



Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Elsevier hereby grants permission to make all its COVID-19-related research that is available on the COVID-19 resource centre - including this research content - immediately available in PubMed Central and other publicly funded repositories, such as the WHO COVID database with rights for unrestricted research re-use and analyses in any form or by any means with acknowledgement of the original source. These permissions are granted for free by Elsevier for as long as the COVID-19 resource centre remains active.

EQUITY IN RADIATION ONCOLOGY

Lessons From COVID-19: Addressing Health Equity in Cancer Care

Malika L. Siker, MD,* Curtiland Deville Jr, MD,† Gita Suneja, MD, MS,‡
and Karen Winkfield, MD, PhD§



**Department of Radiation Oncology, Medical College of Wisconsin, Milwaukee, Wisconsin;*
†*Department of Radiation Oncology and Molecular Radiation Sciences, Johns Hopkins University School of Medicine, Baltimore, Maryland;* ‡*Department of Radiation Oncology, University of Utah, Salt Lake City, Utah;* and §*Department of Radiation Oncology, Wake Forest Baptist Health, Winston-Salem, North Carolina*

Received Jun 15, 2020. Accepted for publication Jun 23, 2020.

The COVID-19 pandemic that continues to ravage communities all over the United States is serving to highlight some of the long-standing inequities that have plagued our nation. At the time this article was written, members of the Black community accounted for 52% of COVID-19 deaths in Milwaukee County.¹ This is a striking disparity in a county where only 27% of the population identifies as Black.² Similar disparities are noted throughout the United States as other minority and vulnerable populations fall victim to complications from the virus.^{3,4}

The same communities disproportionately affected by COVID-19 also face increased cancer disparities across the cancer care continuum, from prevention through diagnosis and death. For example, the same Black neighborhoods in Milwaukee with the highest concentration of COVID-19 cases also face increased breast cancer—specific mortality.⁵ This mirrors what is seen nationally, where Black individuals have the highest mortality of any racial/ethnic group for all cancers combined and the most individual cancer types as well.⁶ However, cancer inequities affect other racial/ethnic groups and other vulnerable populations, including rural communities and patients cared for in low-resource or underresourced practice settings.⁷ As with COVID-19, the primary driver of these disparities is not simply biologic, but rooted in systemic bias and the social determinants of health (SDOH).

SDOH are the conditions in which people are born, grow, live, work, and age as well as the complex interrelated social structures and economic systems that shape these conditions.⁸ With the recent murder of George Floyd, a conversation about the economic system of structural racism and importance of social justice is advancing in our speciality.⁹ However, anti-Black racism is just one form of injustice that leads to inequitable care. Radiation oncologists have historically focused on advancements in radiobiology and technology to improve cancer care for our patients. But what is the purpose of innovation if so many are excluded from benefiting from these advances? The Robert Wood Johnson Foundation states:

Health equity means that everyone has a fair and just opportunity to be as healthy as possible. This requires removing obstacles to health such as poverty, discrimination, and their consequences, including powerlessness and lack of access to good jobs with fair pay, quality education and housing, safe environments, and health care.¹⁰

Equity—not equality—is the key to sustainable change: It takes into consideration the social context and existing barriers to care. During this COVID-19 pandemic, stories have emerged of lack of testing in poorer communities, including nursing homes, and of Black persons being

Corresponding author: Malika L. Siker, MD; E-mail: msiker@mcw.edu

Disclosures: G.S. receives funding from the NIH (K08 CA228631). No authors have any conflicts of interest.

turned away or receiving substandard care. If equitable care cannot be provided during a pandemic that presumably inflicts harm indiscriminately, some may question how health care can change to affect patients with cancer. Harm from COVID-19 is not indiscriminate due to structural barriers, and although accomplishing equity in health care is complex and multifactorial, a change is needed now.¹¹

How can radiation oncologists be engaged in bringing more equitable cancer care to the communities we serve?

