a framework for patient involvement in intervention design, we aim to create a replicable model to enhance the translation of research into practice.

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Advancing breast cancer risk identification and care in non-Hispanic Black Women

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OBJECTIVES/GOALS: This project will enrich our understanding of basal breast carcinogenesis, highlighting the distinct biological differences in breast cancer risk between non-Hispanic Black (NHB) or non-Hispanic White (NHW) women, but also has the potential to provide real-world solutions thereby contributing to reducing health disparities in breast cancer outcomes METHODS/STUDY POPULATION: In the biological investigation, I am utilizing a unique cohort of normal breast tissues from Mayo Clinic patients who underwent breast reduction surgery that have self-identified as NHB or NHW premenopausal women. From these tissues, we are able to subculture human mammary epithelial cells, which we will use for our consequent experiments. For the qualitative study, I aim to recruit up to 40–50 eligible NHB women identified at increased risk for breast cancer and conduct semi-structured qualitative interviews informed by the National Institute on Minority Health and Health Disparities Research Framework. RESULTS/ANTICIPATED RESULTS: Gene expression profiling on our cohort of 15 NHB and 40 NHW premenopausal women identified a gene expression signature in NHB women indicative of elevated Hedgehog signaling, a key factor in triple-negative breast cancer (TNBC) development and progression. I hypothesize that persistent activation of Hedgehog signaling within NHB women instigates the proliferation and transformation of basal stem cells within the breast, thus fueling TNBC development. Understanding the perceptions and experiences of NHB women that are identified as being at an increased risk for BC will aid in the identification of barriers and facilitators to their risk reduction care and in turn provide implementation strategies that could contribute to alleviating the racial disparity seen in TNBC morbidity, mortality, and preventative care. DISCUSSION/SIGNIFICANCE OF IMPACT: The significance of this project lies in its dual approach, uncovering basal breast cancer mechanisms in a high-risk group using normal breast tissue and evaluating the perspectives from NHB women to enhance the practical relevance of our findings.

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Arriving at strategies to recruit and retain adolescents and young adults (AYAs) in research: A mixed-methods approach

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OBJECTIVES/GOALS: Research participation by adolescents and young adults (AYAs) is critical for advancing therapeutic interventions applicable across the life course. Identifying effective strategies to recruit and retain AYAs is challenging. This poster elucidates the process and outcomes of working with an AYA Health Research Board and surveying AYAs. METHODS/STUDY POPULATION: The AYA Health Research Board established in 2022 as part of an AYA Program within the UC Davis (UCD) Clinical and Translational Science Center (CTSC). The Board is composed of youth advisers, ages 13–39, from across CA. In 2023, the Program supplemented insights from the board with a national online survey of AYAs using the Amazon Mechanical Turk (MTurk) platform. Two separate instruments were administered, one on recruitment and another on retention, each with over 400 responses. The UCD AYA Board was then engaged to provide crucial insights contextualizing the survey findings, ensuring their relevance and applicability to the AYA population. RESULTS/ANTICIPATED RESULTS: Overall, survey results indicate that AYAs are aware of health studies and clinical trials. Responses affirm that incentives are the biggest driver of AYA participation, while side effects were identified as the biggest reason to drop out of a study. Overall, youth appear more interested in participating in online studies versus those that require in-person appearances. Text messages, regular updates, and sharing of study results were identified as strategies to maintain participant engagement. Additional results will be available through a one-page factsheet for researchers to use as they think about retention and recruitment of AYAs. DISCUSSION/SIGNIFICANCE OF IMPACT: Survey results will be made available to health researchers to help move the needle on recruitment and retention efforts of AYAs. This mixed-methods case study serves as an example of the impact AYAs can have on shaping research and validating survey findings.

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Assessing socioeconomic barriers to mental health service utilization among older adults in Puerto Rico's federally qualified health centers

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OBJECTIVES/GOALS: To evaluate the impact of social determinants of health (SDOH), specifically socioeconomic status and medical insurance coverage, on access to mental health services for adults aged 60 and older served by Federally Qualified Health Centers (FQHCs) in Puerto Rico. METHODS/STUDY POPULATION: A secondary retrospective analysis of electronic health records from FQHCs in Puerto Rico will be conducted to examine the relationship between SDOH needs and mental health service utilization among adults aged 60 years and older receiving primary care. SDOH data will be collected using the PRAPARE® tool, assessing factors such as socioeconomic status, insurance coverage, and emotional support, with a focus on identifying unmet needs. Multivariable and logistic regression models, using Stata v.17, will be employed to evaluate correlations between these SDOH factors and mental health service utilization, adjusting for age, gender, and mental health conditions. This

