

## Providing Cancer Care to Rural and Underserved Communities



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### **Caring for the Underserved: Rural Oncology Perspective**

*A look at cancer and care statistics for rural  
patient populations.*

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### **Cancer Clinical Trial Outcomes: Harnessing Social Determinants of Health to Advance Equity**

*An overview of NRG Oncology studies and  
strategies to address equity issues in clinical  
trial enrollment.*



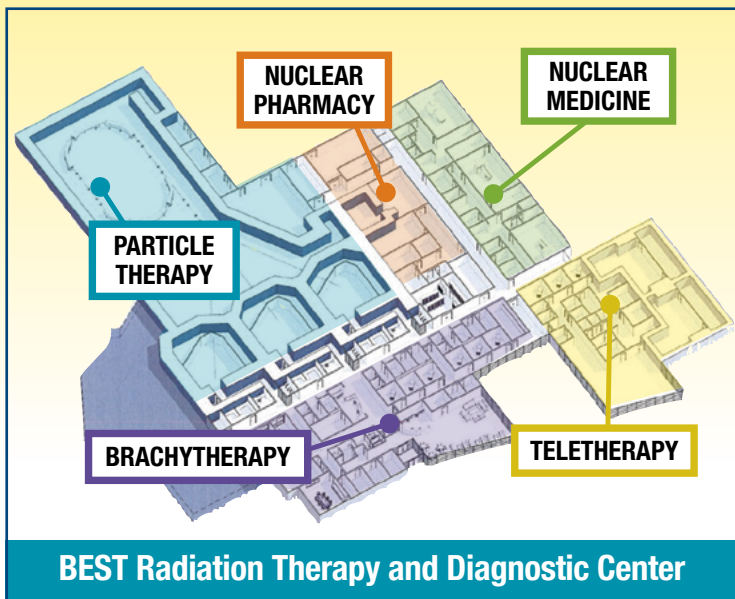
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# ASTRO news

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Cover image: Farm workers prepare to harvest crops in the Santa Maria Valley, California.

Photo courtesy of Lee-Volker Cox, Santa Maria, California.



## EDITOR'Snotes


BY NAJEEB MOHIDEEN, MD, FASTRO  
SENIOR EDITOR, *ASTROnews*

**WITH SCIENTIFIC LEAPS** putting the tools in our hands to do more than ever, the urgency to bring these benefits to the people who need it most has never been greater. As medical professionals, we have a duty to widen access to those who have been outside the circle of inclusion through no fault of their own.

Factors impacting care elsewhere in the country, the scarcity of generic forms of chemotherapy (including Carboplatin, 5FU and Cisplatin, commonly used in concurrent chemoradiation protocols), staffing shortages at radiation oncology clinics causing treatment delays and increased patient anxiety, will be compounded across rural and underserved communities. There are 293 rural hospitals at immediate risk of closure due to inflation, staffing shortages and other financial stress, according to the

Center for Healthcare Quality & Payment Reform. As it is, rural areas are underserved — four in 10 rural Americans who have or had cancer say there aren't any cancer specialists near their communities. One can only imagine how much worse this could get.

This issue highlights rural and underserved areas, the challenges they face and some potential solutions in a series of eye-opening reports.

I am delighted to welcome Sewit Teckie, MD, MBA, a member of the *ASTROnews* Editorial Board, as the guest editor for this issue. In her role as the System Chief of Radiation Oncology at New York City Health and Hospitals, the country's largest municipal health system, she's well acquainted with the subjects we're covering in this issue. 

## GUEST EDITOR Sewit Teckie, MD, MBA



**THE STATISTICS DESCRIBING ACCESS** to oncologic care in rural America are stark: while 19% of the U.S. population lives in rural areas, only 7% of U.S. oncologists practice in these areas. More than 70% of U.S. counties do not have any medical oncologists. In rural settings, there may be one oncologist for 100,000 residents, compared with urban areas where the ratio is five oncologists to the same number of residents.<sup>1</sup>

While discussing potential themes with the *ASTROnews* Editorial Board, we readily agreed that an issue on radiation therapy in rural settings was important. As we discussed the topic further, we realized that many of the same issues that affect rural oncology also affect oncologic care for disadvantaged populations in other settings, particularly vulnerable urban populations with high poverty rates. Consequently, we thought it important to address both underserved settings and populations in one issue. To that end, we have compiled an enlightening

issue capturing the wisdom, experiences, research and interventions from radiation oncology practitioners in both rural and disadvantaged settings.

