

alcohol without feeling its effect. Participants also reported using marijuana throughout the day while driving, at work, or in class. Frequent patterns noted for the study included using two drugs at the same time or right before or after each other with alcohol used throughout the day. Participants also gave feedback on our Poly Substance Use (PSU) assessment that captures exact patterns so that the most common can be translated for the rodent models. DISCUSSION/SIGNIFICANCE OF IMPACT: Our focus group discussions provided detailed information on patterns, sequence, quantity, and types of poly substance use that could be useful for developing a poly substance use assessment in the collection of data for rodent models to understand effects of poly substance use.

4269

Frequent emergency department use among homeless individuals seen in emergent care: High risks of opioid-related diagnoses and adverse health services utilization outcomes

Ayae Yamamoto¹, Lillian Gelberg, MD, MSPH², Yusuke Tsugawa, MD, PhD², Gerald Kominski, PhD², and Jack Needleman, PhD²

¹David Geffen School of Medicine at UCLA; ²UCLA Fielding School of Public Health

OBJECTIVES/GOALS: Using multi-state discharge data, to identify predictors of frequent emergency department (ED) use among the homeless patients seen in emergent care, and to compare frequent versus less frequent homeless ED users for their risk of serious health services utilization outcomes. METHODS/STUDY POPULATION: Based on the State Emergency Department Database and the State Inpatient Database, homeless individuals (n = 88,541) who made at least one ED visit in four states (Florida, Maryland, Massachusetts, and New York) in 2014. In this retrospective cross-sectional analysis, patient-level demographic and clinical factors were assessed as predictors for increased ED use. Risks of opioid overdose, opioid-related hospital admission/ED visit, in-hospital mortality, mechanical ventilation, and number of hospitalizations were compared between individuals with 4 or more vs. 2-3 vs. 1 ED visit(s), adjusting for potential confounders including hospital fixed effects (allowing for within hospital comparisons). RESULTS/ANTICIPATED RESULTS: Higher rates of ED use were associated with Medicare coverage <65; primary diagnosis of alcohol abuse, asthma, or abdominal pain; and co-morbidity of alcohol abuse, psychoses, or chronic pulmonary disease. Individuals with ≥4 visits had significantly higher adjusted risk of opioid overdose (3.7% vs. 1.2% vs. 1.0%), opioid-related hospitalizations/ED visits (17.9% vs. 8.5% vs. 6.6%), mechanical ventilation (9.8% vs. 7.0% vs. 4.7%), and greater # of hospitalizations (3.2 vs. 1.3 vs. 0.8) compared to individuals with 2-3 or 1 ED visit. Individuals with ≥4 and 2-3 ED visits had similar but increased risks of in-hospital mortality compared to individuals with 1 ED visit (2.8% vs. 2.8% vs. 2.3%). DISCUSSION/SIGNIFICANCE OF IMPACT: Homeless patients who were high ED users were more likely to be hospitalized and have other adverse outcomes. These findings encourage targeted interventions (i.e. housing) for the high-utilizer homeless population to reduce the burden of serious outcomes and costs for the patient and society.

4098

Health and HIV: Weight status associations with multiple co-morbidities

Kierra Renee Butler¹, Faye R. Harrell, MSN, CRNP, Jeffrey Robinson, PhD, Bridgett Rahim-Williams, PhD, MA, MPH, and Wendy A.

