(2014-2019) from 40 US states. The physical frailty phenotype (PFP), SPPB, ADL/IADL dependence and 3MS global cognitive impairment were assessed at transplant evaluation. Household-level air pollution was estimated as annual average PM2.5 concentrations at each participant's address using SEDAC national air pollution data. We estimated the odds of these gerontologic constructs using adjusted logistic regression by quartiles of PM2.5 concentrations accounting for confounders including socioeconomic status. Compared to patients with PM2.5 concentrations in the lowest quartile (<9.3µg/m3), those with exposure to the 3rd quartile (10.0-11.1µg/m3) had 1.50-fold (95%CI:1.04-2.17) increased odds of frailty. However, exposure to PM2.5 concentrations in the second (9.3-10.0µg/m3) and fourth quartiles (>11.1µg/m3) were not significant. Those with PM2.5 in the 3rd (OR=1.60, 95%CI:1.19-2.16) or 4th (OR=1.61, 95%CI:1.20-2.16) quartile had an increased risk of having dependence in ADLs or IADLs. PM2.5 was not associated with SPPB or cognitive impairment. Among ESKD patients, fine particulate matter was associated with greater frailty and dependence burden, although these association may not be linear. Further study of the role of inflammation on these associations are needed.

BIDIRECTIONAL RELATIONSHIP BETWEEN SUBJECTIVE AGE AND FRAILTY: FINDINGS FROM THE NHATS

Yuxiao Li,[1] Minhui Liu,[1] Christina Miyawaki,[2] Xiaocao Sun,[1] Tianxue Hou,[1] Siyuan Tang,[1] and Sarah Szanton[3], *1. Central South University, Changsha, Hunan, China, 2. University of Houston, Houston, Texas, United States, 3. Johns Hopkins University, Baltimore, Maryland, United States*

Frailty is a clinical syndrome that becomes increasingly common as people age. Subjective age refers to how young or old individuals experience themselves to be. It is associated with many risk factors of frailty, such as increased depression, worse cognitive function, and poorer psychological wellbeing. In this study, we examined the relationship between subjective age and frailty using the 2011-2015 waves of the National Health and Aging Trends Study. Participants were community-dwelling older adults without frailty in the initial wave (N=1,165). Subjective age was measured by asking participants, "What age do you feel most of the time?" Based on the Fried five phenotypic criteria: exhaustion, unintentional weight loss, low physical activity, slow gait, and weak grip strength, frailty was categorized into robust=0, pre-frail=1 or 2; frail=3 or more criteria met. Participants were, on average, 74.1±6.5 years old, female (52%), and non-Hispanic White (81%). Eighty-five percent of the participants felt younger, and 3% felt older than their chronological age, but 41% of them were pre-frail/frail. Generalized estimating equations revealed that an "older" subjective age predicted a higher likelihood of pre-frailty and frailty (OR, 95%CI= 1.01, 1.01-1.02). In contrast, frailty predicted an "older" subjective age (OR, 95%CI= 2.97, 1.65-5.35) adjusting for demographics and health conditions. These findings suggest a bidirectional relationship between subjective age and frailty. Older people who feel younger than their chronological age are at reduced risk of becoming pre-frail/frail. Intervention programs to delay frailty progression should include strategies that may help older adults perceive a younger subjective age.

DIFFERENCES IN CAUSE-SPECIFIC MORTALITY BETWEEN FRAIL MEN AND WOMEN IN THE UNITED STATES

Matthew Lohman,[1] Amanda Sonnega,[2] Amanda Leggett,[2] and Nicholas Resciniti,[1] *1. University of South Carolina, Columbia, South Carolina, United States, 2. University of Michigan, Ann Arbor, Michigan, United States*

