7%) incident cases of CHD. In age adjusted models, dietary cholesterol was positively associated (HR [95% CI]: 1.48 [1.01-2.17] in the highest versus the lowest tertile of intake, p for trend, 0.05) and polyunsaturated: saturated fat (P:S) ratio was inversely associated (0.61 [0.41-0.91], p for trend, 0.02) with risk of CHD. After adjustment for potential confounders and other dietary fats, the associations were attenuated; however, a trend remained for P:S ratio and CHD risk (0.68 [0.45-1.04], p for trend, 0.07). There were no significant associations between other dietary fats (total, saturated, mono- or polyunsaturated, or trans fat) and CHD risk.

CONCLUSIONS: In conclusion, except for P: S ratio, dietary fats and cholesterol were not associated with CHD risk among well-functioning older adults in the Health ABC cohort.

D46

The effect of ethnicity on carotid plaque risk factors and associated vascular calcification in menopausal women.

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Supported By: Medical Student Summer Research Training in Aging Program (NIH)

BACKGROUND: Carotid atherosclerosis marks atherosclerosis in other vascular beds. The distribution of atherosclerosis by vascular bed is known to differ in Blacks (B) vs. Whites (W). We set out to determine if the risk factors

for carotid plaques in menopausal women are the same for B vs.W, and whether or not the association between carotid plaques and disease in other vascular locations is the same for B vs.W.

METHODS: We evaluated 608 women, mean age of 50 (37% B, 10% premenopausal, 59% perimenopausal, 31% postmenopausal), in the Study of Women Across the Nation. Carotid plaque was assessed with B-mode ultrasound and coronary and aortic calcification with Electron Beam Tomography. Carotid plaque was defined as a focal area of thickening at least 50% greater than surrounding areas. Covariates included LDL,TPA, physical activity, and BMI.

RESULTS: Carotid plaque occurred in 15% of B and W and in 7% of premenopausal women, 13% of perimenopausal women and 21% of postmenopausal women ($p= 0.02$). The trend was similar for B and W. In W, carotid plaque was associated with higher LDL ($p= 0.04$) and higher TPA ($p= 0.02$). Borderline associations were also seen with lower physical activity and higher BMI. Among B, no risk factors were found to be significantly associated with plaque. In multivariate analysis controlling for age among W, TPA and menopausal status remained significantly associated with the presence of plaque ($p= 0.02$ for both). Carotid plaque was strongly associated with coronary and aortic calcification in W ($p<0.001$), but not in B. The associations in W remained significant after controlling for age, TPA and menopausal status. In B, no association or trend was found.

CONCLUSION: Risk factors associated with carotid plaques differ in menopausal B and W. Plaques appear to be a good marker for disease in other vascular beds in W but not B. Risk factors for carotid plaques in B menopausal women remain unexplained. Since vascular disease is an important source of morbidity in B menopausal women, there is a great need for further understanding of unique risk factors and regional patterns of plaque formation.

D49

Effect of Weight Loss from Lifestyle Intervention on Appetite Hormones in Overweight, Post-Menopausal Women.

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Supported By: National Heart, lung, and Blood Institute grant #R01-HL-66468; American Federation for Aging Research (MSTAR program)

INTRODUCTION/PURPOSE: Diet and exercise interventions can promote weight loss; however, some participants tend to be more successful than others at losing weight and maintaining weight loss. This study explores how differing levels of success with weight loss may be due in part to hormones mediating energy homeostasis and to dietary restraint behavior.

METHODS: The Women on the Move through Activity and Nutrition study is an ongoing, non-pharmacological lifestyle intervention trial of diet and physical activity in 508 overweight, postmenopausal women. The present analysis primarily involves 200 women for whom data on the hormones ghrelin, leptin, adiponectin, CRP, and insulin were collected at baseline and 18 months from fasting blood samples. Psychosocial instruments included a Revised Restraint Scale (the median restraint score was used to classify women as having either High or low restraint). Levels of the hormones and scores from psychosocial

instruments were compared to changes in weight at baseline, 18 and 30 months. The 200 women were divided into quartiles based on change in weight from baseline to 18 months and from 18 to 30 months.

