

Brief Opinion

Mitigating Implicit Bias in Radiation Oncology

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Received February 10, 2021; revised May 17, 2021; accepted May 21, 2021

Implicit bias is one of the most insidious and least recognizable mechanisms that can cause inequity and disparities. There is increasing evidence that both implicit and explicit biases have a negative effect on patient outcomes and patient-physician relationships. Given the impact of Implicit bias, a joint session between ASTRO's Committee on Health Equity, Diversity, and Inclusion and the National Cancer Institute (the ASTRO-National Cancer Institute Diversity Symposium) was held during the American Society of Radiation Oncology (ASTRO) 2020 Annual Meeting, to address the effect of implicit bias in radiation oncology through real life and synthesized hypothetical scenario discussions. Given the value of this session to the radiation oncology community, the scenarios and discussion are summarized in this manuscript. Our goal is to heighten awareness of the multiple settings in which implicit bias can occur as well as discuss resources to address bias.

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Sources of support: This work had no specific funding.

Disclosures: G.S. is supported by funding from the National Cancer Institute/National Institutes of Health. R.J. has Equity Quotient stock options and has received personal fees from Amgen and Vizient and grants from NCI, The Doris Duke Charitable Foundation, the Greenwall Foundation, the Komen Foundation, and Blue Cross Blue Shield of Michigan for the Michigan Radiation Oncology Quality Consortium. She has a contract to conduct an investigator initiated study with Genentech. Expert witness: Sherinian and Hasso and Dressman Benzinger LaVelle. She is also an uncompensated founding member of TIME'S UP Healthcare and a member of the board of directors of ASCO. K.W. has received personal fees from Pfizer, Merck, Grail Bio, and Bristol-Myers Squibb. P.B. has received an ACRO new practitioner seed grant, Oslear board review course honoraria for board review, ACRO non-financial support, ASTRO, Franciscan Health System, and SANTRO honoraria for talk.

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Introduction

Implicit bias is one of the most insidious and least recognizable mechanisms that can cause inequity and disparities. There is increasing evidence that both implicit and explicit biases have a negative effect on patient outcomes and patient-physician relationships.^{1,2} However, many physicians are unaware of implicit bias or deny its existence.³ Physicians' scientific knowledge may create a false perception of personal objectivity, making it difficult for them to develop cues for self-reflection that could allow them to perceive their own biases and their effect on decision-making.

<https://doi.org/10.1016/j.adro.2021.100738>

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Implicit bias affects not only patients but also members of the profession. It has important implications for work productivity, attainment of leadership positions,⁴⁻⁶ diversity in the workforce,⁷⁻¹⁰ and attitudes toward peers.¹¹⁻¹³ Specifically, bias favors cisgender heterosexual non-Hispanic white men¹⁴⁻¹⁶ (men whose personal identity and gender correspond with their birth sex) who are already in positions of leadership^{15,17,18} or are perceived to be on a leadership track,^{19,20} resulting in the perpetual underrepresentation of women, certain racial and ethnic groups, and sexual and gender minorities in the field of radiation oncology. Highlighting the presence and effect of implicit bias can increase awareness among oncologists. This awareness, in turn, may decrease its pernicious influence both on the radiation oncology workforce and the experiences of the patients the profession serves.

During the American Society of Radiation Oncology (ASTRO) 2020 Annual Meeting, a joint session between ASTRO's Committee on Health Equity, Diversity, and Inclusion and the National Cancer Institute (the ASTRO-National Cancer Institute Diversity Symposium) was held to address the effect of implicit bias in radiation oncology through real life and synthesized hypothetical scenario discussions. Given the value of this session to the radiation oncology community, the scenarios and discussion are summarized in this manuscript. Our goal is to heighten awareness of the multiple settings in which implicit bias can occur as well as discuss resources to address bias.

Case 1

A Chinese American radiation oncology resident at an academic medical cancer sees a patient during his on-treatment visit in the COVID era. She performs a complete evaluation. After the resident leaves, the patient asks the nurse if his visits can be structured without a resident and only include his White nurse and White attending physician. He expresses concern that he may contract the "Chinese virus." The nurse relays this request to the attending, who is concerned about his Press Ganey scores (which affect his incentive bonus) and complies with the patient's request. The resident is now left out of this patient's care.

