A Blueprint for Increasing Ethnic and Racial Diversity in U.S. Residency Training Programs

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Abstract

Problem

People who identify as African Americans, Latinos, or from indigenous backgrounds, are dramatically underrepresented in the U.S. physician workforce. It is critical for academic health centers to recognize racial and ethnic diversity at the residency level and implement changes to enhance diversity among trainees.

Approach

The Office of Graduate Medical Education (GME) at the University of Pennsylvania Health System (UPHS) developed a multipronged approach to enhance diversity and inclusion (D&I) among residency trainees. The approach included the development of an underrepresented in medicine (UIM) professional network; UIM-focused visiting clerkship programs; holistic review implementation by selection committees; and targeted outreach to UIM candidates, overseen by an associate designated institutional official for UIM Affairs. The authors reported demographic data on residency applicants invited for interviews and matching for all programs at UPHS from 2014–2015 (baseline) to 2020–2021. They also reported data on maximum ranking number programs reached to fill their positions and the average United States Medical License Examination (USMLE) Step 1 scores of matched candidates. Finally, they discussed the implications for leaders who wish to enhance D&I at academic health centers.

Outcomes

During the baseline year (2014–2015), UIMs represented 12.1% of interviewees and 8.7% of all matched candidates into UPHS residency programs. Over the successive 6 years after incremental implementation of the approach, UIM representation steadily increased. In 2020–2021, UIMs represented 23.2% of interviewees and 26.4% of matched candidates. Programs' maximum rank number to fill and USMLE Step 1 scores of matched candidates remained relatively unchanged.

Next Steps

The UPHS Office of GME incorporated a purposeful approach to enhance the D&I of its residents. Across 6 years of implementation, UIM representation among resident matches tripled while quantitative program and candidate metrics remained unchanged. Similar efforts should be given further consideration for implementation and evaluation nationwide.

Problem

Health care disparities along racial and ethnic lines persist throughout the United States. There is a growing consensus that a multifaceted approach, which includes increasing diversity in our physician workforce, is imperative to alleviate these disparities, increase health care access, and improve the provision of culturally appropriate care.[1,2] The Association of American Medical Colleges (AAMC) has defined the populations underrepresented in medicine (UIM) as those that are underrepresented in the profession relative to their numbers in the general population, including individuals who identify as African American, Latino, American Indian/Alaskan Native, and Native Hawaiian/Other Pacific Islander.[3] The inadequate representation of UIM populations in the U.S. physician workforce has been well documented, but this documentation in the medical literature has not improved representation over the past decade.[1,2,4]

From an institutional assessment at the University of Pennsylvania Health System (UPHS) comparing medical student with resident representation, we identified a glaring "leak in the UIM pipeline" (Figure 1). While UIMs represented 23% of the medical students, UIM physicians only comprised 11% of the institution's resident workforce in 2015. Interestingly national data have yielded very similar results, despite residency candidates placing increased value on diversity.[4,5] In March 2015, of the newly matched applicants into UPHS residency training programs, only 8.7% were from UIM groups, poorly reflecting our institutions' diverse patient population.

There is a paucity of literature describing effective methods to increase ethnic diversity of resident physicians across an entire health system. In this innovation report, we describe a 4-pronged approach that we employed at UPHS to improve the representation of populations that are UIM throughout our residency training programs. We also discuss the effects and outcomes of this approach, and its implications for leaders of large academic health centers who desire further intentionality around diversity, equity, and inclusion (DEI) efforts.

Approach

Setting and participants

Residency application, interviews, and matching demographic data for all programs at UPHS from 2015 to 2021 were retrospectively (2015) and prospectively (2016–2021) collected and evaluated by the UPHS graduate

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Acad Med. 2022;97:1632–1636.
First published online July 19, 2022
doi: 10.1097/ACM.0000000000004847

Supplemental digital content for this article is available at http://links.lww.com/ACADMED/B309.