RESULTS: 96 out of 200 women were obese at baseline; the obese women, compared to non-obese women, had significantly higher insulin [15.0 (7.8) vs. 11.0 (4.6); $p < 0.0001$], leptin [26.1 (8.5) vs. 19.3 (6.5); $p < 0.0001$], and CRP [6.0 (4.8) vs. 4.0 (4.5); $p = 0.003$]. At 18 months (N=200), the average weight change was -10.5 lbs with a range of +18 lbs to -77.5 lbs. The average baseline to 18 month changes in ghrelin ($p = 0.0005$) and adiponectin ($p < 0.0001$) levels increased with amount of weight loss, while average changes in levels of leptin ($p < 0.0001$) and CRP ($p = 0.0015$) decreased with extent of weight loss. At 30 months, no relationship between weight regain (of at least 5 lbs) from 18 to 30 months and ghrelin was observed (N =65); similarly, no relationships were found between weight regain and leptin, adiponectin, or CRP. Women with high restraint had greater weight at baseline ($p = 0.012$, N=500). No significant relationships between restraint level and the hormones were observed.

CONCLUSION: Degree of weight loss in overweight, postmenopausal women is significantly associated with changes in appetite-related hormones. However, changes in these hormones did not predict ability to maintain weight loss.

D84

Cerebral bladder control network in normal and urge-incontinent women.

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Supported By: NIH: RO3AG25166, RO1AG020629, P01AG04390.

University of Pittsburgh Competitive Medical Research Fund

PURPOSE: To investigate the supraspinal contribution to normal and overactive bladder function and the sensation of urgency, postulating that right insula (RI), anterior cingulate gyrus (ACG) and pontine micturition center (PMC) are associated with bladder sensation, emotional arousal and detrusor overactivity (DO) respectively.

METHODS: Functional magnetic resonance imaging was used to examine regional brain responses to bladder infusion in 21 females aged 26 – 85 years: 11 “cases” with urge incontinence and DO and 10 “controls” with normal bladder function. Responses and their age dependence were determined at small and large bladder volumes (with weaker and stronger sensation), with particular attention to RI, ACG and PMC.

RESULTS: In controls, increasing bladder volume led to increasing responses in right insula (Figure-left). With increasing age, normal insular responses became weaker ($r = -0.67$). Similar responses were seen for the RI among cases, but only in cases did the ACG respond strongly, at large bladder volume and with strong sensation (Figure-right). ACG activation was accompanied by marked responses in other brain regions, including PMC. Elderly cases showed even stronger ACG responses and even at small bladder volume ($p < 0.001$).

CONCLUSION: These results support the hypothesis that RI is concerned with mapping of afferents and sensation. Strong activation of ACG is abnormal and may represent urgency, with concomitant PMC activation indicating threatened or actual DO. In the elderly, CNS sensation of bladder filling is reduced, and urge incontinence is more easily provoked and may have a different origin.

D88**Treatment Cost of Gout in an Elderly Population: A Claims Database Analysis.**

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Supported By: This research was sponsored by TAP Pharmaceutical Products Inc.

BACKGROUND: Gout is a common illness in the U.S. that has increased in prevalence in recent decades, especially among the elderly.

PURPOSE: The purpose of this study is to examine the economic burden of gout among the elderly population from a payer perspective, with particular emphasis on the costs associated with tophi.

METHODS: Elderly gout patients (aged 65 years or older) with at least two years continuous eligibility were identified in the IHCIS National Managed Care Database (1999-2005) using gout diagnoses and/or gout-related medications. Gout-free controls were matched 1:1 with gout patients based on age, gender, and region. Both annual total healthcare costs and gout related costs were calculated. Costs were inflation-adjusted to 2005 U.S. dollars. One year total healthcare costs were compared between gout patients and matched controls using both paired t-test and a two-step multivariate regression model adjusting for patient demographics and comorbidities. Costs of patients with tophi were compared to gout patients without tophi using both ttests and generalized linear model (GLM), controlling for patients demographics and comorbidities. Both gout and tophi were identified based on ICD-9-CM codes associated with medical visits.