Rural and low-income communities share many of the same vulnerabilities: 1) disproportionately low access to care, often as a result of distance, geography, insurance status or other resources; and 2) outsized impact of social determinants of health with inadequate resources available to overcome these social determinants.

In my current role as System Chief of Radiation Oncology at New York City Health and Hospitals (NYC H+H) — the country's largest municipal health system serving over 1 million New Yorkers annually — I see these challenges up close, every day. At NYC H+H, we see and treat all patients who enter our doors. Many of the patients I treat at Kings County Hospital in Central Brooklyn are uninsured or underinsured. They experience other barriers to care

including undocumented immigration status, lack of paid time off, lack of childcare, unstable housing, food insecurity and low or no English literacy. Regardless of our willingness to care for everyone with the best treatments available, these social determinants have an outsized impact on our patients' outcomes. We constantly observe that the non-medical factors in vulnerable populations' lives are equally, if not more, important to their cancer outcome as our oncology treatments.

The authors featured in this issue come from a variety of practice settings, including rural solo and small group practices, academic medical centers in urban areas, rural and suburban satellite locations of academic centers, and international cancer centers. They treat patients who predominantly come from geographically isolated, low-income, and/or socially disadvantaged backgrounds. They represent a variety of organizations, including NRG and ASTRO. As someone who practices in the NYC public hospital system, I find the efforts from these authors to be inspiring and critical to our collective goal of achieving equity in cancer care. We are fortunate to compile and share their perspectives in this issue.

Several articles focus exclusively on the rural population. The articles describe why cancer outcomes are worse in rural communities (Sheybani, page 8); they crystallize the hardships faced by rural patients and the role of ASTRO's Peer-to-Peer program in providing rural radiation oncologists with peer review (Beyer and Luh, page 27); and they propose solutions, including partnering with academic centers to maintain staffing and high-quality standard of care, and greater use of hypofractionation regimens (Mourad, Randall, Kaushal, page 20).


Another group of articles focuses on underserved populations, including those seen by urban safety net hospitals (Mattes, page 24), and immigrant, undocumented populations (Santos, Chino, page 25 and Maldonado, Wilkinson page 18). They provide a call to action and demonstrate concrete steps that cancer programs can take to secure and provide resources for these vulnerable populations. They also emphasize ways to maintain quality in resource-limited settings.

The impact of social determinants of health on cancer clinical trial enrollment is unpacked in an article from colleagues at Emory University (Bai and Watkins Bruner, page 10). It describes efforts by the RTOG to assess reasons for low accrual of minority populations to cancer clinical trials. The authors also describe the

unfortunate but real impact of social determinants of health on patient outcomes, such as disease-free survival in RTOG 0415. Importantly, they describe possible interventions to start to make a dent in these factors, including a travel navigation program and the NRG oncology health disparities research committee efforts.

A group of radiation oncologists who are deeply involved in global oncology programs gives us an overview of approaches to achieving adequate access to care and high-quality care in low- and middle-income countries (Li, Bhatia et al, page 13).

Overall, the articles in this issue open our eyes and minds to the many opportunities to improve access and quality of care in two seemingly different geographic settings: rural America and impoverished communities, at home and abroad.

I will end with these words from one of our article authors, Malcolm Mattes, MD: *"There are many challenges inherent to treating cancer patients in low-resource environments, but with those challenges comes the opportunity to overcome long-standing structural and systemic inequities in health care delivery and improve the lives of patients that may not receive high-quality, cutting-edge cancer care otherwise."* 

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**Letter to the editor response:** We received a letter regarding the Winter issue of *ASTROnews* from the National Association of VA Nuclear Medicine Physicians requesting collaboration between nuclear medicine and radiation oncology. ASTRO staff is following up directly with our VA contacts and fully supports collegial interaction and collaboration. We anticipate that it will take a coordinated effort to best provide needed access to care across the country. Read the full letter at [www.astro.org/Summer23News](http://www.astro.org/Summer23News).

