independent variables will be binary responses to questions relating to motivators and barriers to participation in research. Secondary analysis will stratify these comparisons by race or rurality with a subgroup analysis using the same methods as the primary analysis. Based on these analyses, we anticipate that those who have never participated in research will face greater and different barriers than those who have participated in research. We also anticipate that motivators will be similar between to the two groups. We anticipate finding differences in motivators and barriers among different races as well as differences when examining rurality versus non-rurality. Survey results will be available in January. DISCUSSION/SIGNIFICANCE OF IMPACT: This will be one of the few studies in the literature focused on uncovering motivators and barriers to research participation. Understanding what motivates and prevents individuals from participating in research is one of the first steps to enhancing the research process so that people want, and are able, to participate in studies.

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Exploring the relationship between community sports participation and diabetes risk factors in youth

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OBJECTIVES/GOALS: Youth-onset diabetes and its risk factors are increasing in ethnic and racial minority communities. Our mixed-methods study aimed to explore the associations between participation in a community youth sports program and key diabetes risk factors in youth, including mental health, physical activity, nutrition, and weight status. METHODS/STUDY POPULATION: We used a single cohort, mixed-methods design focused on the Community Leadership Revolution (CLR) Academy, a local youth sports program. Participants, ethnic and racial minority youth ages 5–14, were recruited to assess their mental health, physical activity, and nutrition using validated and reliable questionnaires. Weight status was measured via bioelectrical impedance. Group interviews with youth and individual interviews with staff provided context for the quantitative results. A thematic analysis of the qualitative data will further explore how CLR Academy may impact diabetes risk factors. RESULTS/ANTICIPATED RESULTS: We recruited 24 CLR participants (16 boys/8 girls) and 4 CLR staff (3 males/1 female). Sixteen youth identified as African-American, while the rest identified as multiracial. Correlations revealed that higher attendance at CLR Academy was negatively associated with mental health scores, specifically total, externalizing, and hyperactive scores (all $p < 0.01$). Higher CLR attendance was negatively associated with physical activity during spare time ($p < 0.05$), waist circumference ($p< 0.05$), and waist-to-height ratio ($p < 0.01$). Being a girl was associated with lower diet quality and physical activity (both $p < 0.05$). Qualitative data highlighted life skills and supportive relationships in CLR as key factors in improving health outcomes. Thematic analysis is ongoing to clarify these relationships. DISCUSSION/SIGNIFICANCE OF IMPACT: This study highlights how participation in programs like CLR Academy may improve ethnic and racial minority youth diabetes risk factors. Staff and participant insights on mechanisms driving these health improvements may offer strategies that can be applied to similar programs focused on reducing marginalized youth's diabetes risk.

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Evaluation of recruitment methodologies for underrepresented adolescent populations in genetic and epigenetic studies of type 2 diabetes

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OBJECTIVES/GOALS: The prevalence of type 2 diabetes (T2D) in adolescents is rising, presenting unique challenges for recruitment in clinical research – particularly among adolescents who belong to minoritized race/ethnic backgrounds. The primary aims of our study are to identify and address barriers to recruiting adolescents, particularly around community trust. METHODS/STUDY POPULATION: This study employed a two-phase approach to evaluate recruitment strategies for underrepresented adolescent populations in genomics studies of T2D. After IRB approval, in Phase 1, we utilized the electronic medical record (EMR) system at Children's of Alabama to prescreen based on inclusion criteria (adolescents aged 12–18 years with T2D). Recruitment efforts were tailored to address barriers unique to underrepresented populations, such as flexibility in scheduling contact times to accommodate family availability. In Phase 2, we are implementing and assessing the effectiveness of a peer recruitment model, wherein adolescents from underrepresented groups are trained to engage peers within their community. Focus groups (6–8 participants per group) will explore facilitators and barriers to recruitment. RESULTS/ANTICIPATED RESULTS: Phase 1 revealed that EMR prescreening effectively identified eligible participants, and direct outreach (phone calls, face-to-face contact during clinical visits) significantly improved recruitment success, especially among underrepresented adolescents. Flexible scheduling and consolidating study appointments enhanced participation, addressing logistical challenges like geographic distance. However, frequent changes in contact information (phone and email information) created barriers. In Phase 2, early focus group results suggest that peer recruitment is promising, with trust and community engagement being key factors. Adolescents recruited by peers were more likely to participate, though logistical hurdles such as transportation and family concerns remain. DISCUSSION/SIGNIFICANCE OF IMPACT: Our study demonstrates the value of personalized outreach and prescreening in improving recruitment among adolescents. These strategies can engage communities that include Black, Indigenous, and People of Colored. These findings underscore the need for flexible recruitment strategies to ensure their participation in T2D adolescent research.

