that were born between 34–37 weeks of gestation. Infant will be divided with regard to their exposure to NICU experience. RESULTS/ANTICIPATED RESULTS: We anticipate identifying neurodevelopment delays among children born prematurely between 34 to 37 weeks of gestation. We anticipate that our controlled group will have better outcomes when compared to the controlled expose group. We also expect that gestational age impacts adversely neurodevelopment in children who were born between 34 and 37 weeks of gestation. DISCUSSION/SIGNIFICANCE OF IMPACT: Approximately 84% preterm birth are considered LPIs. Prematurity is described as a chronic condition; adverse long-term neurodevelopment consequences. Our study promotes early detection and interventions that can reduce the consequences of the neurodevelopment delays in LPIs.

Assessing the inclusion of women and minority populations in ClinicalTrials.gov results in studies focused on type 2 diabetes and GLP1 drugs

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OBJECTIVES/GOALS: This study aims to evaluate diversity of participants in GLP-1 T2DKM clinical research with regard to sex, race, and ethnicity by using results data available through the ClinicalTrials.gov database. Sample population estimates for studies were calculated using the 2020 Census and compared within groups with respect to sex, race, and ethnicity. METHODS/STUDY POPULATION: The public ClinicalTrials.gov database was searched for interventional studies with GLP1 inclusion as treatment (n = 2,397). This search was then filtered to studies where results were reported (n = 772). From these studies, 466 studies focused on type 2 diabetes as a condition and thus became the analysis dataset. Participant and protocol information for these 466 studies were obtained from the clinical trials transformation initiative (CTTI) as an AACT data download. Observed to expected ratios were calculated for each subgroup-based population estimates from the 2020 Census and using the baseline counts of participants for studies where sex, race, and ethnicity were provided. In addition to within group comparisons, study characteristics (e.g. phase) were included in models to assess influence of covariates. RESULTS/ ANTICIPATED RESULTS: Of the 466 studies, 430 (92%) reported sex, 171 (37%) reported race, and 145 (31%) reported Hispanic ethnicity. Among those found to be underrepresented in studies (defined as a ratio < 1): females (mean = 0.89, median = 0.92); Black/African Americans (mean = 0.88, median = 0.39). Hispanic or Latinos mean ratio was 1.16 (95% CL: 0.97, 1.35) but had the least available data. When including covariates in the models, there were statistically significant differences in ratios with respect to sex as females had significantly lower odds compared to males (ratio > = 1), with the odds being about 21% of those for males. With respect to race, Black or African American individuals had significantly lower odds (about 32% of those of White individuals) (ratio > = 1). DISCUSSION/SIGNIFICANCE OF IMPACT: This study reveals significant underrepresentation of females (mean ratio 0.89) and Black/African Americans (mean ratio 0.88) in clinical trials for GLP-1 drugs in type 2 diabetes. These disparities highlight the

need for more inclusive research to ensure diverse populations benefit equally from medical advancements.

Innovative strategies to enhance engagement by rural adolescents with obesity into the TEENS+ randomized clinical trial

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OBJECTIVES/GOALS: Despite persistent health disparities, rural individuals are underrepresented in clinical trials, due in part to access barriers. We investigated if targeted strategies enhanced recruitment, engagement, and retention of rural adolescents in the TEENS+ randomized clinical trial, a 4-month family-based behavioral weight loss intervention. METHODS/STUDY POPULATION: Adolescents (12-16 y) and parents with obesity were eligible for TEENS+. Treatment converted to virtual in COVID-19, allowing eligibility to expand to more rural areas. We leveraged Informatics, a practice-based research network, and direct marketing to identify potential rural participants. Targeted engagement strategies included: rural physician outreach, physicianendorsed letters, providing tablets and mobile hotspots, reimbursing travel, and offering in-person or remote assessment visits. Chisquare tests evaluated differences in screener completion and enrollment of rural families before (T0) and after (T1) changes were made. Noninferiority tests evaluated rural vs. nonrural retention and engagement (% attendance, % dietary self-monitoring) and engagement based on digital tool receipt. RESULTS/ANTICIPATED RESULTS: N = 211 dyads enrolled (n = 54 in T1: 48% male; 41%) Black). Screener completion by rural families significantly increased from T0 (9.8%) to T1 (15.1%; p = .043). Yet, there was no significant change in rural adolescent enrollment (T0 = 10%; T1 = 9%; p = .844). Sixteen adolescents (30%) received study tablets, and none needed mobile hotspots. Mean adolescent attendance was 75%±28% for group and 94%±18% for individual sessions, with no significant differences based on rural status or tablet use. Rural adolescent self-monitoring (via app) was 28%, compared with 50% for nonrural adolescents (p = .074). Retention was 94% at 4m and 89% at 8m for T1 participants, with no differences based on rural status. At the primary endpoint (12 m), retention was significantly higher for rural (100%) vs. non-rural (87%) participants; p = .013. DISCUSSION/SIGNIFICANCE OF IMPACT: Rural adolescent screener hits increased yet enrollment was unchanged. However, rural attendance was comparable and retention exceeded, compared to nonrural participants. Strategies to yield equitable representation and engagement in clinical trials are essential for geographic generalizability and to reduce rural health disparities.