*Dr. Mobideen welcomes letters to the editor at [ASTROnews@astro.org](mailto:ASTROnews@astro.org).*



## CHAIR'S Update

GERALDINE JACOBSON, MD, MPH, MBA, FASTRO,  
CHAIR, BOARD OF DIRECTORS

### THE LONG-AWAITED ASTRO WORKFORCE STUDY


was published on March 8, 2023.<sup>1</sup> In response to concerns raised by our members about the potential imbalance between the future supply and demand of radiation oncologists, ASTRO commissioned an independent analysis by Health Management Associates (HMA) to study the question. HMA modeled potential scenarios based on trends of contributing factors, including doctors entering and leaving the specialty, Medicare use by an aging population, new and changing indications for radiation therapy, and physician productivity.

The study concluded that the most likely scenario projects a relative balance between radiation oncologist supply and demand for radiation therapy services through 2030. While this conclusion is reassuring, it is not an inducement to complacency, since the study demonstrated a range of possible outcomes with large percentage deviations in both directions. The growth of Medicare beneficiaries and changes in physician productivity had a significant impact on model results. Based on the projected slowing growth of Medicare beneficiaries beyond 2030, as well as continuing changes in radiation therapy practice patterns, it will be critical to continue monitoring and updating this analysis. We recognize that reassessment will be needed as new data emerge and plan to remain vigilant to the need for future evaluation of radiation oncologist supply and demand.

Not a month goes by without news related to climate change. The more dramatic events such as floods, droughts and wildfires engage our attention with their immediate impact on human life. These events can disrupt radiation oncology practices and cancer patients' access to treatment. As oncologists, we should be aware of the ongoing effects of climate change on cancer incidence, diagnosis and treatment, and the increased impact on vulnerable populations. The American Medical Association (AMA) declared climate change a public health crisis in 2022. This spring the ASTRO Board of Directors created a Climate Change Task Force to develop a climate change policy focused on

the specialty of radiation oncology. The Task Force is charged with developing a policy statement expressing ASTRO's commitment to addressing climate change. In March, ASTRO joined the Medical Society Consortium on Climate and Health, a group of 48 physician specialty organizations that advocates for climate change solutions that protect and promote public health.

A recent study released by the Centers for Disease Control (CDC) shows that life expectancy in the U.S. varies widely by geography and neighborhood.<sup>2</sup> Different census tracts only miles apart can have a life expectancy difference of more than 30 years. The report noted that while cancer mortality decreased across all ethnic groups, it remained highest in non-Hispanic Black people throughout this period. An earlier study by the CDC reported that rural counties had lower cancer incidence rates but higher death rates for all cancer sites combined compared with nonmetropolitan urban and metropolitan counties and that the differences in death rates between rural and urban areas are increasing over time.<sup>3</sup>

The advances in science and technology that have created a level of medical expertise unimaginable a century ago have not been matched by our societal capacity to provide health care to all those who need it, where and when they need it. The articles in this issue explore the topic of underserved populations and may inspire us to develop solutions to improve access to cancer care for all who need it. 

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# SOCIETY NEWS

## Alaska Native Students Receive Hands-On Experience in Radiation Oncology

BY EMILY CONNELLY, MA, RADIATION ONCOLOGY INSTITUTE

**ALASKA NATIVE (AN) PEOPLE** make up about 15% of Alaska's population but are unrepresented in Alaska's radiation oncology workforce according to available public data. Additionally, there are very few AN-identifying medical students, and no recent AN-identifying medical school graduates have chosen to pursue radiation oncology residency.