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analysis aims to quantify the impact of SDOH on access to mental health services and elucidate key barriers to care for older adults in Puerto Rico. RESULTS/ANTICIPATED RESULTS: We anticipate that lower socioeconomic status, lack of supplemental insurance, and inadequate family support will be strongly associated with the underutilization of mental health services among older adults in Puerto Rico. These disparities are expected to be more pronounced in individuals with limited income, weaker family networks, leading to significant gaps in access to necessary mental health care. Barriers such as healthcare insecurity, financial hardship, and fragmented support systems will likely emerge as major obstacles. By including patients from both rural and urban regions, the study will capture the distinct challenges each population faces, enhancing the contextual relevance of the findings to broader populations, ultimately informing policy and developing intervention strategies. DISCUSSION/SIGNIFICANCE OF IMPACT: The findings will provide crucial insights for developing targeted interventions to enhance mental health care access for older adults in Puerto Rico. These results will inform policy development and public health strategies, addressing disparities and promoting equitable care in underserved populations.

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Identifying barriers and facilitators influencing physical activity levels in children and adolescents with congenital heart disease (CHD): A rapid review

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OBJECTIVES/GOALS: Physical activity (PA) is critical to improving the health and well-being of patients with congenital heart disease (CHD); however, rates of PA, specifically in children and adolescents with CHD, remain significantly lower than the general population. Our goal was to understand what factors influence rates of PA in children and adolescents with CHD. METHODS/STUDY POPULATION: A rapid review was performed in February 2024 across 5 databases: PubMed, Scopus, CINAHL, PsycINFO, and PEDRO (PROSPERO 2024 CRD42024516250). A search strategy combined all possible terms and MESH terms related to the population of interest: children or adolescents with CHD and the outcome of interest: PA levels. Descriptive analysis and concept maps were used to further describe the various barriers and facilitators to PA. RESULTS/ANTICIPATED RESULTS: We identified 49 articles. Most articles were quantitative (76%) and assessed demographic influences, such as age and gender. Self-efficacy was the most common facilitator to PA, in addition to wanting to fit in and have fun. Self-imposed limitations and self-perceived barriers such as fears and anxiety, feelings of inadequacy, and lack of enjoyment were barriers to PA. Parents, teachers, and peers facilitated PA by providing support, possessing knowledge about the importance of PA, and by engaging in the activity with the child; however, these groups limited PA by showing anxiety and stress. Barriers related to social determinants of health (SDOH) include costs, lack of education, and accommodations during PA. Environmental barriers included less PA during winter, weekends, and between the hours of 15:00 and 17:00. DISCUSSION/SIGNIFICANCE OF IMPACT: Identifying barriers and facilitators to PA in patients with CHD is necessary to design tailored programs that will increase PA behaviors. Future work should integrate perspectives of clinicians, patients, and families with the factors described in this review, to create programs that effectively address low PA levels in the young CHD population.

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Clinician and researcher knowledge, barriers, and facilitators of patient partner research engagement to accelerate translational science

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OBJECTIVES/GOALS: To identify clinician and researcher barriers, facilitators and learning preferences for patient partner engagement in research. In addition, to describe the strategies, our Patient Partners Program has planned for building clinician and researcher capacity to engage patient partners in clinical research. METHODS/STUDY POPULATION: Our program to promote authentic patient–researcher partnerships to advance clinical and translational research is grounded in participatory approaches to maximize meaningful engagement. We utilized small group listening sessions with health care providers involved in clinical research at the University of Michigan, Michigan Medicine healthcare system. Insights from these sessions are informing the development of learning models and curriculum content. We used purposive sampling to recruit individuals (n = 12) with a wide array of patient engagement experiences across diverse clinical departments. The study materials and interview guide were co-created with a patient research partner who also participated in co-facilitating the listening sessions. RESULTS/ANTICIPATED RESULTS: The interview guide included questions about the benefits, challenges, and supports to engagement and capacity building training programs for researchers. The listening sessions were recorded, transcribed, and analyzed for common themes. Preliminary findings have identified the following themes related to barriers: (1) identifying and onboarding patient partners, (2) communication challenges, and (3) institutional and structural challenges (e.g., time constraints and difficulty offering compensation) and facilitators: (1) institutional and administrative support, (2) flexibility, and (3) respect, trust, and partnership. Improved knowledge about how and when to engage patient partners was identified as a key component to build researcher capacity in patient partnered research. DISCUSSION/SIGNIFICANCE OF IMPACT: Integrating patient partners into study teams accelerates innovation and translational science, increases the relevance of research findings, improves health outcomes and patient empowerment, and elevates the value of the patient perspective allowing researchers to gain a new point of view from an individual with lived experience.

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