showed no effect. Urinary lactulose/mannitol ratio decreased in 1 of the 4 studies, and urinary lactulose percent decreased in 2 studies. DISCUSSION/SIGNIFICANCE: Probiotic supplementation may be remediating an obesity-induced increase in intestinal permeability as evidenced from the effect on serum LPS and mixed sugar solution assays. However, additional studies are needed to further clarify which strain of probiotic bacteria is most effective and the optimal intervention length in subjects with obesity.

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Methods and Perceptions of Success for Patient Recruitment in Decentralized Clinical Trials**

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OBJECTIVES/GOALS: Patient recruitment, enrollment, and retention continues to be one of the leading barriers to successful clinical trials, and results do not always reflect the diversity of the general population. This systematic review aims to assess the impact of decentralized methods on recruitment, retention, and diversity on recent clinical research. METHODS/STUDY POPULATION: A systematic search of the literature, using databases such as PubMed, Cochrane Library and EMBASE to find publications reporting on the aspect of recruitment in decentralized clinical trials was performed. The titles and abstracts of the publications were assessed, excluded those lacking sufficient or pertinent information regarding decentralization in clinical trials. The remaining publications were reviewed for those reporting sufficient data regarding the impact of decentralization on the aspect of recruitment in clinical trials to be included in the focused analysis. Studies reporting on participant retention and diversity in addition to recruitment were emphasized. RESULTS/ANTICIPATED RESULTS: This systematic search returned 13 studies highlighting the role of decentralized clinical trial methods impacting participant recruitment, retention, and diversity in clinical trials. Out of the 13 studies, 10 reported improved recruitment using virtual or decentralized methods, and 7 of these reported improvements when compared alongside with traditional methods. 7 studies reported a positive impact on participant retention, with 4 of these directly comparing decentralized methods with traditional methods. Lastly, of these studies, 5 were reported to have trended towards diversity in the demographics of the sample population, including race or geographic location. DISCUSSION/SIGNIFICANCE: Related reviews have stated a lack of published comparable data to determine if DCTs (Decentralized Clinical Trials) improved recruitment and retention. Results suggest this review addresses such a gap, by providing data on how decentralized methods can benefit recruitment and retention, potentially highlighting a new standard.

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METHODS FOR IDENTIFYING FILIPINO GENDER MINORITIES AND MENTAL HEALTH RISKS IN ELECTRONIC HEALTH RECORDS

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OBJECTIVES/GOALS: Aim 1: To explore methodologies to identify gender minorities, and Filipinos, separately, in an electronic health record system. Aim 2: To characterize the similarities and differences in demographic, socioeconomic, and mental health of Filipinos gender

minorities compared to Native Hawaiian Pacific Islanders, and White/ European Americans. METHODS/STUDY POPULATION: This study was approved by the University of Hawaii Institutional Review Board. Cross-sectional retrospective data were obtained from a collaborative community clinic's electronic health record system. Patients were age 18 and older with a clinical diagnosis for gender dysphoria and from Native Hawaiian Pacific Islander, White/ European American, and Filipino backgrounds. RESULTS/ANTICIPATED RESULTS: Preliminary data revealed that 11% of the clinical population were diagnosed with gender dysphoria (N=373) with 57.6% (n=215) who met the inclusion criteria with complete health registration forms. Patients were from Filipino (21.8%), Native Hawaiian Pacific Islander (23.3%), White/ European American (31.6%), and multiethnic (23.3%) backgrounds. Most patients reported mental health (e.g., depression) conditions (50.6%-64.7%). Further statistical analyses will reveal if Filipinos have higher or lower levels of anxiety, depression, and suicide risks than Native Hawaiian Pacific Islander, and White/ European American gender minority individuals. DISCUSSION/SIGNIFICANCE: In Hawaii, one person dies by suicide every two days; suicide is the lead cause of fatal injuries. Study findings can inform future methodology studies to identify gender minorities and develop culturally relevant gender affirming mental health programs for gender minorities.

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Pharos: A Novel Mapping Software to Identify Cell Network Signal Strength for Mobile Health Epidemiology

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OBJECTIVES/GOALS: The aim of this study was to design and implement the Pharos application to map the cellular network support structure around Lake Victoria in Western Kenya. Additionally, the Pharos app was used to collect images of disease-relevant vector and plant life surrounding the study sites to train a computer vision algorithm to map disease-relevant areas. METHODS/STUDY POPULATION: Pharos was provided to a 4-person team of healthcare workers. The app was pre-loaded on both iOS and Android devices to be used during the course of normal field activity. Pharos ambiently collects network data and the team was asked to capture images of landmarks relevant to their work in schistosomiasis control. The field team traveled to 4 counties of differing schistosomiasis risk surrounding Kisumu, Kenya in autumn 2022 and will return to these areas in early spring 2023. Cell signal indicators (upload and download speed) were collected and asynchronously uploaded to a database for further analysis. Additionally, all landmark images (cell network towers, landmarks (e.g. schools, churches, public centers), plant life, vectors, and water bodies) were recorded and tagged with GPS coordinates and time stamps. RESULTS/ANTICIPATED RESULTS: Iterative development powered by small, informal, user-centered focus group discussions with the field team led to several key adaptations to the Pharos software. On the first deployment, 1,297 unique upload and download events were recorded across 3 Kenyan cell providers and 1 American provider. 1,197 data points were collected in Kenya using both Android and iOS devices using several versions of the Pharos application. 154 unique landmarks were photographed, but a distinct difference in landmark recording was observed between devices, prompting a transition to iOS-only data collection. Of the landmarks recorded, the majority (120, 77.9%) were landmarks or cell network towers, while 22.1% were water bodies, plant