Dan Seible, MD, and his team at the Anchorage Radiation Therapy Center launched the Alaska Native Internship in Oncology (ANION) program to introduce Alaska Native students to radiation oncology. Dr. Seible is partnering with the Cook Inlet Tribal Council (CITC) on ANION, which is the first oncology-based educational outreach program specifically serving AN students and supported in part by a grant from the Radiation Oncology Institute (ROI). "We started ANION to inspire and guide Alaska Native students toward careers in radiation oncology. Increasing representation in the cancer care workforce could ultimately help address health disparities experienced by Alaska Native patients," says Dr. Seible.

During the 2022-23 school year, the Anchorage Radiation Therapy Center welcomed a high school student and a college student as ANION Scholars into their community practice that is the primary provider of radiation services for the Alaska Native Tribal Health Consortium. Twice a month, the ANION Scholars visit the clinic to observe and learn about all aspects of the practice and to work on an outreach project of their own that aims to improve cancer care, outcomes or both for AN patients. Each student has been paired with a radiation oncologist who will serve as their primary mentor for the duration of the internship.

ANION is a valuable stepping stone for the college Scholar who is participating in the program to achieve her long-term goals. "I am grateful and excited to be an ANION Scholar so that I can see the different career pathways available in cancer care. I was raised in rural

Alaska where health care is minimal, and my dad got cancer when I was 12. When we had to leave the village to come to the bigger city, I did not see very many Alaska Natives in the health care system. Ever since that time, I have wanted to be in the health care setting, serving my Native community members." For her outreach project, she is surveying AN patients on their preferred learning style and comparing the responses with the patient education materials and resources currently provided by the Anchorage Radiation Therapy Center.

The high school ANION Scholar is designing a tool for clinicians to be able to greet AN patients who travel for care in the way greetings are common in their communities, which is frequently in an AN language. He says, "I'm excited to be an ANION Scholar because I get to help shape the way Alaskan Native peoples are cared for and made to feel more comfortable. The ANION program is showing me how many different roles there are in medicine, and that there is a plethora of options available to me."


*Continued on the following page*



Dan Seible, MD, and the 2022-23 Alaska Native Internship in Oncology (ANION) program Scholars and a medical student, who all serve as interns at the Anchorage Radiation Therapy Center.

# SOCIETY NEWS

Both ANION Scholars will present their projects and experiences with other AN youth interested in STEM at the Super Fab Lab summer programs run by CITC. Later this year, Dr. Seible and the college Scholar will attend the Denali Oncology Group meeting, which changes its venue annually among more rural Alaskan communities. The ANION program will also grow with four new ANION Scholars joining the program next school year.

Dr. Seible and his team are passionate about helping AN students pursue careers in radiation oncology with a goal to eventually expand the ANION program to geographically isolated village communities and regional care centers. "We hope that the ANION Scholars see that radiation oncology is a great specialty where they can make a difference and personally help elevate cancer care and outcomes for the Alaska Native community," says Dr. Seible. 

## In Memoriam

ASTRO has learned that the following members have passed away. Our thoughts go out to their family and friends.

**Marvin Rotman, MD, FASTRO**  
*Palm Beach Gardens, Florida*

**Velayudhan Sahadevan, MD, PhD**  
*Beckley, West Virginia*

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1. Oliver K. "Large Network Approach: Streamlining workflows and increasing efficiency" Oral presentation at SGRT Community Annual Meeting, June 2022.