While frailty is associated with risk of numerous adverse health outcomes including mortality, little is known about the most common specific causes of death among frail older adults or how these causes might differ by gender. This information may be important to understanding the frailty syndrome and to informing screening and treatment. We used linked data from the Health and Retirement Study (2004 – 2012) and the National Death Index (NDI). We analyzed data from HRS participants age 65 and older who completed a general health interview and physiological measures (n=10,490). Frailty was operationalized using the phenotype criteria – low weight, low energy expenditure, exhaustion, slow gait, and weakness. Causes of death were determined using International Classification of Diseases (v10) codes from death certificates. We used Cox proportional hazards to compare incidence of cause-specific mortality by frailty status and gender. The attributable risk of mortality due to frailty in the sample was 16.6% among women and 17.3% among men. Overall, frail older adults had greater risk of death from heart disease (hazard ratio (HR): 2.97; 95% CI: 2.18, 4.04), cancer (HR: 2.81; 95% CI: 2.01, 3.93), and dementia 2.86 (95% CI: 1.46, 5.58) but not cerebrovascular disease or accidents. Frail women were more approximately 29% more likely to die from heart disease than frail men. Findings suggest that frailty is a significant risk factor for mortality from several different causes, especially among women. Findings may help inform screening and treatment decisions for older adults at risk for frailty.

INTERSECTION OF SEX AND FRAILTY IN HUMORAL IMMUNE RESPONSES TO INFLUENZA VACCINE IN COMMUNITY-DWELLING OLDER ADULTS

Janna Shapiro,[1] Helen Kuo,[1] Rosemary Morgan,[1] Huifen Li,[2] Sabra Klein,[1] and Sean Leng,[2] *1. Johns Hopkins Bloomberg School of Public Health, Baltimore, Maryland, United States, 2. Johns Hopkins School of Medicine, Baltimore, Maryland, United States*

Older adults bear the highest burden of severe disease and complications associated with seasonal influenza, with annual vaccination serving as the best option for protection. Variability in vaccine efficacy exists, yet the host factors that affect immune responses to inactivated influenza vaccines (IIV) are incompletely understood. We hypothesized that sex and frailty interact to affect vaccine-induced humoral responses among older adults. To test this hypothesis, community-dwelling adults above 75 years of age were recruited yearly, assessed for frailty (as defined by the Cardiovascular Health Study criteria), and vaccinated with the high-dose trivalent IIV. Humoral immune responses were evaluated via hemagglutination inhibition titers. The study began during the 2014-2015 influenza season, with yearly cohorts ranging from 76-163 individuals. A total of 617 vaccinations were delivered from 2014-2019. In preliminary analyses, the outcome of interest was seroconversion, defined

as ≥ 4-fold rise in titers. Crude odds ratios suggest that females are more likely to seroconvert to influenza A strains (H1N1: OR = 1.39, (0.98-1.96) ; H3N2: 1.17 (0.85 – 1.62)), while males are more likely to seroconvert to the B strain (OR = 0.85 (0.60 – 1.22)). Furthermore, this sex difference was modified by frailty – for example, the odds of seroconversion to H1N1 were 65% higher for females than males among those who were nonfrail, and only 30% higher among females who were frail. Together, these results suggest that sex and frailty interact to impact immune responses to influenza vaccines. These findings may be leveraged to better protect vulnerable populations.

URBAN-RURAL DIFFERENCES IN SARCOPENIA PREVALENCE AND NUTRITIONAL RISK FACTORS: THE NHANES (2001–2002 AND 2011–2014)

Jason Aziz,[1] Kieran Reid,[1] John Batsis,[2] and Roger Fielding,[1] *1. Tufts University, Boston, Massachusetts, United States, 2. Dartmouth College, Lebanon, New Hampshire, United States*

Background: Older adults living in rural areas experience health inequities compared to their urban counterparts. These include comorbidities, poor diet and physical inactivity; known risk factors for sarcopenia. No studies examining urban-rural differences in the prevalence of sarcopenia and slow gait speed among older adults in the United States exist. Objective: To compare the prevalence of sarcopenia and slow gait speed between urban and rural older adults living in the United States. As a secondary aim, we examined relationships between rural residency, total energy and total protein on gait speed and grip strength. Methods: We performed a secondary data analysis of two cohorts in the continuous NHANES (2001-2002 and 2011-2014), using gait speed or grip strength data, along with urban-rural status, dietary, examination, questionnaire and demographic data in older (≥ 60 yrs.) adults. Results: The prevalence of GripBMI weakness was higher in urban vs. rural participants (27.4% vs. 19.2%), whereas their absolute grip strength was lower (31.75(±0.45) vs. 33.73(±0.48)). Total energy, total protein and relative protein intakes were similar between urban and rural participants. Total energy intake was associated with gait speed and grip strength. Conclusions: Older adults living in urban areas of the United States, were weaker compared to their rural counterparts. Rural residency was not associated with gait speed or grip strength. Total energy intake was associated with slower gait speed but higher grip strength. This report is the first to examine urban-rural differences in sarcopenia and slow gait speed in older adults living in the United States.