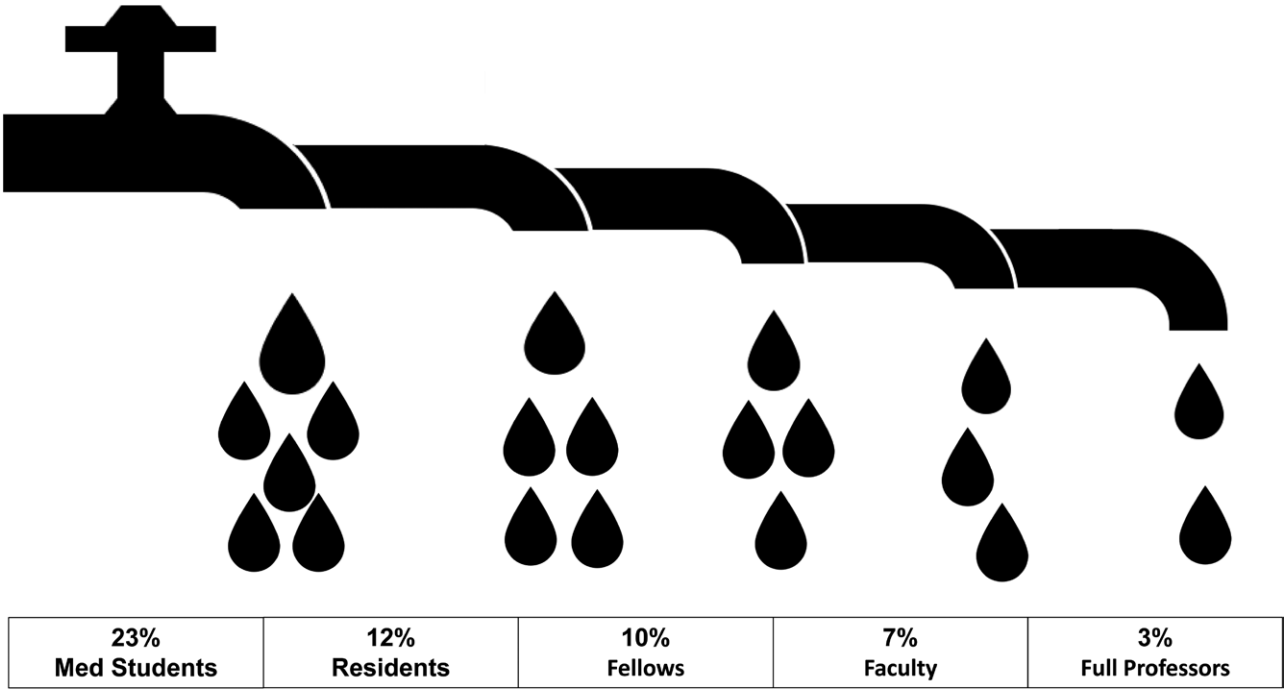

Figure 1 The "Leaky Pipeline:" Representation of individuals who are underrepresented in medicine among medical students, residents, fellows, faculty, and full professors at University of Pennsylvania Health System, 2015.

medical education (GME) office. Collections of these data required engagement and participation of all residency program directors and their coordinators throughout the health system. Applicant-entered, self-identified gender and race and ethnicity data for all residency applicants, interviewees, and matched candidates were collected from all 28 UPHS residency training program coordinators. We identified UIM applicants consistent with the AAMC definition.[3]

Development of our approach

We conducted a literature review on UIM medical student and faculty recruitment. Among several identified studies, the review ascertained that institutions either employed a solitary approach (i.e., visiting clerkship programs [VCPs]) or were focused on a single discipline, yielding promising results.[6,7] We developed a formalized 4-pronged approach for UIM recruitment at the GME level that employed several of the strategies described in these studies. We felt that by simultaneously employing several strategies described in the studies, our approach could be more effective and impactful for diversifying the resident workforce across disciplines. A newly appointed director of UIM affairs (2015), who was later elevated to an associate designated institutional official, initiated and then oversaw implementation of our 4-pronged approach.