RESULTS: The study included 11,935 pairs of elderly gout patients and non-gout controls. Approximately two thirds (64%) of patients were 65-74 years old; others were 75+ years old; 74% were male and 240 had a tophi diagnosis. Average annual total healthcare costs for the gout sample were \$14,734, of which \$875 were gout-related. The nongout control group had average annual total healthcare costs of \$9,219. The two-step regression model revealed that the average annual excess cost of gout was \$3,918 (p<0.001). More than half of this difference was attributable to inpatient care. The GLM model yielded annual incremental total and gout-related costs for gout patients with tophi relative to those without tophi of \$5,957 and \$1,552, respectively (both p<0.001).

CONCLUSIONS: The incremental healthcare cost associated with gout is substantial among elderly patients, even after comorbidities are taken into account. The economic burden is even more pronounced among elderly gout patients with tophi.

D90**Different Kinds of Slow: Hand Movement Speed Discriminates Current and Future Function and Health Among Slow Walkers.**

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Supported By: American Federation for Aging Research (AFAR) and the National Institute on Aging (NIA)

PURPOSE: Slow gait speed is a powerful indicator of future status but gait speed has many contributing impairments, which may differentially influence prognosis. We predicted that slow walkers with generalized motor slowing as demonstrated by slower upper extremity movement speed, would have more cognitive, emotional and physical health problems than those with fast hand movement speed.

METHODS: From a cohort sample established in 1996, persons with baseline

gait speed < 1.0 m/sec were classified using the timed 9 hole peg test into fast (F, n= 104) and slow (S, n= 120) subgroups. Concurrent and subsequent status was determined for mood (Geriatric Depression Scale- GDS), cognition (MMSE), disability (National Health Interview Scale, 16 ADL and IADL items), health care utilization, falls and survival. Analyses were adjusted for age and gender. RESULTS: Among slow walkers, hand movement speed affected concurrent mood (mean GDS S= 3.3, F= 2.49, p = .0466), cognition (mean MMSE S= 26.38 F= 27.81 p < .0001), and disability (S 23% vs F 42% independent in all functions, p= .0002). Hand movement speed also affected status one year later. Compared to F, S had significantly increased risk of falls (OR= 2.84, p = .0006), health care utilization (OR= 2.15, p = .0117) and worsening disability (OR= 3.00, p= .0094). Seven year survival was worse in S than F (p = .0083). CONCLUSIONS: Older adults with slow gait speed who have slower upper extremity motor function based on the peg test have substantially more mood, cognition, and functional deficits, more health care utilization and worse survival. Generalized motor slowing appears to be an important indicator of multiple affective, cognitive, health and functional problems. A brief simple test of motor speed may refine prognosis among older persons identified as high risk for poor outcomes due to slow gait speed.

D91

Does Obesity Explain the Excess Disability in Older Black Women?

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PURPOSE: Obesity is associated with higher disability rates. Although it has been linked to other outcomes such as chronic disease, mobility problems, and poor quality of life, the extent to which obesity accounts for higher rates of disability in Black women (BW) is not known. Therefore, we aim to observe this association among White/Black and male/female groups.

METHODS: We performed a secondary analysis of data from the 1995 National Health Interview Survey (NHIS)-Disability Supplement. The predictor variable was body mass index (BMI) categorized by standard BMI classes (normal, 18.5-24.9 kg/m²; overweight, 25-29.9; class 1 obesity, 30-34.9; class 2, 35-39.9; and, class 3, >=40). The outcome was self-reported disability according to a 16-item NHIS ADL-IADL disability scale, dichotomized into minimal to no Disability (score >28) and at least moderate disability (<28). Bivariate analyses with obesity and disability were done among different race-gender groups.

We then examined weight class as a predictor of disability among these groups.

RESULTS: Individuals aged 45+ years were included in this analysis. Of the 6,433 participants, 35% were White men (WM), 48% White women (WW), 5% Black men (BM), and 9% BW. The highest obesity prevalence rates were among BW (class 1-22%, class 2-13%, and class 3-9%). The lowest rates were among WW (15%) in class 1 and among WM in class 2 (5%) and class 3 obesity (1%). These differences were highly significant ($\chi^2=308.29$, p<.001). The lowest proportion of having at least moderate disability was 14% among WM and highest among BW (29%). The relationship between race-gender group and disability was also highly significant ($\chi^2=163.37$, p<.001).

