between fear of COVID-19 infection, demographic variables, and care-seeking behaviors. Multivariable logistic regression modeled associations between fear of COVID-19 infection and care-seeking behaviors. RESULTS/ANTICIPATED RESULTS: Adjusted multivariable logistic regression revealed a statistically significant association between fear of COVID-19 infection and having a provider visit; AYA who feared COVID-19 were at greater than two times increased odds of a provider visit compared to AYA who did not fear COVID-19 infection (OR: 2.37, 95%CI: 1.02, 6.15). Among those with a provider visit, fear of COVID-19 infection was associated with two-fold increased odds of having a telemedicine visit vs. an in-person visit (OR: 2.23, 95%CI: 1.09, 4.51), however this was not statistically significant in the adjusted model. There were however significant associations detected in the adjusted model for HIV status, insurance type and telemedicine utilization respectively. DISCUSSION/SIGNIFICANCE: This study demonstrates the ongoing need for health services during the recent pandemic and overall willingness of AYA to utilize telemedicine. Given the sexual health disparities faced by AYA, who bear more than half of the 50 million STI cases in the US, optimizing services for AYA is essential and consistent with new laws expanding telehealth use.

106

Cumulative Cancer Location Incidence and Cancer Progression in an Active Surveillance Cohort

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OBJECTIVES/GOALS: Prostate cancer is the 2nd most common cancer among men. 1/3 of these men have a slow-growing disease that can be managed without intervention. Instead of treatment, they can enter an active surveillance program. The goal of this study is to examine if cumulative cancer location can predict one's disease progression and be used as a clinical marker. METHODS/STUDY POPULATION: This is a retrospective cohort study consisting of men with Gleason Grade 1 prostate cancer enrolled in the Active Surveillance Program at Johns Hopkins. The cohort includes men who were enrolled in the program from 2007 to 2015 before prostate biopsies incorporated multiparametric MRI as of the prostate. We will assess if cumulative cancer location (CCLO), a sum of the total number of histological cancer-positive locations on diagnostic and confirmatory biopsy, can predict grade progression, adverse findings on radical prostatectomy findings, or protocol-based discontinuation. Kaplan Meier survival analyses and multivariable Cox regression will be used to determine if stratifying by CCLO can predict these outcomes. RESULTS/ANTICIPATED RESULTS: We included 1298 men in this study. The study will analyze variables that will be used in multivariable regression. Some variables of interest include age at diagnosis, PSA, PSA density, race/ethnicity, and number of positive cores. We expect that greater variability of tumor location, a higher CCLO score, will lead to more grade progression, protocol-based discontinuation, shorter time on active surveillance and adverse findings after radical prostatectomy. This hypothesis is based on a 2018 study that determined cancer location as a significant predictor of progression at the time of biopsy. Results will be discussed in full at the conference. DISCUSSION/SIGNIFICANCE: Finding a predictive marker of progression at the time of biopsy is clinically significant and can lead to adjusted patient observation and testing while on active surveillance. This will better stratify men on active surveillance, determine who would benefit from genetic testing, and better counsel patients as to how long they will be on surveillance.

107

Environmental Exposure to Metals Mixtures and the Outcome of Cognitive Function in Adolescents

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OBJECTIVES/GOALS: Exposure to arsenic, cadmium, manganese, and lead have been linked to adverse neurocognitive outcomes in adults/children, but effects in adolescents are not fully characterized. This study aims to examine the association between exposure to a mixture of metals (As, Cd, Mn, Pb, Se) and cognitive function in adolescents. METHODS/STUDY POPULATION: The Metals, Arsenic, & Nutrition in Adolescents Study (MANAS) is a cross-sectional study of 572 Bangladeshi adolescents. Blood levels of As, Cd, Mn, Pb, and Se were measured via ICP-MS. An abbreviated Cambridge Neuropsychological Test Automated Battery (CANTAB) was administered, with subtests assessing cognitive function and executive function tasks. Linear regression and Bayesian kernel machine regression (BKMR) were used to examine associations between individual metals, the overall mixture of metals, and cognitive function as measured by the CANTAB. RESULTS/ANTICIPATED RESULTS: Linear regression showed that As (B=-2.40) and Mn (B=-5.31) were negatively associated with Spatial Working Memory (p<0.05). Negative associations were also observed between Cd and Spatial Recognition Memory (SRM) (B=-2.77, p<0.05), and between Pb and Delayed Match to Sample (DMS), a measure of visual recognition and memory (B=-3.67, p<0.05). Se and Spatial Span Length (B=0.92, p<0.05) were seen to be positively associated. BKMR showed no overall effect of the mixture but indicated that Pb was negatively associated with DMS, and that Cd was negatively associated with SRM. Se was positively associated with Planning, Reaction Time, and Spatial Span. Posterior inclusion probability consistently rated Se as the most influential mixture component. DISCUSSION/SIGNIFICANCE: Se was positively associated with cognition, while Mn and As were linked to poorer working memory, and Cd and Pb were associated with poorer visual recognition and memory. We saw agreement between linear regression and BKMR in analyzing metal mixture exposures. Findings suggest interventions aimed at adolescents might influence lifelong cognition.

108

Chronic cadmium exposure is associated with cognition among adults over age 60 in a representative US sample*

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OBJECTIVES/GOALS: To examine the relationship between chronic cadmium exposure and cognitive function in later life, we estimated the association of urinary cadmium concentration on composite cognitive score, an important marker of progression toward dementia, while accounting for diet and key co-pollutants tobacco use and lead exposure. METHODS/STUDY POPULATION: After excluding those missing cognitive data (141) or covariate data (190), we included 760 persons >/= 60 years of age from the National Health and Nutrition Examination Survey (NHANES), 2011-2014. Urinary cadmium reflects prolonged exposure: mean=0.41Î¼g/L (standard deviation