This approach included the following 4 elements:

- *Alliance of Minority Physicians (AMP):* AMP is a housestaff-run, faculty-sponsored effort to establish an internal network that provides mentorship and support to UIM junior faculty, fellows, residents, and medical students. AMP organizes professional development, recruitment, community outreach, and networking events (see Supplemental Digital Appendix 1 at http://links.lww.com/ACADMED/B309). All UIM housestaff and faculty (agnostic of race and ethnicity) are invited to participate upon their arrival to UPHS, and reminder emails are sent annually. AMP was founded in 2012 with a "Provost Grant" from the University and since 2015 has received annual budgetary funding via the UPHS Office of Inclusion and Diversity.
- *UIM-focused, 4-week, VCPs:* Three VCPs were initiated in the 2015–2016 academic year to provide accepted students stipends for travel and lodging expenses, as well as training and mentorship, for 4 weeks. With the success of these early VCPs, these clerkships eventually expanded to 16 disciplines by 2021, with programs choosing the number of positions they could fund (from 1 to 10). These UIM VCPs were advertised nationally and regionally with selection committees established by each program. Program details appear in Supplemental Digital Appendix 2 at http://links.lww.com/ACADMED/B309. Students (fourth-year subinterns participating in the National Resident Match Program) from accredited medical schools applied and then were accepted after application review. The program was temporarily suspended in 2020 secondary to the COVID-19 pandemic. As an alternative during this suspension, we organized a series of monthly 90-minute "Meet the Family" webinars from September 2020 through February 2021, and more than 150 medical students participated. The webinars included 30 minutes of formal presentation by 2 UIM faculty, followed by a 60-minute question-and-answer session.
- *GME symposiums and workshops*: Starting in 2015, speakers with experience in the topics of unconscious bias and UIM recruitment and retention led biannual workshops to educate residency program directors, program coordinators, and residency selection committee members on the paucity of

UIMs in residency training programs and the benefits of holistic review of applicants. The GME office distributed best practices for holistic review, initially endorsed by the AAMC.[8] Residency programs were encouraged to implement holistic review and asked to consider reducing, if not abolishing, threshold scores for metrics, such as candidates' United States Medical License Examination (USMLE) Step 1 scores, grades, and number of authored peer-reviewed publications. Before our 4-pronged initiative, no prior formalized faculty development efforts had been implemented at UPHS.

- *Targeted outreach to candidates:* Starting in 2016, members of AMP employed outreach to UIM residency applicants before their interviews at UPHS. They also contacted the candidates during their interview day, and they made an offer of follow-up communication to ensure all questions about UPHS and the city of Philadelphia were answered.

Data collection and assessment

The 2014–2015 academic year served as the baseline since none of the initiatives were in place before then except for AMP, which began in 2012. For our study, we collected and assessed the following metrics from 2015–2021 (7 residency matching cycles): the total number and percentage of all interviewed candidates who self-identified as being from a UIM group, and the total number and percentage of all matched candidates who self-identified as being from a UIM group. To determine whether these initiatives impacted the historical metrics that programs used to assess their competitiveness and the competitiveness of their matched candidates over that same 7-year period, we also collected and assessed data on the maximum ranking number that a program reached to fill all of their residency positions, and on the average USMLE Step 1 scores of all UPHS matched residency candidates.

Outcomes

UIM representation among UPHS residency interviewees and matched candidates

In our baseline year (2014–2015), individuals with UIM backgrounds represented 12.1% of all candidates (243 of 1,997) interviewed for residency positions at UPHS. In 2020–2021, UIM representation increased to 23.2% of all interviewees (537 of 2,310).

During the baseline year (2014–2015), individuals with UIM backgrounds represented 8.7% of all matched candidates into UPHS residency programs (17 of 196). In 2020–2021, the UIM representation within the matched residency candidates increased to 26.4% (57 of 216). Figure 2 shows the data on UIM representation among UPHS residency interviewees and matched candidates.

Maximum number ranked to fill and USMLE Step 1 scores of matched residency candidates

The average maximum rank number to reach to fill residency positions for all programs during the baseline year of 2014–2015 was 37. In 2020–2021, the average maximum rank number to fill was 37. The average USMLE Step 1 score for all matched residency candidates during the baseline year (2014–2015) was 246. The average USMLE Step 1 score for all matched residency candidates at UPHS over the subsequent 6 match cycles remained relatively unchanged, with a 2020–2021 average score of 241. During this 6-year span, the average change in yearly USMLE Step 1 mean scores was 4.17 points lower than the 2014–2015 baseline year, not reaching the level of statistical significance ($P = .13$) Figure 3 shows the data on the average maximum rank number to fill and average USMLE Step 1 scores of the UPHS matched residency candidates.