Direct Collaboration With Communities and Community-Engaged Researchers

We need to ensure that bench-to-bedside discoveries are reaching all communities. Community-engaged approaches, defined as collaborative methods for participation, shared decision-making, and mutual ownership in all aspects of the research process by the communities affected by the issues being studied, are critical.¹²

Health equity solutions need to address the SDOH, including employment, housing, food, and poverty; education access and enrollment; community contexts including incarceration, discrimination, and civic communication; health care access and literacy; and the neighborhood environment, including crime, violence, and environmental conditions.¹³ Additionally, structural racism, defined as a system in which public policies, institutional practices, cultural representations, and other norms work in reinforcing ways to perpetuate racial inequity, continues to create disadvantages for vulnerable communities and must be dismantled.¹⁴

Radiation oncologists often lack the education, training, and resources to perform community-engaged research, but several radiation oncologists have developed expertise in this field.^{15,16} For example, radiation oncologist Dr Daniel Petereit oversees the Walking Forward program that aims to directly address health disparities in American Indians through improved community education, clinical trial enrollment, smoking cessation, and cancer screening.¹⁵ By working collaboratively with expert radiation oncology colleagues and community organizations, we can eliminate barriers for marginalized communities.

More Research and Advocacy for Health Equity

While we investigate new and promising cancer care approaches, it is critical to ensure diverse participation among clinical trial participants. Despite increased cancer burden in some communities, racial/ethnic minorities are consistently underrepresented in landmark clinical trials and data suggest that minority enrollment has been decreasing with time.^{17,18} A challenge in truly understanding the landscape of clinical trial participation is the lack of requirement to report race/ethnicity data in published abstracts and manuscripts. This can be easily rectified.

A recent National Institutes of Health report showed health disparities research is less likely to be funded despite the compelling societal need and broad potential impact.¹⁹ Deliberate institutional and organizational efforts are needed to combat this bias. In 2019, the Radiation Oncology Institute announced a request for proposals focused on improving diversity and inclusion in radiation oncology.²⁰ Through this mechanism, the Radiation Oncology Institute sought innovative ideas to reduce disparities in patient care, increase participation of underrepresented groups in clinical trials, and improve diversity in the radiation oncology workforce. Other mechanisms designed to increase support, resources, and advocacy for radiation oncology research that focuses on health disparities are needed to improve our ability to bring our radiotherapeutic innovations to the most vulnerable communities.

Many of the current research priorities in radiation oncology may directly address inequities in health care. For example, the use of hypofractionation may reduce the financial toxicities of treatment and greatly relieve the burden of transportation for patients who are geographically distanced or lack reliable and safe access. However, barriers exist in accessing newer technologies such as particle therapy; these may be limited by geography and cost.²¹ As we develop new and effective ways to treat patients with cancer, radiation oncologists need to be intentional in providing opportunities for all communities to benefit from these advancements equally. Additionally, accreditation bodies should recognize health equity as a safety and quality metric, and institutional leaders should create practice quality improvement initiatives that explicitly address inequities within their communities.

Develop a Diverse Workforce Committed to Inclusive Excellence

Several imperatives support a diverse workforce. First, increasing workforce diversity is an imperative from our regulatory and accrediting bodies such as the Liaison Committee for Medical Education, Association of American Medical Colleges, and Accreditation Council for Graduate Medical Education.²²⁻²⁴ Second, the business imperative demonstrates that diverse teams produce better innovation, profits, and products.²⁵ Third, the clinical imperative is illustrated by data showing that minority providers are more likely to practice in underserved communities and that physician-patient race concordance improves communication effectiveness and trust for minority patients.^{26,27} Finally, the moral imperative obliges physicians to assist those with the most inequity without judgment.

Beyond a compositionally diverse workforce, we need to ensure that our workforce is committed to inclusive excellence.²⁸ Radiation oncologists need to become aware of and mitigate their implicit biases, remain ready to identify and address microaggressions and discrimination,

and develop proficiency in bystander training. The approach to our patients, learners, and colleagues must be grounded in cultural humility.