# Caring for the Underserved:

## Rural Oncology Perspective

BY ARSHIN SHEYBANI, MD

### MANY ONCOLOGISTS HAVE SPECULATED

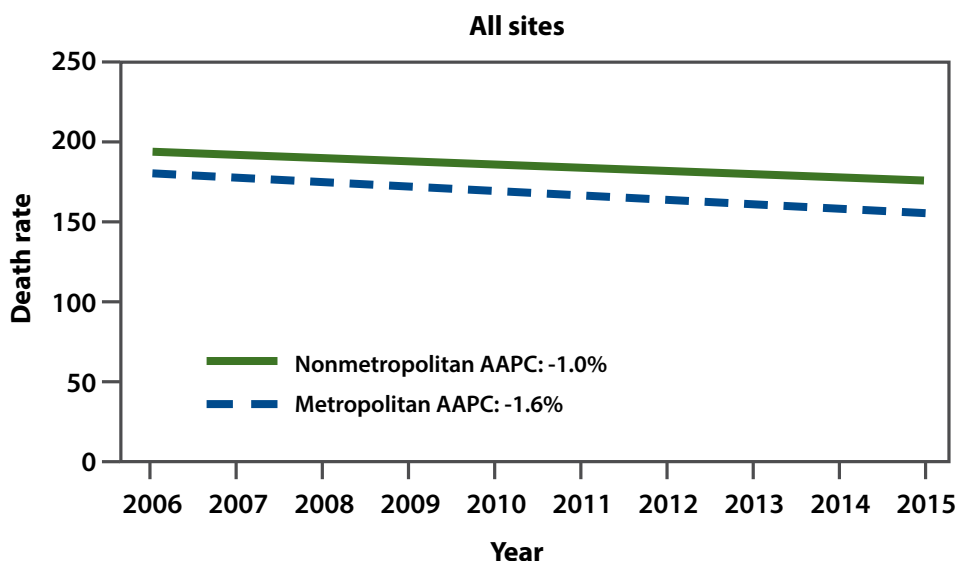
that due to the effects of the COVID-19 pandemic, we will start seeing a rise in cancer mortality rates in the coming years, reversing a decades-old trend. But there was a particular population who had not fully benefited from this progress, even before the pandemic started: rural communities. The year preceding the pandemic, the American Society of Clinical Oncology hosted a Rural Cancer Care Gap meeting to not only identify but also quantify the problem. Some key statistics stood out from the publication following that meeting. For starters, the cancer death rate is higher for rural communities compared to patients living in non-rural areas. Additionally, rural cancer survivors generally had poorer health outcomes. And even though the

According to the National Rural Health Association (NRHA), 20% of the U.S. population lives in rural America, as opposed to the 10% of U.S. physicians who practice there.

cancer mortality rate has improved overall in the past several decades, the degree of improvement has been less for rural patients. The combination of a worse baseline mortality with lower rate of improvement portends an even widening gap in the coming years (Figure 1).

Many factors contribute to this discrepancy and can be divided into workforce distribution, resource distribution and population characteristics. According to the National Rural Health Association (NRHA), 20% of the U.S. population lives in rural America, as opposed to the 10% of U.S. physicians who practice there. Therefore, this problem is not unique to oncology but is reflective of medicine in general and is demonstrated by the fact that rural patients have less access to screening and preventive care.

Figure 1. Age-adjusted death rates for common cancers. Average annual percentage change (AAPC)




The multidisciplinary nature of oncology seems to compound the impact in our field. Fewer diagnostic professionals like radiologists or pathologists contributes to patients having to travel a distance from their home to obtain a cancer diagnosis, and hence it is not surprising that they would present with later stage disease. Similarly, a lack of a local oncologist within a patient's community has been correlated with not receiving standard treatments. As radiation oncologists, we are acutely aware of how far patients need to travel for their daily treatments and how sometimes that plays into their decision making.

At the same time, it is apparent in our field how workforce distribution is linked to resource distribution; after all, we can only work where there are linacs. But resources are not just defined by fancy equipment, the ancillary services that come with taking care of oncology patients are also critical. A survey of key stakeholders, including patients and rural health care providers, in upstate New York highlighted those lack of resources. Many rural communities do not have funding for non-reimbursed services like dieticians, social workers or patient navigators. In addition to the resources of the health care system, the community as a whole lacks other important resources. Many rural patients may not have access to broadband, IT support, electronic devices or have the general knowhow to use those devices as was evident by less uptake of telemedicine services in rural communities during the pandemic.

It has been suggested that when rural patients receive similar care, we would not see this discrepancy and many creative solutions have been proposed to curb this trend. The Alliance for Clinical Trials established a rural health subcommittee to help identify the unique barriers to trial access with the hope of improving opportunity for participation in national trials. Virtual services could also be used to lower the barriers for specialized care especially for patients with travel burdens. The ENCORE study is a prospective protocol developed by Vanderbilt-Ingram Cancer Center to study the clinical effectiveness of offering remote oncology expertise. Novel financing models could also help underresourced areas and the LIFT trial is an example of a prospective study evaluating the realized and unrealized cost of cancer care both in rural and urban settings in North Carolina.