Regression modeling showed that those of older age and higher BMI were significantly less likely to be fully functioning. A similar but differential effect was revealed by race-gender group such that BM, WW, and BW were less likely to be fully functioning (WM as referent group; OR [95%CI]=0.67 [0.47-0.94],

0.58 [0.5-0.68], and 0.46 [0.36-0.58], respectively). When BMI was excluded from the model, only a negligible decrease in the OR was observed with the largest reduction in BF (from 0.46 to 0.41).

CONCLUSION: Excess weight is an important predictor of disability, however obesity does not appear to substantially affect disability among older BW. Therefore, factors contributing to excess disability rates in older BW remain unexplained.

D93

Subclinical Decline in Performance among Older Adults (Health ABC Study).

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Supported By: Pittsburgh Pepper Older Americans Independence Center (NIA P30 AG024827); Health ABC Study (NIA N01-AG-6-2101, 2103 & 2106) Performance measures can detect clinical (self-perceivable) and subclinical (non self-perceivable) change. While self-reported change serves as an anchor to estimate meaningful performance change, less is known about other factors that influence change.

METHODS: Year 1 and 4 data from the Health, Aging and Body Composition (HABC) study included 6-meter (m) usual gait speed (GS), 400m walk time (400MWT), Short Physical Performance Battery (SPPB), HABC Physical Performance Battery (PPB), and two separate 7-level self-reported measures of mobility: difficulty/ease in climbing 10 steps and walking 1/4 mile. We fitted multiple regression models with performance change as the outcome and 3 predictors: baseline performance, baseline self-report and change in self-report.

RESULTS: At baseline, 48% were male with mean age 74 and mean GS 1.18 meters/second (m/s). Table shows regression coefficients corresponding to stated units for effects of performance and self report on performance change (all $p < 0.004$). Interactions between baseline performance and self-report change were not significant/negligibly small, showing increased decline in high baseline performers among both those with (clinical) and without (subclinical) perceived decline. Patterns persisted for climbing 10 steps.

CONCLUSIONS: As initial performance increases, performance decline over time is greater. As baseline self-reported mobility ease increases, performance decline over time decreases. Self reported change effects on performance change are constant across baseline performance. The greater performance decline, independent of self reported decline, in those with high baseline performance suggests a subclinical effect. These observations may be influenced by regression to the mean, performance thresholds and/or dropout bias. Subclinical effects might be reduced with more difficult self-report items like walking a mile.

D100

Predicting Skeletal Integrity in Master Athletes and Non-Athlete Controls.

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Supported By: Proctor and Gamble

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PURPOSE: Little data are available on the importance of high versus low-impact exercise in bone mass in the elderly. We examined the importance of extreme physical fitness and other variables in bone mass.

METHODS: We enrolled master athletes over the age of 65 years from the Summer Senior Olympic Games 2005 and examined bone mineral density (BMD) in 44 runners (high-impact), 43 swimmers (low-impact), and 87 community-dwelling non-athlete controls. Primary outcomes included BMD by DXA of the spine, hip, and radius. Multiple regression was used to examine the impact of athlete status and other measures on bone mass, and R-square (R²) was used to quantify proportion of explained variability. Analyses were repeated after stratification by gender.

RESULTS: Participants included 110 men, and mean age was 74. Spine BMD was significantly different among the groups ($p=0.0051$). Both controls (1.11g/cm²) and swimmers (1.07 g/cm²) had greater spine BMD than runners (1.00 g/cm²). However, weight was significantly different among the groups ($p<0.0001$). After adjusting for age and weight, the between group differences were not significant ($p=0.6174$). R² for age and weight are 0-11% in men and 11-27% in women. Athlete group explains only 4% or less additional variability in measures of bone mass, beyond that explained by age and weight, in both men and women (see table; * $0.05 < p < 0.10$; ** $p < 0.05$).