Unfortunately, during the COVID pandemic, Asian Americans have become the target of microaggressions (statements, actions, or incidents regarded as instances of indirect subtle or unintentional discrimination against members of a marginalized groups) and explicit aggressions. The attending physician should comply with the Accreditation Council for EGraduate Medical Education (ACGME's) nondiscrimination policy²¹ and provide a safe environment for the trainee. Hence, accommodating the patient's request, without further discussion, is morally and ethically unacceptable, and in addition this

represents a breach of ACGME rules. Furthermore, it may be against hospital policy to make such an accommodation.

Instead, some interventions that the attending can implement to address this issue include (Fig 1)²²:

- Make the "invisible" visible: challenging the stereotype. "Mr. ***, the resident physician is very qualified and her interaction with you will not have, in any way, a negative effect on your health."
- Disarm the microaggression: challenging what the patient said and pointing out its negative effect on the team and the potential to result in fragmented patient care. "Respect and tolerance are important values at this institution and, although I understand that you have a right to say what you want, I'm asking you to show a little more respect for our team by not making offensive comments."
- Educate the perpetrator: "That is a negative stereotype of Asian Americans. Our resident is a very capable physician and her presence will not affect the probability of you getting sick. She is a vital member of our care team in helping you get better."

In addition, the attending should consider the effect of this interaction on the resident and provide an environment to debrief and discuss the resident's emotions in this setting.

Lastly, this is an opportunity to highlight the bias inherent in patient satisfaction scores and how they may actually compromise clinicians' decision-making ability. These scores have not been correlated with clinical outcomes. Rather, studies have shown that Black physicians' scores are lower when evaluated by White patients compared with Black patients.^{23,24} Hence, the use of these scores to evaluate the physicians' ability to provide excellent clinical care serves as yet another source of bias affecting clinicians of groups that identify as under-represented in medicine (URM).

Case 2

A residency selection committee is deciding how to rank 2 candidates. One is a Black woman who is the first in her family to attend college; she attended a historically Black university for both college and medical school, where her grades were excellent; her letters of recommendation come from a nearby institution with faculty not known personally to the selection committee; she has a 240 Step 1 score. The other is a White male who attended Ivy League institutions, where his grades were excellent; his radiation oncology letter of recommendation writers are well known to the selection committee. His Step 1 score is 252. When one member of the selection committee proposes ranking the first candidate higher, another