Next Steps

We believe this is the first report showing the impact of an innovative, multifaceted approach to increasing UIM representation across multiple GME programs at a single large academic health center. During the 7-year period of assessment and implementation, there was a tripling of representation of individuals from UIM backgrounds among all newly matched interns. Two traditional metrics used to assess both the competitiveness of programs (maximum rank number to fill all positions) and matched candidates (USMLE Step 1 scores) were unchanged over the studied period. These findings should help dismantle unfounded concerns that by enhancing ethnic diversity among trainees, a program would need to jeopardize the "quality" of its program or the candidates it accepts.

The multiple strategies that we implemented were distinct but interrelated, and collectively they proved effective in improving recruitment of UIM candidates, and we plan to enhance these efforts in the future. The inception of AMP has undeniably bolstered the institution's DEI efforts. Additional funding for AMP is being secured as this organization serves as a valuable resource for GME program directors and program coordinators to refer UIM candidates who may have questions about what it is like to be a UIM housestaff at UPHS.

Funded UIM-focused VCPs proved particularly helpful to allow both the student and program to determine if the 2 are a potential "good fit." Importantly, the VCPs also granted our faculty opportunities to gain exposure to potential candidates who would have previously been overlooked because they came from a lesser-known undergraduate or medical school. At the same time, the VCPs removed the financial burden of travel for medical students, for whom indebtedness is already a concern. With evidence of early success, several additional departments intend to join the existing ones in supporting a UIM-focused VCP for 2022.

The UPHS Office of GME will continue to encourage residency program directors and department chairs to employ a holistic review of residency applications. Holistic reviews are institution-specific, broad-based, mission-driven, and applied equitably across the entire candidate pool. Implementation of holistic review expands the lens of assessment for future physicians, and it decreases intrinsic biases perpetuated against UIM candidates.[9] Lastly, we plan to continue the targeted outreach approach that has effectively attracted competitive UIM students to UPHS. A recent study suggested that UIM outreach and recruitment were far more effective than website descriptions for increasing institutional ethnic diversity.[10]

