I. Specific educational aims

1. To investigate how coaching impacts UIM compared with non-UIM residents' sense of belonging, inclusion, wellness, and personal and professional identity formation across 5 institutions.
2. To identify effective coaching strategies to promote UIM residents' sense of belonging, inclusion, wellness, and personal and professional identity formation.

This study meets the funding priorities of DEI, collaboration, and rigorous approaches to scholarship.

II. Project rationale

Despite an increasingly diverse patient population in the US and evidence that physician diversity is associated with improvements in patient care, service to the underserved, and enhanced educational experience, there is a low number of medical trainees and physicians who are under-represented in medicine (UIM).[1–5] This problem stems from a combination of low numbers of UIM students entering medical school as well as a leaky pipeline that results in loss of UIM individuals during medical school, residency, fellowship, and along the academic medicine ranks. This leaky pipeline phenomenon has been attributed to a lack of mentorship for UIM trainees and faculty, structural and medical racism, and UIM physicians being placed at increased risk for burnout.[6–9]

Coaching, long used in other professions, has a new and growing role in medical education and has been shown to improve physicians' self-reflection, goal-setting, clinical skills, and levels of burnout.[10–16] The Stanford Pediatric Residency Program developed the first Residency Coaching Program in the United States in 2013. Each resident has a dedicated faculty coach whose goal is to help develop their residents' clinical and professional skills. Coaches utilize direct observation, facilitated reflective practice, feedback, and goal setting to achieve these goals.[10]

Cruess and Cruess's framework for physicians' professional identity encompasses several factors that may be relevant to coaching UIM and non-UIM residents.[17] Such interactions include the role of the learning environment; the attitude of and treatment by patients, peers, health care professionals and the public; role models; reflection and self-assessment; personal and professional identities; and clinical experiences. As such, this study seeks to bring together the frameworks of coaching and professional identity formation to evaluate how coaching UIM and non-UIM residents impacts their sense of belonging, inclusion, and wellness, and their personal and professional identities.

Pilot Data

Prior research has evaluated the Stanford Pediatrics Residency's Coaching Program and has found improvements in feedback, reflective practice, goal-setting, and understanding patient feedback to physicians.[10,18-20] A qualitative study at Stanford and University of Washington found that residency graduates who experienced coaching in residency identified their coaches' impact on their own professional identity formation through the development of a longitudinal trusting relationship that increased their sense of belonging.[21]

III. Approach

This is a mixed methods study consisting of semi-structured interviews and surveys. We will use a purposive sampling technique in which we will conduct individual interviews and post-interview surveys with approximately 20-30 UIM and 20-30 non-UIM residents from five institutions (Stanford, University of Washington, University of Oklahoma, Medical University of South Carolina, and Valley Children's). We identified these institutions as appropriate settings for this study because they have also established

longitudinal GME Coaching Programs. UIM is defined as "those racial and ethnic populations that are underrepresented in the medical profession relative to their numbers in the general population."[22]

Data Collection

Emails will be sent inviting residents to participate in a 45-60-minute semi-structured interview. Participants will be asked to identify experiences in residency that led to their sense of belonging or not belonging in that environment. They will be asked to describe how they have interacted with their Coach and how this has impacted their sense of belonging, inclusion, wellness, and personal and professional identity formation. In addition, they will be asked to describe effective strategies their coaches have used to impact these areas. We will continue with interviews until we reach theoretical saturation.

Following the semi-structured interviews, we will administer brief online surveys to assess residents' sense of belonging, inclusion, burnout, and general wellness, along with demographic information. This survey will be adapted from a national survey on sense of belonging in UIM residents,[23] the AAMC Diversity Engagement Survey,[24] and Shanafelt's 2-item burnout scale.[25]

IV. Timeline and plan for implementation

October 2021	Apply for IRB
November 2021 – March 2022	Interviews and Surveys Research Assistant
November 2021 – March 2022	Qualitative Data Analysis
April – May 2022	Finalize Thematic Analysis and Quantitative Data Analysis
May – July 2022	Submit to National Conferences
June – July 2022	Write and Submit Manuscript

V. Anticipated work product

This study will lead to the development of model coaching practices that optimize interactions between the clinical learning environment, residents' sense of belonging, inclusion, wellness, professional identity formation, and opportunities for coaches to impact these interactions, especially among UIM residents. This study will highlight facilitating factors and barriers to developing one's professional identity through a coaching program during residency training. Strategies to mitigate the identified barriers and recommendations for improvements in the structure of a coaching program will be elicited.

VI. Evaluation plan

We will use constructivist grounded theory and constant comparative analysis to analyze the data in three stages of coding: initial, focused, and theoretical for individual interviews.[26] Initial coding includes reading the interview transcripts line-by-line to conceptualize ideas. Focused coding will be used to understand categories and themes within the data. Then, after discussing these categories and themes with the research team, we will conduct axial coding in which we will use these categories and themes to code the entire data. The surveys will be analyzed with Wilcoxon Rank Sum Tests and descriptive statistics.

VII. Dissemination of results

This research will be disseminated through Stanford, national, and international academic medical conferences (including AAMC, ACGME, AMEE, and ICRE) and publications (including in *Academic Medicine* or *Medical Education*).

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