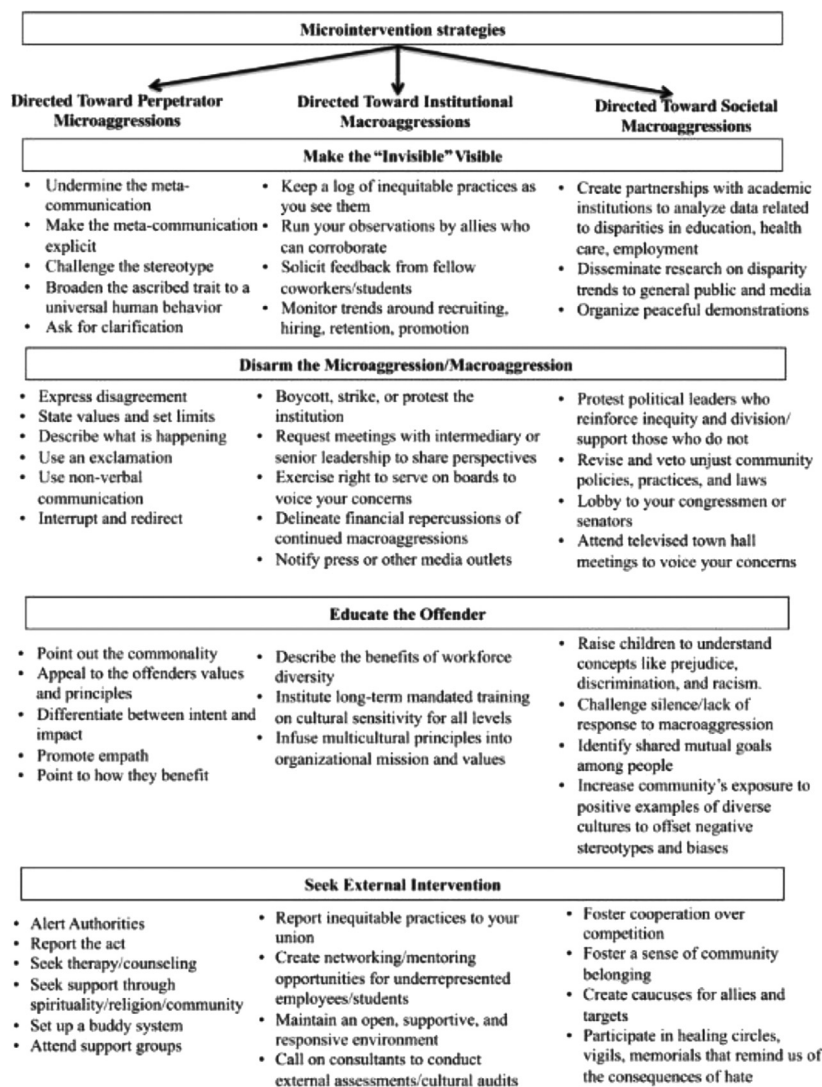


Fig. 1 From Sue DW, Alsaidi S, Awad MN, Glaeser E, Calle CZ, Mendez N. Disarming racial microaggressions: Microintervention strategies for targets, white allies, and bystanders. *Am Psychol.* 2019;74:128-142.²²

voices frustration at “diversity considerations distracting from merit” and desiring “someone we know who will succeed here because people we know vouch for him.”

United States Medical Licensing Examination (USMLE) Step 1 scores were not designed or validated as a metric for evaluation in residency selection. There is no evidence that a continuously higher Step 1 score predicts for future clinical success or efficacy as a radiation oncologist. Higher USMLE Step 1 scores have not been linked to better clinical knowledge,²⁵ as this examination is mostly based on preclinical sciences. However, it still evolved as a residency selection metric without evidence to support its unbiased utilization in radiation oncology.²⁶

The number of Black physicians as part of the radiation oncology workforce is extremely low and not proportional to the number of Black medical graduates as a whole, let alone the proportion of the U.S. population that identifies as Black.⁹ Therefore, biases in the

interviewing process and scenarios as the one presented can develop. This is also true for other URM individuals such as Hispanic individuals and Native Americans.²⁷⁻²⁹

Black students are more likely to attend institutions that do not have a radiation oncology department; therefore, they are less likely to have exposure to research and fewer networking opportunities provided by the home program faculty.⁹ Moreover, implicit linguistic bias may exist in letters of recommendation for radiation oncology residency candidates as well as with other postgraduate training programs³⁰⁻³³

URM individuals have been found to have lower USMLE test scores compared with White individuals.³⁴ It is important to consider whether these lower scores might be a result of biases in testing. A classic example involves a verbal reasoning analogy question for college admissions that includes “rowing:regatta.” Such a question is but 1 example to illustrate how tests can

perpetuate the cultural exclusion of certain groups by providing “objective” evidence that they are less intelligent when they lack certain experiences that those in the dominant group have.³⁵ Whether such examples exist in medical board examinations is worth consideration. In any case, lesser access to socioeconomic resources to pay for test preparation and competing demands on attention, including the constant burdens that structural racism in society place on Black students and other students from marginalized populations, may conspire to disadvantage these students while preparing for high-stakes tests. “Stereotype threat,” which is the fear that URM individuals may face regarding conforming to stereotypes about their group, has also been shown to negatively affect academic performance.^{36,37} Step 1 will transition to pass/fail scoring in 2022, as the National Board of Medical Examiners has recognized that arbitrary distinctions based on Step 1 scores are inappropriate. Hopefully, this will help to decrease disparities and allow a more holistic review of applicants,³⁸ emphasizing characteristics like grit that are more firmly established as predictors of future success.³⁹