The importance of our GME office and institutional leadership commitment

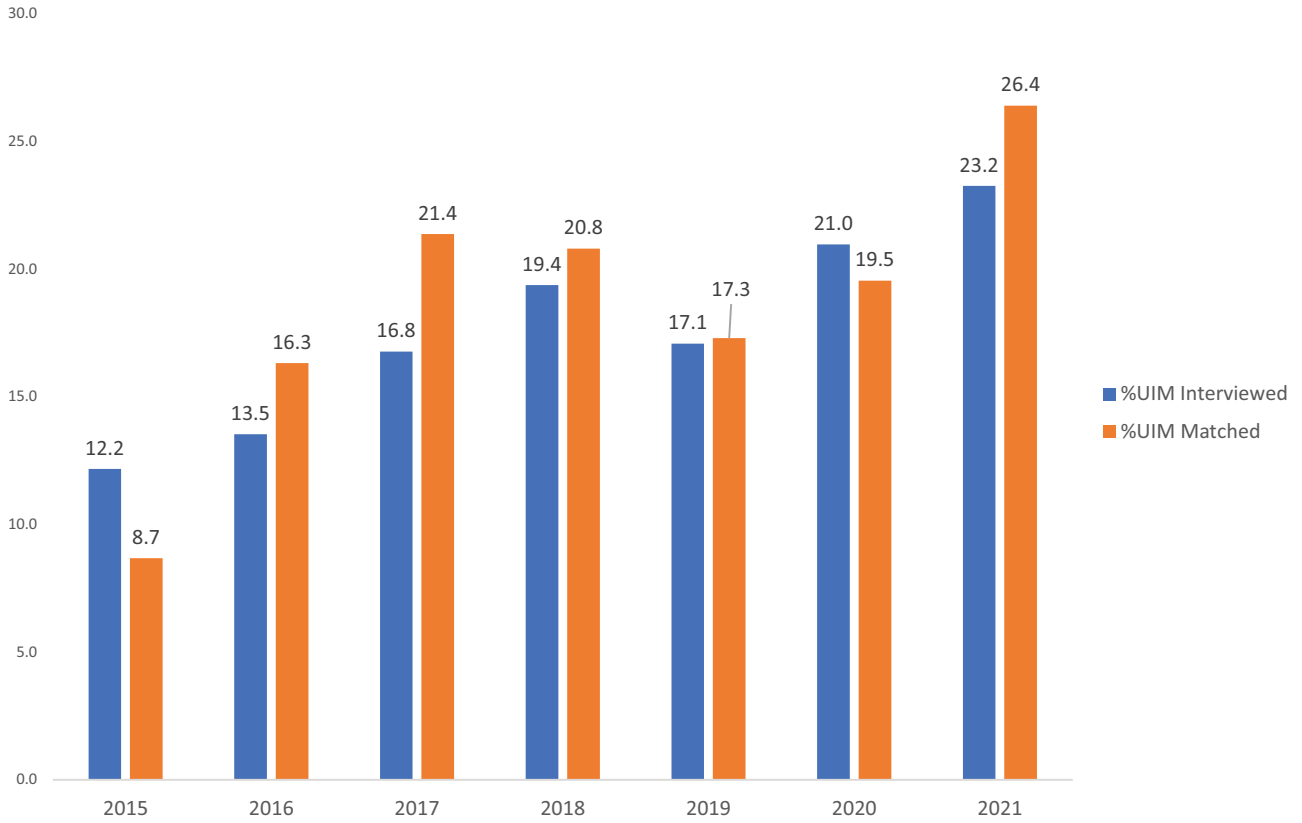

Figure 2 Representation of individuals who are underrepresented in medicine among residency interviewees and matched candidates at University of Pennsylvania Health System, 2014–2021. Abbreviation: UIM, underrepresented in medicine.