Radiation oncology ranks among the lowest specialties for representation of Black and Hispanic individuals in the resident workforce.²⁹ Only 3% to 5% of practicing radiation oncologists or faculty members identify as Black or Hispanic, with no indication that this trend is improving over time.³⁰ An inclusive workforce that reflects our diverse communities is necessary to provide the best patient care. Program directors and search committees should create comprehensive and intentional strategies to successfully recruit diverse candidates.³¹

As leaders of the American Society for Radiation Oncology (ASTRO) Committee for Health Equity, Diversity, and Inclusion, we serve an organization that lists diversity and inclusion as core values and oversees programs to enhance workforce diversity.³² ASTRO-sponsored programs include the Minority Summer Fellowship designed to provide funded research experiences for medical students from backgrounds underrepresented in medicine; the Aspiring Scientists and Physicians Program, which exposes medical and prehealth students interested in radiation oncology to workshops and professional experiences at the annual meeting; and the Leadership Pipeline Program, which develops future ASTRO leaders with an interest in diversity, inclusion, and health equity.^{33,34} However, sustained improvement in diverse representation and a longstanding culture of inclusion will not come from committee work alone but must involve broad support from institutional leaders and practicing physicians alike.

Conclusion

During the COVID-19 pandemic, we have come together as a society in unprecedented ways to “flatten the curve.” We are staying home, practicing social distancing, and following hygiene guidelines to mitigate the spread of this virus. In doing so, our economy has suffered and we have sacrificed many aspects of our own individual pursuit of happiness. We did all of this to protect our patients, the elderly, and those at highest risk of complications. The disparities in outcomes that emerged highlight the public health imperative. We challenge our colleagues in radiation oncology to continue this renewed passion to protect the vulnerable in the post-COVID-19 era. The gaps in care are categorically unacceptable; the time to achieve health equity is now.

References

1. Milwaukee County. Milwaukee County COVID-19 dashboard. Available at: <https://mcoem.maps.arcgis.com/apps/opsdashboard/index.html#/018eedbe075046779b8062b5fe1055bf>. Accessed April 28, 2020.
2. United States Census. Quick facts: Milwaukee County. Available at: <https://www.census.gov/quickfacts/milwaukeecountywisconsin>. Accessed April 28, 2020.
3. City of Chicago. City of Chicago COVID-19 data. Available at: <https://www.chicago.gov/city/en/sites/covid-19/home/latest-data.html>. Accessed April 28, 2020.
4. State of Louisiana. State of Louisiana COVID-19 data. Available at: <http://ldh.la.gov/Coronavirus/>. Accessed April 28, 2020.
5. Beyer KMM, Zhou Y, Matthews K, et al. Breast and colorectal cancer survival disparities in southeastern Wisconsin. *WMJ* 2016;115:17-21.
6. DeSantis CS, Miller KD, Sauer AG, et al. Cancer statistics for African Americans, 2019. *CA Cancer J Clin* 2019;69:1-23.
7. Kaleem T, Smith GL, Miller RC. Impact of care disparities in radiation oncology. *Adv Radiat Oncol* 2017;3:1-2.
8. World Health Organization. About social determinants of health. Available at: https://www.who.int/social_determinants/sdh_definition/en/. Accessed April 28, 2020.
9. Chapman CH, Gabeau D, Pinnix CC, et al. Why racial justice matters in radiation oncology. *Adv Radiat Oncol* 2020. <https://doi.org/10.1016/j.adro.2020.06.013>.
10. Braverman P, Arkin E, Orleans T, et al. What is health equity?. Available at: <https://www.rwjf.org/en/library/research/2017/05/what-is-health-equity-.html>. Accessed June 13, 2020.
11. Riviere P, Luterstein E, Kumar A, et al. Survival of African American and non-Hispanic white men with prostate cancer in an equal-access health care system. *Cancer* 2020;126:1683-1690.
12. Faridi Z, Grunbaum JA, Gray BS, et al. Community-based participatory research: Necessary next steps. *Prev Chronic Dis* 2007;4:A70.
13. Healthy People 2020. Social determinants of health. Available at: <https://www.healthypeople.gov/2020/topics-objectives/topic/social-determinants-of-health>. Accessed April 28, 2020.
14. Aspen Institute Roundtable on Community Change. Structural racism and community building. Available at: https://assets.aspeninstitute.org/content/uploads/files/content/docs/rcc/aspen_structural_racism2.pdf. Accessed April 28, 2020.
15. Guadagnolo BA, Petereit DG, Coleman CN. Cancer care access and outcomes for American Indian populations in the United States: Challenges and models for progress. *Semin Radiat Oncol* 2017;27:143-149.
16. Sprague Martinez L, Freeman ER, Winkfield K. Perceptions of cancer care and clinical trials in the black community: Implications for cancer coordination between oncology and primary care teams. *Oncologist* 2017;22:1094-1101.
17. Loree JM, Anand S, Dasari A, et al. Disparity of race reporting and representation in clinical trials leading to cancer drug approvals from 2008–2018. *JAMA Oncol* 2019;5:e191870.
18. Duma N, Aguilera JV, Paludo J, et al. Representation of minorities in women in oncology clinical trials: Review of the past 14 years. *J Oncol Pract* 2018;14:e1-e10.
19. Hoppe TA, Litovitz A, Willis KA, et al. Topic choice contributes to the lower rate of NIH awards to African-American/black scientists. *Sci Adv* 2019;5:eaaw7238.
20. Radiation Oncology Institute. Improving diversity and inclusion in radiation oncology. Available at: <https://www.roinstitute.org/ROInstitute/media/ROInstitute/research/Research%20PDFs/DiversityRFP.pdf>. Accessed April 28, 2020.
21. Mahal BA, Chen YW, Estathiou JA, et al. National trends and determinants of proton therapy use for prostate cancer: A National Cancer Data Base study. *Cancer* 2016;122:1505-1512.
22. Liaison Committee for Medical Education. Liaison Committee for Medical Education (LCME) standards on diversity. Available at: <https://lcme.org/publications/#All>. Accessed April 28, 2020.
23. American Association of Medical Colleges. Fostering diversity and inclusion. Available at: <https://www.aamc.org/data-reports/workforce/interactive-data/fostering-diversity-and-inclusion>. Accessed April 28, 2020.
24. Accreditation Council for Graduate Medical Education. Accreditation Council for Graduate Medical Education (ACGME) common program

