

of patients reporting these additional symptoms, we anticipate that at least some of them will be prevalent in a majority of the patient population formally surveyed, similar to the trend observed with pelvic pain prevalence. In particular, we anticipate many patients will report significant migraines, as migraine pain severity on a scale of 0-10 with 0 being no migraine pain and 10 being the most severe migraine pain imaginable is one of the elements of the IPSS survey, and 106/178 (59.6%) reported migraine pain of 5 or higher. DISCUSSION/SIGNIFICANCE: Novel treatment approaches for OI are needed, as lifestyle management is the current treatment paradigm. Several patients reporting pelvic pain have undergone targeted workup and subsequent symptomatic treatment that has improved their quality of life. Other targeted symptom approaches to prevalent symptoms could have the same effect.

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Impacts of Racial Discrimination on Cognitive and Affective Processes and Drug-Cue Reactivity

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OBJECTIVES/GOALS: Our overarching aim is to examine, in an African American population, cognitive, affective, and neurophysiological processes, as well as risk-taking behavior, in response to racial stigma cues. While accounting for individual differences, we aim to see how these processes and drug-cue reactivity are impacted or altered by exposure to racial cues. METHODS/STUDY POPULATION: Participants will be African Americans between 18 and 25 years of age, equally distributed across genders. We will recruit 75 participants in order to have adequate power to conduct our intended analyses—particularly pertaining to individual differences in risk behavior outcomes. Participants will be asked to complete demographic and self-report questionnaires. Participants will also be asked to complete computerized tasks while their physiological responses (heart rate, skin conductance, and electroencephalographic (EEG) data) are recorded. The tasks are as follow: resting, gambling, go/no-go, picture viewing (positive, negative, and neutral images), and a drug cue image set. These tasks will be repeated after the participant views a racial stigma image set to evaluate the impact of discrimination. RESULTS/ANTICIPATED RESULTS: Data from 18 participants has been collected. Data will be periodically preprocessed and validated (e.g., 1 participant was removed due to data recording errors, so the current valid N is 17). Generally, we anticipate that behaviors and neural activity will be modulated across all tasks after viewing the racial stigma image set. Specifically, (a) cognitive and affective processing of singular events of racial stigma may indicate a stress response, (b) modulation from chronic experiences of racial stigma render neural systems increasingly sensitive to stigma cues, and thereby less equipped to regulate stress response, (c) the impact of these processes on altering risk behavior (may increase such behaviors), and (d) the impact of these modulations on altering drug-cue reactivity (may amplify reactivity). DISCUSSION/SIGNIFICANCE: The study will identify factors that contribute to stress and risk behavior among African Americans. A substantial gap continues to exist regarding the nature of risk behavior among African Americans, despite the fact that African Americans represent a health disparity population with unique vulnerabilities to health-relevant risk behavior.

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Changes in the Incidence of Respiratory AIDS-Defining Events Among Persons with HIV Before vs. During the COVID-19 Pandemic

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OBJECTIVES/GOALS: The COVID-19 pandemic disrupted HIV care, though it prompted preventive measures for respiratory pathogens, particularly among PWH. We therefore quantified trends in respiratory ADE incidence during vs. before the COVID-19 pandemic to assess effects of these measures on non-COVID-19 illnesses. METHODS/STUDY POPULATION: We included PWH aged ≥ 18 years in care at the Vanderbilt Comprehensive Care Clinic in Nashville, Tennessee from 2017-2023. Individuals contributed time from the last of March 31, 2017 or clinic enrollment until the first of death, March 31, 2023 (study close), or final clinic visit (if there was no visit ≤ 12 months before study close). We described respiratory ADE incidences (per 1,000 person-years) in each year of the study; we used Poisson regression with robust variance to estimate the incidence rate ratio (IRR) and 95% confidence interval (CI) for respiratory ADEs in the three years following vs. before the World Health Organization's pandemic designation for COVID-19 (March 2020). RESULTS/ANTICIPATED RESULTS: Among 4,880 persons contributing 19,510 person-years, 69 (1.4%) developed ≥ 1 respiratory ADE. Median age at cohort entry was 42.6 (interquartile range [IQR]: 32.1, 52.3) years and at first respiratory ADE was 43.6 (IQR: 36.1, 51.2) years. The overall average respiratory ADE incidence in the pre-pandemic period (March 2017-March 2020) was 4.5 (95% CI: 3.3-6.3) per 1,000 person-years and during the post-pandemic period (April 2020-March 2023) was 4.1 (95% CI: 1.8-9.0) per 1,000 person-years. When accounting for repeated outcomes and annual variation, the modeled respiratory ADE incidence was 10% lower (IRR=0.9, 95% CI: 0.6-1.4) during vs. before the COVID-19 pandemic. DISCUSSION/SIGNIFICANCE: Respiratory ADE incidence dropped 10% following the COVID-19 pandemic declaration, though the confidence interval for this change contains the null. It is plausible that nonpharmaceutical COVID-19 mitigation measures drove a brief but impermanent decline, though further research is needed to assess whether diagnostic biases also played a role.