Henderson, PhD, MSN, CRNP

¹National Institutes of Health

OBJECTIVES/GOALS: Highly Active Antiretroviral Therapy (HAART) is beneficial for managing HIV infection, however the long-term use of HAART may be problematic for healthy weight maintenance. The aim of the study was to investigate the association of race, weight status, and co-morbidities among individuals with HIV. METHODS/STUDY POPULATION: Self-reported data from 283 participants who completed the Symptom Checklist, the Co-Morbidity Questionnaire, and the Sociodemographic Questionnaire were included in the data analyses. Data were analyzed using Latent Class Analysis on JMP 13. Approximately 50% of participants self-identified as Black, 69% as male, and 35% as having AIDS. Participants' age ranged from 25 to 66 years (mean age = 43.70 years, SD = 8.14). Participants were grouped by race (self-reported Black or non-Black), and then each group was clustered based on the top three most prevalent symptoms. The clusters identified were least symptomatic, weight gain, and weight loss. RESULTS/ANTICIPATED RESULTS: The non-Black weight gain cluster reported a higher incidence of AIDS (70.6% vs 38.2%), nausea (70.6% vs 17.6%), diarrhea (70.6% vs 26.5%), and shortness of breath (58.8% vs 20.6%) compared to the Black weight gain cluster. The Black weight loss cluster reported a higher incidence of cardiovascular symptoms including chest palpitations (42.2% vs 2.7%), chest pain (44.4% vs 8.1%), and shortness of breath (73.3% vs 35.1%) and a higher incidence of all GI symptoms with the most prominent being diarrhea (71.1% vs 48.6%) compared to the non-Black weight loss cluster. DISCUSSION/SIGNIFICANCE OF IMPACT: Future studies supporting these results will assist practitioners to target treatments that may prevent adverse health outcomes for individuals with HIV on HAART. Further studies will also assist with setting standards that allow practitioners to provide personalized care for individuals with HIV on HAART.

4031

Heart Transplant Candidates Listed at Low First-Offer Organ Acceptance Rate Centers are More Likely to Die Waiting

Ashley Y Choi¹, Michael S. Mulvihill², Hui-Jie Lee³, Congwen Zhao³, Maragatha Kuchibhatla³, Jacob N. Schroder², Chetan B. Patel², Christopher B. Granger², and Matthew G. Hartwig²

¹Duke University; ²Duke University Medical Center; ³Department of Biostatistics, Duke University

OBJECTIVES/GOALS: We sought to examine: 1) variability in center acceptance patterns for heart allografts offered to the highest-priority candidates, 2) impact of this acceptance behavior on candidate survival, and 3) post-transplantation outcomes in candidates who accepted first rank offer vs. previously declined offer. METHODS/STUDY POPULATION: In this retrospective cohort

study, the US national transplant registry was queried for all match runs of adult candidates listed for isolated heart transplantation between 2007-2017. We examined center acceptance rates for heart allografts offered to the highest-priority candidates and accounted for covariates in multivariable logistic regression. Competing risks analysis was performed to assess the relationship between center acceptance rate and waitlist mortality. Post-transplantation outcomes (patient survival and graft failure) between candidates who accepted their first-rank offers vs those who accepted previously declined offers were compared using Fine-Gray subdistribution hazards model. RESULTS/ANTICIPATED RESULTS: Among 19,703 unique organ offers, 6,302 (32%) were accepted for first-ranked candidates. After adjustment for donor, recipient, and geographic covariates, transplant centers varied markedly in acceptance rates (12%-62%) of offers made to first-ranked candidates. Lowest acceptance rate centers (<25%) associated with highest cumulative incidence of waitlist mortality. For every 10% increase in adjusted center acceptance rate, waitlist mortality risk decreased by 27% (SHR 0.73, 95% CI 0.67-0.80). No significant difference was observed in 5-year adjusted post-Tx survival and graft failure between hearts accepted at the first-rank vs lower-rank positions. DISCUSSION/SIGNIFICANCE OF IMPACT: Wide variability in heart acceptance rates exists among centers, with candidates listed at low acceptance rate centers more likely to die waiting. Similar post-Tx survival suggests previously declined allografts function as well as those accepted at first offer. Center-level decision is a modifiable behavior associated with waitlist mortality.

