dependence), cigarette and EC use, and nicotine craving and withdrawal at baseline and week 6. Cotinine and exhaled carbon monoxide were assessed at baseline and week 6. RESULTS/ANTICIPATED RESULTS: Participants who completely switched from smoking to ECs (exclusive EC users) and those that partially switched (dual users), maintained cotinine levels (ps>.05) and showed reductions in cigarette dependence and withdrawal (ps<.01). However, exclusive EC users showed no significant changes in total nicotine dependence from baseline to week 6 (p=.123), while dual users showed increased total nicotine dependence (p<.001). Dual users displayed similar levels of EC dependence as exclusive EC users but a lesser reduction in cigarette dependence. Exclusive EC users and dual users showed reductions in craving and withdrawal from baseline to week 6. DISCUSSION/SIGNIFICANCE OF FINDINGS: This study is among the first to prospectively examine changes in dependence, craving, and withdrawal among an understudied sample of smokers making a switch attempt. Smokers who completely switch to ECs maintain nicotine levels and dependence, suggesting that they have a similar reinforcement profile to cigarettes and facilitate switching.

57963
The Impact of Asian American Perceived Discrimination on Health Utilization

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ABSTRACT IMPACT: Understanding how perceived discrimination affects Asian Americans can help stakeholders target subgroups that are at highest risk of discrimination-related behaviors and design culturally appropriate interventions to ensure equitable access to healthcare. OBJECTIVES/GOALS: The COVID-19 pandemic has exposed longstanding anti-Asian racism in the US. Yet, effects of discrimination on Asian American health are unknown, partly because diverse Asian American populations are analyzed in aggregate. We aim to understand how perceived discrimination affects healthcare utilization among different Asian American subgroups. METHODS/STUDY POPULATION: We examine the association of perceived discrimination with healthcare utilization using the California Health Interview Survey (CHIS). In the CHIS, respondents reported whether they would've gotten better medical care if they belonged to a different race. We examine the association between these responses and physician visits within the past year, in the survey years 2003, 2004 and 2016-2017. We adjust for covariates based on the Andersen Health Behavior model. Subsequent modeling examines potential mediating and moderating factors such as limited English proficiency, immigration status, income, and survey year. Asian American subgroups analyzed include Asian Indian, Korean, Chinese, Filipino, Vietnamese, Japanese, and other Asian. RESULTS/ANTICIPATED RESULTS: Results will highlight how perceived discrimination incentivizes or disincentivizes certain Asian subgroups to utilize healthcare. Asian American subgroups have differing and diverse experiences with discrimination due to their historical and cultural differences; results will elucidate how discrimination affects these subgroups. Results will be compared to non-Hispanic Whites, who represent the racial group least likely to experience discrimination in the US. Mediation and moderation analysis will help understand how traditionally cited factors for healthcare utilization interact with perceived discrimination on Asian Americans. DISCUSSION/SIGNIFICANCE OF FINDINGS: Asian American subgroups are understudied, despite Asian Americans being one of the fastest growing racial groups in the US. Understanding how perceived discrimination affects Asian Americans can help stakeholders target subgroups that are at highest risk of discrimination-related behaviors and design culturally appropriate interventions.

82032
Lessons learned from a virtual engagement salon amidst a pandemic

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ABSTRACT IMPACT: This work is intended to improve community engagement salons both virtually and generally in order to maximize the benefit of this vital research tool. OBJECTIVES/GOALS: The Meharry-Vanderbilt Community Engaged Research Core (CERC) provides a protocol to maintain high standards in community engagement studios, even in a virtual setting amidst a pandemic. A virtual community engagement salon was selected as a case study to evaluate outcomes. METHODS/STUDY POPULATION: A virtual salon regarding sun safety in the Latinx community was observed live via Zoom and as a recording afterward. Following dissemination and completion of the post-meeting surveys, authors compiled and reviewed the results. An assessment was developed to determine the salon's alignment with the Meharry-Vanderbilt CERC guidelines in a virtual setting; this was designated as the primary outcome. Data from the session were compared to the available literature on the topic, which produced three subheadings to the secondary outcome essential to the success of virtual community engagement salons: researcher preparedness, participant selection, and survey importance. RESULTS/ANTICIPATED RESULTS: The CERC guidelines of the community engagement salon were met and were effectively translated into a virtual setting. The presentation given by the researcher followed all technical instructions, yet it was clear that the researcher's demeanor and conversational soft-skills were lacking. Instead of the recommended bi-directional flow of conversation, the conversation flow shifted to a unidirectional state controlled by the participants. Following the session, only three participants completed the survey along with the researcher. This completion rate of under 50% provides limited feedback on participants' perspectives on the session's quality and points to improve future sessions. DISCUSSION/SIGNIFICANCE OF FINDINGS: Pre-meeting researcher preparation is necessary to engage community stakeholders effectively. The lack of completed surveys from participants suggests potential fatigue from leading a majority of the conversation. Results demonstrate that solely meeting the requirements of the CERC does not suffice.