CONCLUSION: A substantial proportion of BMD variability is explained by age and weight in women but not men. Athlete group explains little additional variability in both men and women.

D115

Consensus List of Signals to Detect Potential Adverse Drug Reactions in Nursing Homes.

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BACKGROUND: Adverse drug reactions (ADRs) are a common cause of morbidity and mortality in nursing homes. Computerized clinical event monitors (automated decision-support systems that provide feedback to healthcare professionals) have been developed to automate the detection of potential ADRs in acute and ambulatory care settings. No such list of signals for potential ADRs exists for use in the nursing home setting.

PURPOSE: To develop a consensus list of signals from data available in electronic format in nursing homes that can be used by a clinical event monitor to detect ADRs.

METHODS: We conducted a comprehensive literature review of Medline, EMBASE, International Pharmaceutical Abstracts and textbooks to identify an initial set of potential signals to detect ADRs. These potential signals were used to structure the initial round of a two-round, web-based modified Delphi process. Ten pharmacists, 11 physicians, and 13 advanced practitioners with expertise in geriatrics, rated the likelihood that each proposed signal was associated with a potential adverse drug reaction using a 5-point Likert

scale (1=strongly disagree and 5= strongly agree). We calculated means and 95% confidence intervals (CI). An ADR signal was determined to have reached consensus when the lower 95% CI limit was ≥ 4.0 .

RESULTS: Through our literature review, we identified a total of 80 potential signals (9 Resident Assessment Protocols [RAPs], 16 medication levels, 20 antidotes, and 35 medication-laboratory combinations). The response rate was 63.2% on round one and 94.4% on round two. Consensus was reached on 40 of the potential signals (3 RAPs, 10 antidotes, 12 medication levels and 15 medication/laboratory combinations). The three signals with the highest level of consensus were: 1) use of Vitamin K 4.7 [95% CI, 4.5-4.9], 2) use of naloxone 4.6 [95% CI, 4.4-4.9], and 3) the falls RAP 4.6 [95% CI, 4.5-4.8].

CONCLUSION: Experts were able to reach consensus on a defined list of signals for detecting potential ADRs in nursing home residents. Further research is necessary to examine the prevalence of these signals, and sensitivity and specificity of them for detecting ADRs using a clinical event monitor.

D118

Factors Influencing Older Women's Choices to Take Osteoporosis Medications.

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Supported By: Funding Source: AMDA Research Foundation Quality Improvement Award; National Institute on Aging, Grant 1T35AG026778-01, Pittsburgh Claude D. Pepper Older Americans Independence Center, P30 AG024827; John A. Hartford Foundation.

BACKGROUND: The undertreatment of osteoporosis is a significant cause of morbidity and mortality in older women. Barriers to osteoporosis treatment in older women have not been explored.

PURPOSE: To examine the relationship between older women's knowledge and perceptions of osteoporosis and their choosing to take an osteoporosis medication.

METHODS: We conducted a cross-sectional study of community dwelling women aged 65 and older. Participants were asked to complete the Osteoporosis Treatment Preferences survey which assessed knowledge, perceptions of fracture risk, and preferences for osteoporosis medications. To elicit preferences, we presented 15 choice sets containing three hypothetical osteoporosis medications and a "No Medication" option. Participants were then asked to choose which of the four options in a set they preferred. Descriptive and contingency table analyses were performed to test for association and generate odds ratios comparing the participants who always chose to take a medication to those who chose to take "No Medication" in at least one choice set.

RESULTS: Among the 118 participants recruited (median age 77; 24% African American), only 36 (31%) indicated a preference to take one of the medications in every choice set. Knowing a friend/family member with osteoporosis (Crude OR=5.51; $p<0.001$), having a diagnosis of osteoporosis (Crude OR=3.42; $p<0.001$) or knowing that an osteoporosis medication might prevent fractures (Crude OR=3.08; $p<0.01$) increased odds of always choosing to take an osteoporosis medication.

CONCLUSION: Older women with intimate knowledge of osteoporosis appear most likely to always choose to take an osteoporosis medication.

Future studies are needed to better understand which aspects of the medications themselves most influence women's willingness to take them.