4231

Identifying Educational Needs of Researchers and Health System and Health Agency Leaders in the Science of Implementation and Improvement: Report from California CTSAs

Moira Inkelas¹, Brian Mittman², Margaret Handley³, Miriam Bender⁴, Brad Pollock⁵, Oanh Nguyen³, Greg Aarons⁶, Michael Cousineau⁷, and Rachael Sak⁸

¹David Geffen School of Medicine at UCLA; ²Kaiser Permanente Southern California; ³University of California, San Francisco; ⁴University of California, Irvine; ⁵University of California, Davis; ⁶University of California, San Diego; ⁷University of Southern California; ⁸ University of California Office of the President

OBJECTIVES/GOALS: We conducted interviews with investigators, clinicians, and health system and health agency leaders to assess regional educational needs in implementation and improvement science, including content (knowledge and skill), format, experiential learning, and mentoring, to identify barriers and guide planning. METHODS/STUDY POPULATION: Five CTSAs in the University of California Biomedical Research Acceleration, Integration, & Development consortium (UC BRAID) plus a fifth affiliated CTA developed a common protocol and interviewed 31 California-based learners (current fellows, early and mid-career investigators, clinicians, and health agency personnel) and system leaders from health care and health agencies. Interviews focused on impact goals, educational needs in dissemination, implementation, and improvement (DII) science, challenges in DII research, preferred learning formats, desired proficiencies and skills, and barriers such as cost, time, awareness, terminology, and suitability and availability of training. A rapid review of literature identified potential domains of knowledge and skills for a proposed curriculum. RESULTS/ANTICIPATED RESULTS: Areas of emphasis varied

among interviewees; identified learning needs differed between traditional research perspectives (emphasizing areas such as partner engagement, grant writing, frameworks, study design) and applied perspectives (emphasizing areas such as managing change, complex systems, learning system capacity). Learners had a range of preferences; most interviewees desired formats that are longitudinal, experiential, applied, cooperative, and affordable. Variation in knowledge of, and interpretations of, DII terms and goals limited the ability of some interviewees to specify educational needs. A synthesis reveals areas for potential future co-development and networked approaches to regional training and capacity enhancement. DISCUSSION/SIGNIFICANCE OF IMPACT: In response to a rapidly changing health landscape, our academic health systems are developing capabilities to improve care for their populations. Our work informs the training and education needs that are critical to translation at a system-wide level. Regional convenings can raise awareness while translational programs fill educational gaps.

4411

Identifying Environmental Barriers to Participation for Community-Dwelling Adults with Stroke: A Descriptive Pilot Study

Anna J Neff¹, Stephen Lau², Alex Wing-Kai Wong², and Carolyn Baum²

¹Washington University in St. Louis, Institute of Clinical and Translational Sciences; ²Washington University School of Medicine

OBJECTIVES/GOALS: The purpose of this study is to identify and quantitatively describe environmental barriers to community engagement and activity participation for adults with stroke and low income. Repeated electronic surveys collected in real time will reduce recall bias and improve characterization of barriers. METHODS/STUDY POPULATION: 20-30 community-dwelling adults with stroke and low income will be recruited for this pilot study. Inclusion criteria: > 1 month post stroke and evidence that they have the vision, literacy, and cognitive capacities to answer survey questions on a smart device. Exclusion criteria: severe aphasia, severe mental illness or substance abuse within 3 months, and ataxia. Participants will complete standardized assessments of daily activities, engagement in and perceptions about community activities, social support, and perceived environmental barriers. Participants then complete four surveys per day for 14 days using an app on an iPod Touch, reporting activities attempted and barriers encountered. RESULTS/ANTICIPATED RESULTS: This is the first study of this kind and is a work in progress. We anticipate that the environmental barriers reported will include physical (e.g. built structures, climate, and natural terrain), social (e.g. support or lack thereof; stigma), political (e.g. access to transportation; healthcare services), and technological barriers (e.g. difficulties with personal equipment and/or technologies such as elevators, ticket kiosks, etc.). DISCUSSION/SIGNIFICANCE OF IMPACT: An increased understanding of the barriers facing community-dwelling adults with stroke and low income will facilitate the development of culturally-appropriate and more accessible self-management programs to help this population re-engage in their communities and return to pre-stroke activities.