92741
Racial differences in patient-reported distress among women with endometrial cancer[†]

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ABSTRACT IMPACT: This work will inform and improve the way we assess and treat distress in women with endometrial cancer. OBJECTIVES/GOALS: Distress from cancer is associated with worse processes of care. Differences in outcomes by race/ethnicity in

endometrial cancer (EC) are well documented, but differences in distress have not been previously explored. Here we characterize the association between race/ethnicity, distress scores, and stressors reported by patients with EC. METHODS/STUDY POPULATION: Patients presenting to a single academic outpatient gynecologic oncology practice for initial evaluation of known EC from January 2013-May 2020 were included. The electronic health record was used to abstract demographics, National Comprehensive Cancer Network Distress Thermometer and Problem List (NCCN DT) scores and stressor categories (physical, emotional, spiritual, practical, and family) from the initial encounter. Referral to support services occurs at NCCN DT score ≥4. We excluded women who received prior cancer-directed therapy and those without an initial NCCN DT score. Summary statistics were tabulated for demographics. Mann-Whitney U tests were used for inter-group difference on continuous variables and 2-sample tests for equality of proportions were used for binary variables. RESULTS/ANTICIPATED RESULTS: 412 non-Hispanic White (NHW, mean age 63) and 149 non-Hispanic Black (NHB, mean age 65) women were included in our analysis. More NHB women presented with high-grade EC (53.7%) vs NHW women (21.9%) and fewer NHB women were privately insured (32% vs 52%). Median distress scores were higher in NHW women compared to their NHB counterparts (4 vs. 2, p<0.001) and NHB women were more likely to report a distress score of 0 compared to their NHW counterparts (32% vs 19%, p=0.001). 50.5% NHW women had a score ≥4 and thus qualified for referral to services compared to 20.7% of NHB women (p=0.02). Of those referred, NHB and NHW women declined referral to support services at similar rates (35.1% vs 34.5%; NS). There was a significant difference in the median number of stressors reported by NHW and NHB women, (4 vs 3 stressors; p=0.02). DISCUSSION/SIGNIFICANCE OF FINDINGS: The NCCN DT, a widely used tool in cancer clinics, may fail to adequately measure distress in NHB women presenting with a diagnosis of EC, despite >30% more high-risk histology cancers in this cohort. This difference leads to disparities in referral to additional support services, which may affect quality of care and quality of life.

Mechanistic Basic to Clinical
Basic Science

10061

Assessing immunogenicity of an Ebola vaccine in humans using a systems biology approach*

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ABSTRACT IMPACT: Understanding gene expression changes after viral vaccination and booster may help predict vaccine efficacy. OBJECTIVES/GOALS: Utilize a systems biology approach to identify gene expression changes after administration of Zaire Ebola virus glycoprotein expressed in a Chimp Adeno3 vector (ChAd3-EBOZ) and either boosted ~7 weeks later with modified vaccinia Ankara MVA expressing Zaire and Marburg GPs plus Tai forest NP (MVA-BN ®Filo) or given saline (placebo). METHODS/STUDY POPULATION: As part of the phase 1b, open-label vaccination trial of ChAd3-EBO-Z in Mali, West Africa, peripheral blood mononuclear cells were isolated from eight volunteers for whole genome transcriptomics analysis. Four subjects received the MVA-BN ®-Filo booster and four received saline. Samples were taken prior to receipt of the booster or placebo, as well as 1, 7, and 14 days afterwards. Significant differentially expressed genes were identified using RNA-seq between baseline and post-MVA-BN ®Filo. Functional enrichment analysis against the GO Ontology Database and the Immune Signatures C7 collection of MSigDB (ImmuneSigDB) was performed. These differentially expressed genes were also examined for associations with Ebola antibody titers and cell-mediated immune responses. RESULTS/ANTICIPATED RESULTS: The majority of gene expression changes occurred on day 1 post-MVA-BN ®-Filo administration. 870 genes had significantly different expression when day 1 samples were compared to pre-booster baseline (791 upregulated/79 downregulated). Those upregulated genes are mainly involved type I interferon and regulation of viral life cycle pathways. The downregulated genes are involved in regulation of cellular defense response, lymphocyte mediated immunity. Comparing to the C7 Immune Signatures collection datasets, we identified more than 100 upregulated genes from 6 studies of yellow fever vaccination that were also significantly upregulated in our study. The top enriched ontological pathway of those genes is cellular response to type I Interferon. DISCUSSION/SIGNIFICANCE OF FINDINGS: The use of a systems biology approach to compare gene expression changes among vaccine studies utilizing whole genome transcriptomics data allows the identification of genes involved in the immune response to vaccination and might aid in predicting vaccine efficacy.

24435

Pathogen-specific metabolic pathways and innate immune responses associated with Chlamydia trachomatis infection and other STIs

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ABSTRACT IMPACT: This project seeks to identify unique host responses that are biomarkers for specific urethral pathogens, and which can be used in the development of point-of-care (POC) STI diagnostics. OBJECTIVES/GOALS: How Chlamydia trachomatis (CT) and other common STIs, e.g. Neisseria gonorrhoeae, evade immunity and elicit pathology in the male urethra is poorly understood. Our objective is to determine how STI-infected urethral epithelial cells, as well as the uninfected 'bystander' cells with which infected cells communicate, respond to CT and other STIs. METHODS/STUDY POPULATION: We evaluated how immortalized urethral cell lines - including transduced human urethral epithelial cells (THUECs) - respond to increasing doses of CT infectious particles using in vitro one-step progeny assays performed in the presence or absence of cycloheximide, a drug that inhibits eukaryotic protein synthesis. We will perform concurrent single-cell RNA sequencing (scRNA-seq) and multiplex cytokine analyses to determine how different CT doses impact the transcriptomes of infected and bystander urethral epithelial cells and modulate cytokine production of the overall monolayer. Results of these experiments will inform the feasibility of performing similar analyses in situ using urethral swabs from men with clinically diagnosed urethritis. RESULTS/ANTICIPATED RESULTS: Our results demonstrate that immune-competent urethral cell monolayers strongly resist CT infection, unless most of the cells are simultaneously infected.