



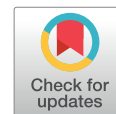
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EQUITY IN RADIATION ONCOLOGY

No Talent Left Behind: A Silver Lining for Diversity in Radiation Oncology in the Post—Coronavirus Disease 2019 (COVID-19) Era

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Before the current coronavirus disease 2019 (COVID-19) pandemic, the radiation oncology workforce reported only 7% practicing underrepresented minority (URM) physicians, with 4% in academia.¹ Overall, these numbers have remained stagnant. Several studies have highlighted obvious gaps in diversity within the field of radiation oncology.²⁻⁶ Radiation oncology remains woefully behind in its representation of physicians from diverse socioeconomic backgrounds, gender identities, sexual orientations, physical abilities, and racial/ethnic backgrounds. The typical path involves a successful undergraduate record, potentially a postbaccalaureate degree for nontraditional applicants, followed by medical school, during which time both academic achievement (often with emphasis on examination performance) and research successes are expected, matching into residency, and ultimate culmination in job placement. Those with financial means are at an obvious advantage. They are more likely to attend private schools before enrollment in college or medical school, purchase test preparation materials, hire tutors, or enroll in extracurriculars that require lessons, coaching, or equipment. Additionally, there are other explicit and implicit biases that significantly disadvantage applicants into our field, particularly based on race and gender. One good example of this is that women and URMs are falsely believed to be less qualified in science, technology, engineering, and mathematics disciplines.⁷

Why is this important? As one example, studies demonstrate that patients report greater satisfaction and longer clinic visits with physicians of concordant race/ethnicity.⁸ In addition, racial/ethnic concordance between patients and their physicians promotes adherence to treatment recommendations and thus better outcomes.^{9,10} It has also been demonstrated that a diverse workforce contributes positively to the overall organization, be it in health care or other sectors, improving creativity, problem-solving, workplace performance, and productivity.^{11,12} Thus, it is vital that we successfully recruit and retain a workforce that reflects the US population we serve.

Notably, COVID-19 has highlighted the well-known fact that the US population has always been diverse¹³ and that health care has not kept pace with these trends.¹⁴ Ethnic minorities and lower income individuals are disproportionately affected by COVID-19 with poorer outcomes,¹⁵⁻¹⁷ a trend that is generally observed regardless of disease.¹⁸ With an aging and diversifying US population,¹⁹ radiation oncologists will encounter an increasingly diverse cancer population who are simultaneously reckoning with structural health care disparities. Understanding appropriate treatment options for these patients may be a challenge because we struggle with enrollment of URMs in critical clinical trials,^{20,21} presumably because medical research has not prioritized their health or autonomy, or earned their trust.

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To increase the physicians in radiation oncology from diverse backgrounds (including but not limited to socioeconomic, gender identity, sexual orientation, physical ability, and racial/ethnic backgrounds), we need a widespread commitment to diversity, with a multipronged approach that addresses gaps throughout the career pipeline. Before the pandemic of COVID-19, there have been some small gestures toward recognizing the way in which structural barriers inhibit entry into competitive residencies. The US Medical Licensing Examination (USMLE) co-sponsors recently announced a decision to change Step 1 score reporting from a numerical score to a pass/fail score²² to take effect January 1, 2022, in part due to recognition of the racial inequalities in test performance and preparation.²³⁻²⁶ An article recently published in the *New England Journal of Medicine* called for a reduction in application costs as a means to increase access and thus diversity at the medical school level.²⁷ Within our field, the cost to apply for residency training can be overly burdensome. Medical students are pressured to rotate in various external rotations, completing 1 or more away rotations, which are self-funded.^{28,29} In addition, when applying to a competitive specialty, there is emphasis on applying broadly, which can result in the need for multiple interviews to increase the chances of “matching.” These interviews (conducted in-person at each respective institution) are also self-funded. One prior analysis evaluating the cost for successful match into an emergency medicine residency program found that an applicant spent an average of \$8312.³⁰ This cost is generally not built into financial aid packages for medical students, with many individuals taking out a loan merely for residency applications. For those who do not have the means to take another loan, or simply do not want to add to their already growing burden of debt, competitive residency programs may seem “out of reach” and only available to those with financial security, thus limiting access for all interested individuals.

Intriguingly, because of the radical modifications from COVID-19, residency recruitment has been thrust into a virtual era. The peak of this pandemic coincides with the typical season that medical students are usually able to participate in away electives in radiation oncology at other institutions. Many institutions and programs have converted to “virtual” away rotations to facilitate this experience.^{31,32} A virtual rotation has several advantages. One is to allow medical students to express and explore any institution, regardless of financial and geographic limitations. Second, it may increase access at institutions with limited space or capacity to host students. Institutions can consider allowing as many students as are interested in pursuing virtual experiences instead of basing that number on factors related to physical space. Third, a virtual experience may potentially blind evaluators to what students look like, perhaps reducing the impact of implicit bias in evaluations. This is including those who have physical disabilities, for whom the challenges of being on site are more apparent to

observers. Special accommodations must be made for those with audio/visual impairments. In addition, it will be important for all institutions to offer a virtual option to ensure equitability. Given the anticipated second wave of COVID-19, it is likely that residency interviews will also be virtual in the fall (in light of the recent Association of American Medical Colleges’ recommendation,³³) and can offer the same benefit of reducing individual cost and potentially reducing implicit bias. Most radiation oncology departments are in the process of determining logistics for virtual recruitment and interviews. These measures can be sustained going forward to reduce some of the structural barriers for diverse applicants applying to radiation oncology.

Aside from immediate residency recruitment strategies, radiation oncology as a field can leverage technology to create interest and expand access to opportunities. An open-source online curriculum can be offered to medical schools without radiation oncology departments, so that students gain early exposure to radiation oncology. Furthermore, with institutional support, academic programs in radiation oncology can offer research and mentorship opportunities regardless of geographic or physical presence to any interested and motivated student.

As COVID-19 necessitates creative solutions to recruiting and training new radiation oncology physicians, we can study the efficacy of these virtual educational initiatives and build on them to foster a sustainably diverse workforce. With a renewed commitment to diversity and inclusion, these technological solutions are small steps forward toward helping us move closer into a future in which our workforce—in radiation oncology and medicine overall—looks like the population it was meant to serve.

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