Some recommendations to decrease bias in the recruitment of resident candidates may include:

- Provide access to students from URM backgrounds for research and networking opportunities to radiation oncology as a field if their institution does not have a radiation oncology program.
- Before selection of candidates for interview:
 - Remove photos/blind committee to photos on American Medical College Application Service (AMCAS)/Electronic Residency Application Service (ERAS) application⁴⁰
 - Remove academic metrics (USMLE scores)⁴⁰
- Before the interview:
 - Have committee members take several Implicit Association Tests (IATs) (<https://implicit.harvard.edu/implicit/>) and reflect on results. This is a test that measures attitudes and beliefs that people may be not aware of. The IAT measures the strength of associations between concepts (eg, black people, gay people) and evaluations (eg, good, bad) or stereotypes (eg, athletic, clumsy). There are multiple categories (eg, race, religion, weight, age) that can be tested to evaluate the personal bias toward certain characteristics. This test is highly recommended to the readers as it can bring to light mental representations that are outside conscious control. Being aware of these biases might reduce negative assumptions toward a group.
- Standardized evaluations: specific criteria to evaluate the applicants should be developed prioritizing key program values.⁴¹

- Structured interviews for candidates: with one-to-one interviews to decrease bias as opposed to a panel of interviewers. In addition, structured questions used for all the applicants may also reduce bias.⁴¹

Case 3

In a genitourinary cancer tumor board meeting, Dr Thompson (female) asks a question regarding patient management and tries to suggest a recommendation. However, a male counterpart speaks over her. She tries to speak again, but she is ignored.

This is a scenario too commonly faced by female physicians in the work place,⁴² as it very well described that men tend to interrupt women more than men.⁴³ A few ways to address this for targets and bystanders include:

- The target can make the group aware that she had not finished “Dr X, that was what I was stating and to finish my thought. . .”
- Humor can be a useful approach in certain cases: “Now Dr X, you know I’m not going to stop talking until I’m done, so you might as well wait. . .” When using humor, a target or bystander can use body language, such as smiling, so the intent is clear.⁴⁴ This was the well-remembered approach that Vice President Harris graciously used in the vice-presidential debate: “Mr. Vice President. I’m speaking.”
- The target can address it in person after the episode (“open the front door approach”)⁴⁵: “I noticed that you interrupted me [microaggression] when I was talking, which made me think that you didn’t believe that what I had to say was important [implication]. I am frustrated [emotion] by this and hope that we can listen to each other more moving forward [desired outcome].”⁴⁶
- A bystander can stand up against the observed bias and instead be an ally who gives the appropriate credit: “Great point Dr X. I believe Dr Thompson was just saying that.”^{47,48}
- The leader of this tumor board can intentionally prime members in private communication *beforehand* about this tendency such that the behavior can be preempted.
- Formal bystander training can be made available such that other attendees are primed to respectfully intervene or “defend” Dr Thompson when witnessing such behavior.

Case 4

Dr Johnson attends a picnic for new medical students enrolled in the Medical Scientist Training Program. He introduces himself to some of the attendees. He starts a

