307

## Post-Ebola Syndrome Presents with Distinct Clinical Phenotypes in Pediatric Ebolavirus Disease Survivors: What Are the Drivers?

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OBJECTIVES/GOALS: Despite the acknowledgment of post-Ebola syndrome (PES), young EVD survivors have received little attention. The mechanistic drivers and long-term consequences of PES and EVD early in life are unknown. We aim to define PES presentations in pediatric EVD survivors and propose potential mechanistic factors contributing to PES in young people. METHODS/STUDY POPULATION: Here we focus on physical health outcomes in an ongoing cohort study assessing mental and physical health in pediatric EVD survivors (age RESULTS/ANTICIPATED RESULTS: 671 participants were enrolled between 2021 and 2022 (Infected: n = 226, Affected: n = 207, and Control: n = 238). Groups were similar in sex distribution (52.7%, 54.0%, and 53.8% female, respectively) and mean age, although the Infected group was slightly older (14.6 y) than the Affected (13.5 y) and Control groups (14.1 y), a difference unlikely to be clinically significant. Notably, the EVD Infected group exhibited a higher burden of symptoms, with significant findings in cardiac, MSK, ophthalmologic, and "ear, nose, and throat" systems. Principal component analysis showed differential patterns of sequelae across the groups, primarily defined by MSK. DISCUSSION/SIGNIFICANCE OF IMPACT: PES is heterogeneous in pediatric EVD survivors. EVD Affected children exhibit a similar yet distinct pattern of clinical sequelae indicating ecological factors impact sequelae and raising questions about the mechanistic drivers of PES in children. Potential mechanisms include inflammation or accelerated aging and immune dysfunction.

308

## A new health equity research model to reduce health disparities and advance the science and practice of community engagement

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OBJECTIVES/GOALS: The NIH Common Fund launched Community Partnerships to Advance Science for Society (ComPASS) to study ways to reduce health disparities by addressing underlying structural factors within communities. ComPASS was designed for community organizations to lead research that addresses community needs. METHODS/STUDY POPULATION: ComPASS awarded five health equity research hubs (Hubs) to provide specialized technical support to ComPASS research projects led by community organizations. Expertise provided by the Hubs to the community-led projects will focus on specific facets of community health, including nutrition access, health care access, and built environment. The Hubs support community-led piloting and testing of structural interventions within community settings by providing subject matter expertise in areas including structural and multilevel intervention study design and methods, implementation science, and community engagement. RESULTS/ANTICIPATED RESULTS: The Hubs will provide expertise and support to the community-led research projects around one or more social determinants of health domains: health care access and quality, education access and quality, economic stability, social and community context, and neighborhood and built environment. The Hubs will help identify strategies for measuring health outcomes and assessing the effects of structural and contextual factors on intervention outcomes. We anticipate the ComPASS program will lead to a better understanding of how structural interventions that leverage multi-sectoral partnerships can advance health equity. DISCUSSION/SIGNIFICANCE OF IMPACT: Through community-led research, ComPASS projects are implementing structural interventions to address social determinants and advance health equity. The technical scientific support rooted in health equity provided by the Hubs is essential to the success of these research projects.

309

## Understanding public perceptions of research study participation – A survey study

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OBJECTIVES/GOALS: Research participants are not representative of our communities. To determine research perceptions, we are recruiting individuals who have and have not participated in studies. We aim to identify trends, capturing motivating factors, access barriers, and participants' concerns to inform best practices to engage participants. METHODS/STUDY POPULATION: We developed a 25-item survey with a goal of engaging 500 individuals. Survey questions were developed based on published literature of research motivations and barriers, as well as focus groups conducted in our central Pennsylvania community. Survey questions consist of Likert-scale, multiple choice, and free text, with administration through REDCap. Potential survey participants will be recruited from the Penn State Volunteer Repository and through partnering clinical networks, including federally qualified health centers. We will also recruit individuals who have never participated in research to engage underrepresented groups via the Penn State Clinical and Translational Science Institute's community partner network. Analyses will include Chi-squared tests and binomial logistic regression. RESULTS/ANTICIPATED RESULTS: The primary dependent variable will be past participation in research, while the primary

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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.

311

## 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.

312

## 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.

313

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

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