SESSION 2927 (POSTER)

DEMENTIA AND COGNITIVE IMPAIRMENT I

A SHORT, VALID, AND FLEXIBLE WEB-BASED SCREENER FOR MILD COGNITIVE IMPAIRMENT

Nicole Schmidt,[1] Laura Germine,[2] Eric Grodsky,[3] Chandra Muller,[4] John Robert Warren,[1] and Jennifer Manly,[5] *1. University of Minnesota, Minneapolis, Minnesota, United States, 2. Harvard Medical School, Belmont, Massachusetts, United States, 3. University of Wisconsin-Madison, Madison, Wisconsin, United States, 4. University of Texas at Austin, Austin, Texas, United States, 5. Columbia University, New York, New York, United States*

Clinical assessments for identifying mild cognitive impairment (MCI) can be costly and time-consuming. Few screeners for MCI exist that can be implemented quickly and outside of the clinic using flexible, cost-effective methods, such as web-based, mobile device-friendly assessments. Using data from middle-aged, racially and ethnically diverse Offspring Study participants (N=34 with MCI, N=54 without MCI; mean age: 53.9±3.4), we analyzed the sensitivity and specificity of several web- and telephone-based measures to identify MCI, after accounting for age and education. Web assessments included the Verbal Paired Associates (PA) and Visual PA tests. Phone assessments included the Number Series, Letter and Category Fluency, Number Span Forward & Backward, the AD8, and self-reported memory complaints. The discriminant ability of the web-based Visual PA test for MCI (ROC Area = .69) was comparable to phone-based measures, including the Category Fluency (ROC Area = .69), Number Span Forward (ROC Area = .61) and Backward (ROC Area = .67), and Letter Fluency (ROC Area = .68). Visual PA strongly predicted MCI, with a 98% reduction in the odds of MCI for every additional correct answer (OR=0.02), but our results are imprecise (95%CI: .000 to .76). A web-based Visual PA measure appears comparable to phone assessments in detection of MCI, although substantial uncertainty in its diagnostic precision remains. However, it is short, easily administered on a large-scale, and our evidence suggests that it can provide a sensitive and specific test to refer racially and ethnically diverse individuals for more thorough clinical assessment.

AN INNOVATIVE MODEL OF DEMENTIA PROGRAMMING FOR COMMUNITY-DWELLING OLDER ADULTS WITH FAMILY CAREGIVERS

Gregg Gorzelle,[1] Michael Skrajner,[2] Cassie Best,[3] and Drew Walker,[4] *1. Hearthstone Alzheimer Care, Hiram, Ohio, United States, 2. Hearthstone Alzheimer Care, Wickliffe, Ohio, United States, 3. Hearthstone, Cleveland, Ohio, United States, 4. Hearthstone, Woburn, Massachusetts, United States*

Decide, Discover, and Do!TM (D3) is an alpha-version iPad application developed and evaluated in a National Institute on Aging-funded Phase 1 SBIR project. The goal of D3 is to enhance the quality of life and care for community-dwelling persons living with dementia whose primary care partners are family members. D3 consists of (1) evidence-based activities for care partners to facilitate with their loved ones and (2) video-based interactive training on best practices in dementia care, for care partners. The activities are unique in that they create an overarching narrative for daily activities that creates a consistent routine capitalizing on procedural memory. The activities build upon one another, starting with the persons living with dementia choosing a topic (e.g., nature) early in the day, followed by the dyad engaging in a tablet-based activity related to the topic (e.g., reading an article about forests), and culminating in an experiential activity (e.g., tasting various foods found in nature, e.g. wild raspberries). A total of 18 participants took part