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Facilitating social physical activity among trans and gender diverse adolescents: Parents' perspectives Sarah Kaja, Samantha J. Adler, Marla E. Eisenberg and Kathleen K. Miller

University of Minnesota

OBJECTIVES/GOALS: Inclusive physical activity (PA) interventions could improve trans and gender diverse (TGD) adolescents'

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PA levels, perceived social support from peers and adults, and mental health, but no stakeholder-informed interventions exist. We describe parents' impressions of TGD adolescent children's PA experiences and advice for a PA intervention. METHODS/STUDY POPULATION: We conducted individual Zoom interviews with parents of 13- to 20-year-old TGD adolescents (n = 15). All parents were recruited from a gender healthcare clinic. All children self-identified as TGD, an umbrella term including people who have a gender identity different from social expectations for their assigned sex. We asked questions regarding children's current and historical participation in PA, parents' perceptions of barriers to PA for their TGD children, and parents' desired intervention components. After each interview, parent participants were compensated \$100 for their time. We analyzed interview transcripts, focusing on insights to incorporate in an intervention. This study was approved by the University's Institutional Review Board. RESULTS/ANTICIPATED RESULTS: Parents shared rich histories of their children's PA participation, compounding barriers to PA, numerous benefits of PA, and a range of preferences for program activities and inclusive practices (e.g., safety protocols, training for adult leaders). They also emphasized the need for TGD youth to build social connectedness through PA. DISCUSSION/SIGNIFICANCE OF IMPACT: We gathered concrete advice from parents on creating a PA intervention, which we will use to build a social PA program that meets TGD adolescents' needs. Addressing health disparities and improving PA, social support, and mental health among TGD adolescents will require such stakeholder input to improve upon existing PA and sports opportunities.

143 Assessing gender literacy: A novel methodology for evaluating eligibility criteria in clinical research Jeremiah Lee and Terry Church

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OBJECTIVES/GOALS: The objective of this project is to develop a tool for evaluating clinical trial (CT) eligibility criteria for demonstrated "gender literacy," defined as the recognition that biologically assigned "sex" is distinct from personally defined "gender identity," as a way to quantify the inclusion of gender minority populations. METHODS/STUDY POPULATION: The study is validating an assessment scale that evaluates gender literacy based on CT eligibility criteria (EC). Two health professionals will serve as "coders," tasked with grading 15 CTs. EC for all CTs will be exported from clinicaltrials.gov. Once trained with using the scale, each coder will give a score for each trial. After this first scoring period, coders will share their scores and experiences using the scale. Coders will be tasked again with grading 15 new CTs. This second scoring period will yield final scores to calculate the inter-rater reliability (IRR), or the extent to which qualitative measurements are consistent and not due to random chance. IRR will be quantified by Cohen's kappa to validate the scale. RESULTS/ANTICIPATED RESULTS: Cohen's kappa is on a continuous interval from 0 to 1, where 0 means no agreement and 1 means perfect agreement. It is expected that the Cohen's kappa for

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this assessment scale will exceed 0.80. Such validation is necessary to ensure the scale is robust and dynamic for multiple use-cases and consistent across any coder. By having a discussion after the initial scoring period, we can identify confusions or challenges with the scale early on and correct them before the secondary scoring period. In comparing these two coders' performance, it is expected that the second scores will be more similar, thus a kappa closer to 1. However, if the kappa is low, this may be because gender literacy is a learned skill, through the internalized recognition that gender is truly different from sex. DISCUSSION/SIGNIFICANCE OF IMPACT: Systemic barriers and exclusionary language have excluded gender minorities from CT spaces for too long. Tools such as these, paired with standardized language for sex and gender eligibility criteria, will greatly bolster the representation of this population and spark change for a more inclusive future.

Key elements of Community Engagement Studios within diverse fields of health service research: A systematic scoping review

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OBJECTIVES/GOALS: This scoping review examines common characteristics of Community Engagement Studios, defined as custom panels bringing together community partners with lived experience around a health issue to provide highly tailored feedback to a research team. The authors also identify health service fields that most commonly use community engagement studios. METHODS/ STUDY POPULATION: This scoping review will follow procedures outlined in the Joanna Briggs Institute Manual for Evidence Synthesis. Inclusion criteria are limited to peer reviewed manuscripts published between 2010 and 2024. Key word searches for terms related to Community Engagement Studios will be conducted within Embase, MEDLINE, CINAHL, and Web of Science. Experimental, quasi-experimental, observational studies, process and conceptual manuscripts published in English or Spanish meet inclusion criteria. Two reviewers will reach consensus about article inclusion. Data analysis will include content analysis and descriptive statistics. RESULTS/ANTICIPATED RESULTS: The results for studies that meet inclusion criteria will be summarized through descriptive tables of study characteristics, the number of studies excluded at the fulltext review stage, and reasons for the exclusion of any studies that met the initial inclusion criteria. The results will also include a summary of common elements in the design of CE studios, the health disciplines for which CE Studios are most frequently conducted, and the aspect/phase of research design for which CE Studios are most frequently requested. DISCUSSION/SIGNIFICANCE OF IMPACT: To date, no work exists examining key elements of Community Engagement Studios and the fields within health services using this valuable research tool. This scoping review is a critical first step to develop guidelines, standards, and best practices around consistent procedures and characteristics to include in the design and conduct of CE Studios.