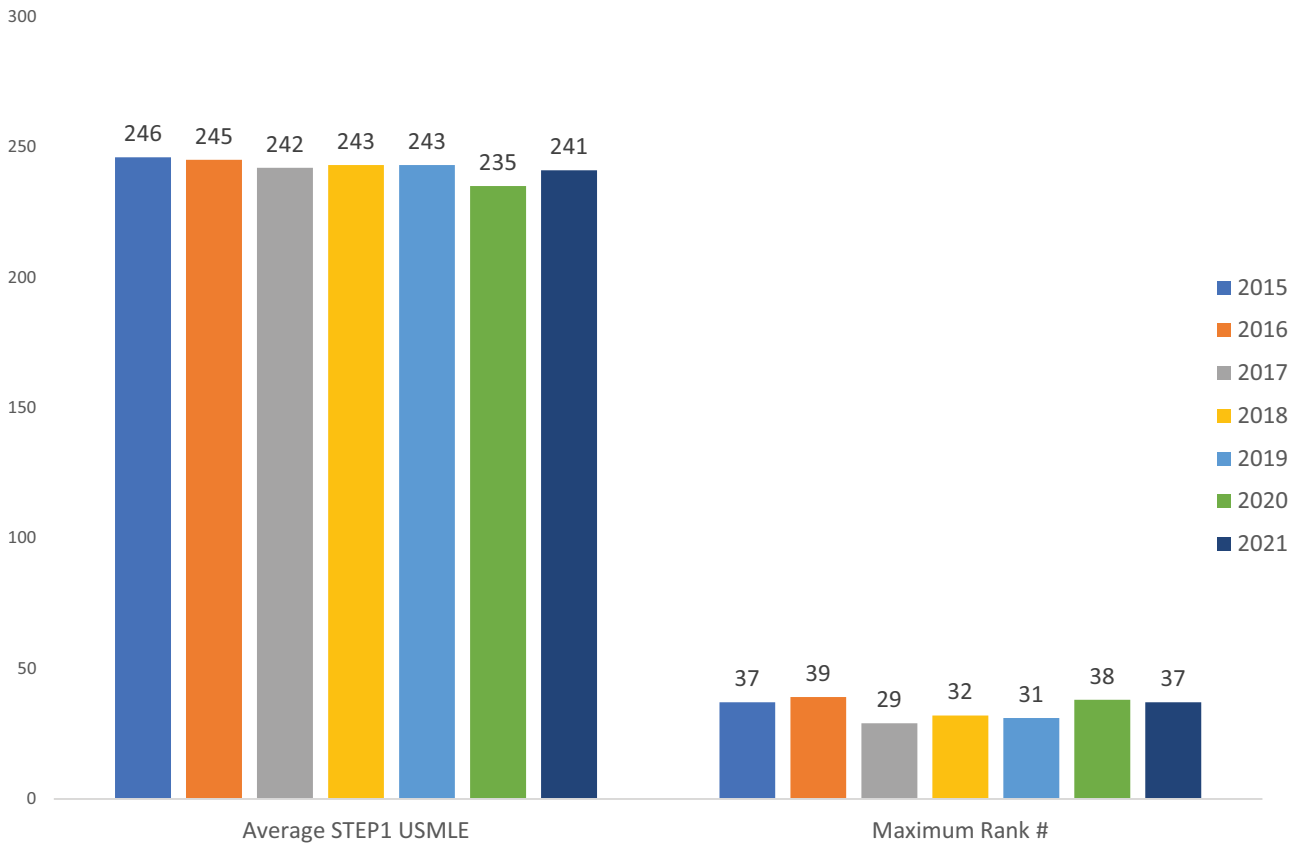

Figure 3 Average maximum rank number to fill and average USMLE Step 1 scores of matched residency candidates at University of Pennsylvania Health System, 2014–2021. Abbreviation: USMLE, United States Medical License Examination.

to the mission of increasing housestaff diversity cannot be overemphasized. Our GME office has been fortunate to have the support of health system and school of medicine leadership in its efforts to recruit and retain UIM housestaff. One manifestation of this was approval for funding to support a portion of the salary for a new position within the GME office of an associate designated institutional official for UIM Affairs. Results of UIM recruitment globally across GME and by program are reported annually to health system, school of medicine, and university leaders.

Limitations and foreseeable challenges

Our report has some limitations. First, we report experience at a single institution. Additionally, our results are a conglomerate of 4 components, so we cannot determine whether any of the individual efforts were more effective.

Our primary challenge was resource allocation, including allocation of both human and financial capital. By appointing, empowering, and funding a leader in the GME office to focus on this challenge, someone now "owned" the issue and could formally champion for change. AMP was initially funded through a provost grant, but quickly was included in the annual budget of the Office of Inclusion and Diversity once its value was recognized. As funding of the VCPs was the responsibility of the individual departments, several departments voiced interest in participating but did not have the finances to support it. To the credit of our Office of Inclusion and Diversity, matching grants were provided to less-endowed departments to support their VCP initiatives. We anticipate finances being a universal challenge for institutions. However, it is our hope leaders in other health systems where DEI is genuinely a priority will see the evidence of our institution's success and recognize the substantial return on investment.

Conclusions

In this Innovation Report, we discuss UPHS' 4-pronged approach to enhance ethnic and racial diversity among its residents. In the 6 years of its implementation, UIM representation among resident matches tripled and traditional program and candidate metrics remained unchanged. There is a tremendous amount of work that needs to be done if we are going to create a physician workforce more reflective of our nation's demographic. Thus, coordinated efforts at the GME level, such as the ones we employed and describe here, should be given further consideration for implementation and evaluation at other academic health centers.

Acknowledgments: The authors would like to formally thank the contributions and support of Kimberly Endicott, Maureen Ginnane, Jennifer Butler, Dr. Robyn Broach, Dr. Jaya Aysola, Dr. Tiffani Johnson, Dr. George Dalembert, Dr. Marissa Rogers, Dr. Carmen Guerra, Dean Larry Jameson, Dr. Eve Higginbotham, Dr. P.J. Brennan, and all UPHS residency program directors and coordinators.

Funding/Support: None reported.

Other disclosures: None reported.

Ethical approval: The study was approved as exempt by the University of Pennsylvania Internal Review Board (Protocol # 850487).

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