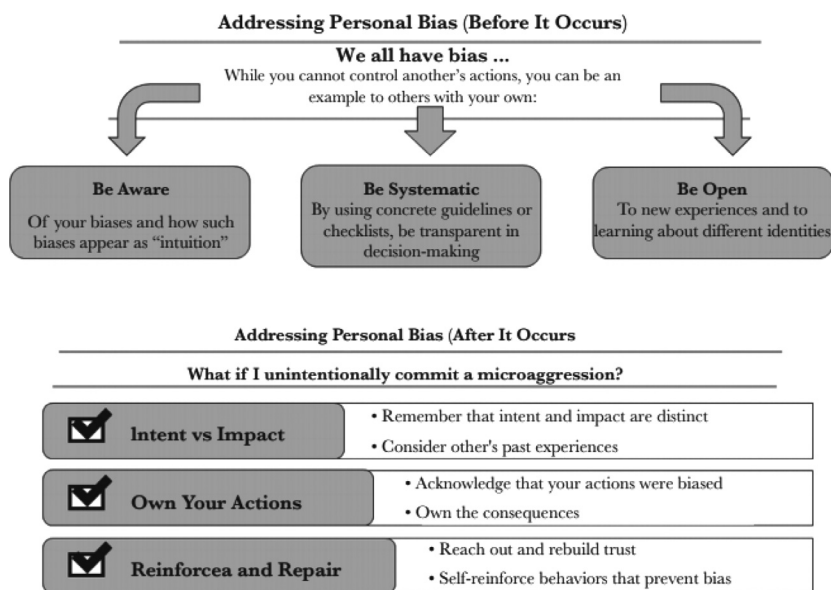


Fig. 2 From Marcelin JR, Siraj DS, Victor R, Kotadia S, Maldonado YA. The impact of unconscious bias in healthcare: How to recognize and mitigate it. *J Infect Dis.* 2019;220(220 Suppl 2):S62-S73.⁵⁵

conversation with a couple (White male and Black female), and then proceeds to ask the white male what caused him to select this university as a place to undergo medical and graduate school training. He deftly turns to his wife to bring her into the conversation and states that he is simply accompanying her and she is the actual student.

This is another example of implicit bias that many women and members of URM experience. Although audit studies have yielded inconsistent results, most suggest that such bias does exist.⁴⁹⁻⁵¹ We are more likely to consider white males as the ones likely to be interested in science versus URM individuals. Such microaggressions can accumulate over the educational career of women and URM individuals and serve to deter or eliminate them from the science, technology, engineering, and mathematics pipeline and careers in academic medicine.^{45,52,53} This highlights the importance of becoming aware of our own biases.

Some recommendations to address this bias include:

- Taking some of the IATs⁵⁴ (as mentioned in Case 2, this is a test that measures attitudes and beliefs that people may be not aware of)
- Other strategies described by Marcelin et al⁵⁵ as presented in [Figure 2](#)

Case 5

A Black male patient has a painful spine metastasis and is given ketorolac for pain relief. At discharge, the

patient is discharged home with ibuprofen. A second patient, a white elderly female, has a painful spine metastasis. She is given morphine while in the hospital and is discharged home with acetaminophen/hydrocodone.

Studies have shown an effect of implicit bias on patient interactions,^{2,56,57} including decisions on the use of analgesics.^{58,59} To address this, Capers et al⁶⁰ described some potential strategies to mitigate bias in the hospital, such as:

- Decrease physician burnout: A recent study⁶¹ demonstrated greater implicit and explicit biases among physicians who exhibited symptoms of burnout, hence the importance of addressing this to decrease bias in clinical interactions.
- Constrain discretion: Eliminate the possibility of making decisions based on arbitrary characteristics by predefining algorithms and criteria that should be met to make a clinical decision. This should be followed up with department/divisional audits, which specifically examine disparities in specific scenarios.
- Implementation of bias and racism rounds: Similar to morbidity and mortality rounds, scenarios where bias played a role in the treatment of a patient can be discussed, so faculty and trainees learn of the effect of these in clinical scenarios.

Other organizational strategies suggested by Marcelin et al⁵⁵ include leadership commitment to culture change, diversity training, and intentionally diversifying experiences. In addition, as discussed previously, addressing personal biases before they occur is of paramount importance.⁵⁵

Conclusions

Implicit bias permeates all of our lives, whether or not we recognize it. In radiation oncology, it has been shown to marginalize individuals who identify as members of minority groups. The 2020 ASTRO/ National Cancer Institute Diversity Symposium provided a format in which several case scenarios were discussed by our panel. These discussions exposed implicit bias in our daily work lives, care of patients with cancer, hiring practices, leadership, and promotions. These vignettes provide a small sample of real-life examples from the panelists' own experiences with such biases to offer insights from their lived experiences to raise awareness. This paper also offers practical interventions to mitigate implicit bias. Radiation oncologists being aware of implicit bias is a critical first step to eliminating inequity and may help decrease its influence on the workforce, leadership roles, and ultimately patient outcomes and experiences. Diversity elevates our common pursuits.

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