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Trends in Management of Chronic Kidney Disease among Adults with Diabetes, NHANES 1988-2020

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OBJECTIVES/GOALS: Chronic kidney disease (CKD) affects nearly 40% of adults with diabetes. Our objective is to assess trends in risk factor control and use of 2022 ADA and KDIGO guideline-recommended medications. METHODS/STUDY POPULATION: Using

data from 1988 to 2020 from the National Health and Nutrition Examination Survey, we will examine trends in sociodemographic risk factors and glycemic, blood pressure, and lipid control among adults with CKD and diabetes. Glycemic control will be defined as a hemoglobin A1c (HbA1c) <7%, blood pressure control will be examined at cutoffs of 130/80 and 120/80 mmHg, and lipid control will be defined as a fasting triglyceride level ≥ 150 mg/dL, a low-density lipoprotein (LDL) <100 mg/dL without atherosclerotic cardiovascular disease (ASCVD), or LDL <70 mg/dL if they have ASCVD. We will assess changes in the use of commonly used antidiabetic, antihypertensive, and lipid-lowering medications. RESULTS/ANTICIPATED RESULTS: We hypothesize that from 1988–2020, blood pressure control has improved while glycemic and lipid control has not improved among adults with diabetes and CKD. We expect decreases in sulfonylurea use and increases in DPP-4 inhibitor, metformin, ACE inhibitor, angiotensin receptor blocker, statin, and insulin use over time among those with diabetes and CKD. In addition, there is likely a significant gap between those who are eligible to use newer medications like SGLT2 inhibitors or GLP-1 receptor agonists and who are currently using them within this subpopulation. DISCUSSION/SIGNIFICANCE: This study will examine adherence to guideline-recommended management and identify gaps in care for adults with CKD and diabetes, which may inform how best to optimize medication use for cardiorenal protection in this high-risk patient population.

Evaluation of Drug-Resistant Tuberculosis Guidelines and Outcomes by Treatment Site in South Africa

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OBJECTIVES/GOALS: DR-TB care in South Africa includes decentralized treatment with shorter, all-oral regimens. Treatment guidelines direct regular clinical and laboratory evaluation to assess patient improvement. We therefore measured sputum collection frequency and follow-up time to assess fidelity to these guidelines in Gauteng Province, South Africa. METHODS/STUDY POPULATION: We included Rifampicin-resistant (RR) sputum specimens from the South African National Health Laboratory Service, which provides pathology services to 80% of the population, submitted between August 2022–September 2023. Patient data were obtained from a DR-TB registry and additional sputum specimen data were collected from follow-up laboratory worksheets. Follow-up spanned from first sputum collection date (baseline) to patient outcome date (e.g., completion, lost) or study closure date (if still on treatment). Monthly sputum submission rate was measured for those with ≥ 1 additional sputum submitted. We compared patient data by treatment site: at

the specialized hospital vs. any other site, using Wilcoxon ranksum and χ^2 tests. RESULTS/ANTICIPATED RESULTS: Baseline RR-TB specimens were available for 142 patients, of whom 28 (20%) had specimens submitted from the specialized hospital. Patients at the specialized hospital were older (median age 41 vs. 35.5 years, $p=0.03$), had higher baseline fluoroquinolone resistance (10% vs. 1%, $p=0.01$), and longer follow-up (median 5.2 vs. 3.5 months, $p=0.01$) compared to patients elsewhere. Further, 43 (30%) patients had ≥ 1 additional sputum submitted during follow-up. Among these, monthly sputum collection rates did not differ by site (0.3 vs. 0.3 sputum per month, $p=0.89$). We anticipate that increased sputum frequency will be associated with successful TB treatment outcomes based on preliminary findings. DISCUSSION/SIGNIFICANCE: These findings highlight ongoing challenges with routine laboratory follow-up according to DR-TB guidelines across treatment sites in South Africa. Future research is needed to determine reasons for low sputum collection rates, such as low patient adherence, variation in practice of healthcare workers, loss to follow-up, and clinical challenges.

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Cross-Disciplinary Education in Biostatistics and Epidemiology in Program Managers for CTSA BERD Cores

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OBJECTIVES/GOALS: The overall goals of this project are: (1) to demonstrate the utility of staff with cross-disciplinary skills in biostatistics and epidemiology as program managers for CTSA BERD Cores, and (2) examine streamlined processes in project triaging, consultations, and data extractions for CTSA service requests when individuals are in this role. METHODS/STUDY POPULATION: Biostatistics and epidemiology are partnered disciplines incorporated in a variety of research areas, especially in human health sciences and health care. For interdisciplinary teams, including individuals trained in both specialties results in efficient research collaborations. When these individuals are program managers for research navigation, processes become more effective and expedited for project timelines and workflows across the CTSA. Examples of this integration are described in vignettes from project triaging, statistical consultations, and data extractions from CTSA service requests. Process comparisons of previous and current workflows are presented to show the advantages of utilizing this type of program manager within these areas of BERD. RESULTS/ANTICIPATED RESULTS: This project defines three areas of integration for a program manager with cross-disciplinary training in biostatistics and epidemiology: (1) project triaging to statistical teams, (2) study design and analysis consultations, and (3) data extractions. Each of these areas demonstrates prior processes that once would require multiple steps in CTSA service requests (including time, resources, and personnel) and identified common issues (slow response to requests, data re-extractions, and challenges providing statistical support) that are now avoided with a manager with cross-training in biostatistics and epidemiology methods. The advantages and disadvantages of integrating these individuals are also described. DISCUSSION/SIGNIFICANCE: BERD Cores seeking improvements to research navigation processes can gain efficiency by incorporating program managers with cross-disciplinary training in biostatistics and epidemiology. BERD Cores may also use this as a case study for translational science with innovation to longstanding challenges in CTSA research workflows.