- requirements. Available at: <https://www.acgme.org/Portals/0/PFAssets/ProgramRequirements/CPRResidencyImplementationTable.pdf>. Accessed April 28, 2020.
25. Hunt V, Layton D, Prince S. Why diversity matters. Available at: <https://www.mckinsey.com/~media/McKinsey/Business%20Functions/Organization/Our%20Insights/Why%20diversity%20matters/Why%20diversity%20matters.ashx>. Accessed April 28, 2020.
 26. Saha S, Beach MC. Impact of physician race on patient decision-making and ratings of physicians: A randomized experiment using video vignettes. *J Gen Intern Med* 2020;35:1084-1091.
 27. Komaromy M, Grumbach K, Drake M, et al. The role of Black and Hispanic physicians in providing health care for underserved populations. *N Engl J Med* 1996;334:1305-1310.
 28. Williams DA, Berger JB, McClendon SA. Toward a model of inclusive excellence and change in postsecondary institutions. Association of American Colleges and Universities. Available at: https://www.aacu.org/sites/default/files/files/mei/williams_et_al.pdf. Accessed April 28, 2020.
 29. Deville C, Hwang WT, Burgos R, et al. Diversity in graduate medical education in the United States by race, ethnicity, and sex, 2012. *JAMA Intern Med* 2015;175:1706-1708.
 30. Chapman C, Hwang WT, Deville C. Diversity based on race, ethnicity, and sex of the US radiation oncology physician workforce. *Int J Radiat Oncol Biol Phys* 2013;85:912-918.
 31. Nivet MA, Berlin AC. Diversity by design. *J Grad Med Educ* 2013;5:526-527.
 32. American Society for Radiation Oncology. Strategic plan. Available at: https://www.astro.org/About-ASTRO/Strategic_Plan. Accessed April 28, 2020.
 33. American Society for Radiation Oncology. Minority summer fellowship award. Available at: <https://www.astro.org/Patient-Care-and-Research/Research/Funding-Opportunities/ASTRO-Minority-Summer-Fellowship-Award>. Accessed April 28, 2020.
 34. American Society for Radiation Oncology. Leadership pipeline program. Available at: <https://www.astro.org/About-ASTRO/Board-and-Leadership/Leadership-Pipeline-Program>. Accessed April 28, 2020.