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Engaging minority and vulnerable communities in genomic research: Navigating ethical, cultural, and practical considerations

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OBJECTIVES/GOALS: This study explores strategies to engage minority and vulnerable populations, including individuals with disabilities, in genomics research. It addresses the ethical, legal, and social implications (ELSI) of human research, with emphasis on data management and culturally sensitive return of actionable results. METHODS/STUDY POPULATION: This study will utilize a mixed-methods approach, combining quantitative surveys with qualitative interviews and focus groups to gather data from minority populations and individuals with disabilities in genomics research. Key stakeholders, including community leaders and healthcare providers, will be engaged to ensure the study's design reflects community needs and values. Data management practices will be evaluated to align with ethical standards and community expectations. Additionally, the study will examine how actionable results can be effectively communicated to participants, considering cultural and individual differences. RESULTS/ANTICIPATED RESULTS: Preliminary findings suggest that a one-size-fits-all approach to community engagement in genomic research is ineffective. This research emphasizes the importance of engaging diverse populations from the very beginning of the study to ensure that their voices are heard, and their concerns are adequately addressed. Preliminary data reveal significant variations in how communities perceive genetic research, highlighting the need for culturally tailored communication strategies. The proposed study also identifies key barriers to participation, such as mistrust of the research process and concerns about data privacy, which must be addressed to enhance community engagement. DISCUSSION/SIGNIFICANCE OF IMPACT: Successful community engagement in genomic research requires understanding the cultural and social dynamics of the populations involved. Researchers must adopt flexible, community-centered approaches that address the unique needs of minority and vulnerable groups, improving inclusivity and leading to more equitable health outcomes.

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Mapping preeclampsia inequalities in medical treatment: Converging medicare/medicaid and clinical trial availability

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OBJECTIVES/GOALS: This study looks to better understand and call attention to the inequalities found within medical treatment options for individuals suffering from preeclampsia during pregnancy in the USA. The goal is to map the terrain of clinical trials and evaluating existing medicare/medicaid covered services on a both national and state levels. METHODS/STUDY POPULATION: The study population for this research was limited to: pregnant women, ages 18–45, both pregnant and postpartum suffering from preeclampsia. We began looking at clinical trials targeting preeclampsia treatment conducted within the United States between 2019 and 2024. Using our study population parameters, we searched clinicaltrials.gov. These trials' inclusionary and exclusionary factors were noted, along with participant race. The drug intervention medication used during these clinical trials was compared to those prescribed by doctors via the current national standard of care. We then looked at Medicaid coverage provided to expecting mothers on a state-to-state basis and nationally regulated level. These factors included coverage on ultrasounds, low-dose aspirin, blood pressure monitors, and more. RESULTS/ANTICIPATED RESULTS: Preliminary findings demonstrate the need for more federally regulated policies and programs set in place to help combat the lack of resources faced by expecting mothers across the nation. This research will expose factors contributing to a lack of successful and completed clinical trials and lack of drug intervention innovations taking place to combat the rise in maternal deaths. This study will also focus on the importance of more education and awareness for communities such as African American mothers and those facing multiple gestational pregnancies who are at much higher risk of complications during their pregnancies. We also anticipate a large correlation between a lack of proper childbirth education and mothers who experience complications during birth. DISCUSSION/SIGNIFICANCE OF IMPACT: Within the past two decades, rates of preeclampsia have grown 25% within the USA. It affects 5–8% of all pregnancies, and with maternal death rates rising, it is crucial to highlight the alarming lack of government regulation. It is imperative to provide awareness to mothers from disadvantaged backgrounds to treat this preventable condition.

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An asset-based approach to advance minoritized patients' participation in clinical research: Leveraging the expertise of experienced Black clinical research participants

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OBJECTIVES/GOALS: To present an asset-based approach to advance minoritized patients' participation in clinical research by elevating experienced Black research participants' motivations and decision-making processes, favorable sociocultural research contexts, and impactful research questions to reduce chronic disease burden and improve quality of life. METHODS/STUDY POPULATION: Data will be extracted from a pilot study to develop an asset-based approach to clinical research with young Black adults living with chronic pain. Participants will be Black patients at an academic medical institution on the West Coast, ages 21 to 44, currently or formerly have chronic pain, and current or previous electronic health record-captured enrollment in a clinical research study. Approximately 25 Black patients will participate in semi-structured focus groups with topics including: motivations for research participation, access to research, preferred research activities, perceived research benefits, favorable structural and cultural contexts, considerations of past ethical and trust violations, and alignment of research questions and patient needs. Data will be collected Fall '24 and analyzed in Winter '25. RESULTS/ANTICIPATED RESULTS: We will examine experienced Black clinical research participants' decision-making processes for participating in research, including access to studies, perceived value of research, community support, and alignment of study goals with their personal interests and needs. Results will illuminate the sociocultural, structural, and historical contexts under which Black patients have successfully participated in clinical research, and types of studies they have participated in, and recruitment procedures that have been effective. Also, we will examine the conditions for successful study completion. Investigators will also learn about the types of clinical research questions that minoritized patients believe will have an immediate and long term impact on their lived experienced with chronic illness. DISCUSSION/SIGNIFICANCE OF IMPACT: The results will challenge deficit models of minority research participation that focus solely on barriers to participation, previous ethical harms, and violations of trust/trustworthiness by elevating the motivations,