

and enrollment, along with details on the program content, timeline, and short- and long-term program evaluation metrics (both quantitative and qualitative). The CUBE program was well-received by students participating in summers 2022 and 2023, where improved attitudes towards statistics were demonstrated, and 7 of the total 9 participants (78%) over the past two summers expressed interest in pursuing a graduate degree in biostatistics or a career in quantitative research. Of these 7 students, 1 is currently enrolled in a biostatistics graduate program in the United States. DISCUSSION/SIGNIFICANCE: Results can be used to offer recommendations to leaders in the field on how to establish similar programs seeking to provide a pipeline for equity and diversity in the practice of collaborative biostatistics and health data science.

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### Parental Occupation and Orthopaedic Surgery Residency Applicants: Implications on Educational Debt, Scholarships, Medical School Ranking, and Resulting Match Rates

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OBJECTIVES/GOALS: Parental SES may influence the trajectory of students applying to orthopaedic surgery residency, perpetuating opportunistic disparities. Thus, we sought to examine the relationship between parental occupation/education and applicant match rate, education financing, and medical school background. METHODS/STUDY POPULATION: Data from the Association of American Medical Colleges (AAMC) documented parental occupation and education levels of 10,697 orthopedics applicants from 2011 to 2021. Parental occupations were categorized into physician vs non-physician, healthcare vs non-healthcare, working class vs non-working class, and STEM (Science, Technology, Engineering, Mathematics, Medicine) vs non-STEM. Parental education levels spanned from no college degree to doctorate degrees and were used as a proxy for SES. Outcomes analyzed included match success, premedical and medical school debt, total educational debt, scholarships, and representation from top 40 research medical schools as determined by NIH funding. RESULTS/ANTICIPATED RESULTS: Physician parent applicants (20.1%) had better match rates (75.5% vs. 73.5%), lower debts, lesser scholarships, and higher top 40 school representation. Healthcare parent applicants (37.0%) had similar match rates, less debt and scholarships. Working class parent applicants (6.0%) had more debt and scholarships. STEM parent applicants (48.6%) had higher match rates, lesser debts and scholarships, and higher top 40 representation. Applicants with parents without college degrees had lower match rates (68.6% vs 74.5%), more debt and scholarships. Doctorate parent applicants had better match success (75.9% vs 72.9%), lesser debts, and higher top 40 school representation (34.9% vs 29.6%). DISCUSSION/SIGNIFICANCE: Parental SES was associated with substantial variation in applicant financial burden and educational pedigree. Notably, applicants with parents lacking degrees had lower match rates, underscoring the need for supportive strategies to ensure equitable opportunities for aspiring orthopaedic surgeons.

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### Perceived Barriers to the Recruitment and Retention of Underrepresented Racial and Ethnic Groups (URGs) in Clinical Research

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OBJECTIVES/GOALS: The inclusion of underrepresented racial and ethnic groups (URGs) in clinical research is critical for ethical and scientific reasons. This initiative aimed to assess the perspectives, barriers, needs, and recommendations encountered by research teams when enrolling and retaining URGs in clinical research. METHODS/STUDY POPULATION: An anonymous, web-based survey comprised of quantitative and qualitative questions was administered to individuals involved in clinical research at an academic medical center. The survey assessed three main domains: 1. Research teams' perceptions and experiences with enrolling URGs in clinical research, 2. Factors that discourage URGs from participating in clinical research, and 3. Research teams' overall willingness to support URG enrollment. Demographics were also collected. The survey was reviewed by experts in clinical research, research ethics, and diversity, equity, inclusion, and accessibility (DEIA). The assessment was piloted among research professionals and edits were made accordingly prior to official dissemination. Data were analyzed using descriptive statistics. RESULTS/ANTICIPATED RESULTS: There was a total of 63 responses. A majority of respondents have more success enrolling patients whose primary language is the same as their own and that time arranging for an interpreter has negatively impacted enrollment efforts. Approximately half of the respondents believe that the race and/or ethnicity of the potential study participant influences enrollment success. Factors discouraging URGs from participating in clinical research include unavailability for follow-up visits due to transportation issues, distrust in doctors and/or researchers, fear of unknown side effects, and unavailability of medical interpreters. Respondents report that they are not discouraged from enrolling URGs and would utilize resources related to encouraging the inclusion of URGs. DISCUSSION/SIGNIFICANCE: Language appears more influential than ethnicity or race when it comes to enrolling and retaining URGs. Additionally, it appears that enrolling is a bigger challenge than retaining. Major themes that emerge with respect to retaining enrolled participants include the inability to attend follow-up visits and the lack of incentives/compensation.

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### Gender-Diverse Inclusion: The Language of Sex and Gender in PrEP Clinical Trials

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OBJECTIVES/GOALS: To construct an assessment scale capable of evaluating a trial's gender literacy or the extent to which biologically assigned "sex" is understood as separate from culturally defined and personally embodied "gender". This scale in tandem with a policy brief will outline recommendations for inclusive medical