Despite these noble efforts, patients prefer to have treatments closer to home. Rural patients may not seek medical care due to lack of trust in the health care system, lower health literacy and overall 'stoic'

culture. The Rural Physician Workforce Production Act (2021) is an attempt to address this by improving the current provider shortage through expanded training opportunities in rural counties. But it will take years before this is realized. In the meantime, many professional societies, including ASTRO, provide accreditation as well as peer-to-peer mentorship with the aim of improving quality care in community practices.

Personally, I have found working in smaller clinics to be especially rewarding. The community is welcoming, the staff is accommodating and the patients are incredibly grateful. As a discipline, we have innovated in ways that have directly lowered barriers to access, and I hope we continue to bring along those who have been left behind. 



*Arshin Sheybani, MD, is a radiation oncologist with UnityPoint Health in Iowa.*

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# Cancer Clinical Trial Outcomes: Harnessing Social Determinants of Health to Advance Equity

## NRG Oncology strategies to address equity issues in cancer clinical trials

BY JINBING BAI, PHD, RN, AND DEBORAH WATKINS BRUNER, PHD, RN

**WITH RECENT STRIDES IN RADIATION THERAPY,** traditional outcomes of survival are becoming increasingly similar across different cancer treatment modalities. Patient-reported outcomes (PROs) of adverse events, symptoms and health-related quality of life can impact treatment decision making and survival rates.<sup>1</sup> Social determinants of health (SDOH), often contributing to PROs, have recently come to the forefront as conditions in the places where people live, learn, work and play that affect a wide range of health and quality-of-life risks and outcomes. The SDOH provide a systematic and structural framework to examine the multilevel factors contributing to cancer clinical trial (CCT) enrollment, trial completion rate and cancer outcomes, including survival and other PROs. As an emerging field, the impact of SDOH on CCT outcomes has yet to be systematically examined, particularly geographic SDOH, including residence in rural areas and/or disadvantaged neighborhoods.

Patients living in rural areas or socioeconomically disadvantaged neighborhoods with limited resources experience decreased access to lifesaving CCTs due to health insurance constraints, geography or greater travel burden to sites where CCTs are conducted, and increased environmental exposures (e.g., air pollution, segregation and stress), which are directly linked to carcinogenesis.<sup>2</sup> All patients should have access to CCTs, yet despite national initiatives to increase the enrollment of racial and ethnic minorities' participation in CCTs, the proportion of participants from socioeconomically disadvantaged areas remains low relative to their representation in the U.S. population and relative to their overall cancer burden. The causes of these inequalities in cancer outcomes among different races/ethnicities or geographic areas are complex and are more likely due to socioeconomic and geographic disparities, rather than biological differences.<sup>3</sup>

### Studying disparities in access to CCTs

Enrollment in randomized CCTs conducted by the National Cancer Institute National Clinical Trials Network (NCTN) has a positive effect on patient-centered outcomes.<sup>2</sup> However, there are disparities in access to CCTs attributable to multilevel factors, including individual factors, particularly race/ethnicity and travel barriers.

### Article Highlights

- Social determinants of health (SDOH), such as income, education, and race/ethnicity, can have a significant impact on cancer clinical trial (CCT) outcomes.
- SDOH provide a systematic and structural framework to examine the multilevel factors contributing to CCTs, trial completion rates and cancer outcomes.
- NRG Oncology conducted a series of studies to examine disparities in access to CCTs attributable to multilevel factors, including individual factors, particularly race/ethnicity and travel barriers.
- Patients living in rural areas or socioeconomically disadvantaged neighborhoods experience decreased access to CCTs due to geographic barriers, financial constraints and environmental exposures.
- NRG Oncology is working to address equity issues in CCTs by implementing strategies such as geographic mapping, outreach efforts and the development of travel/transportation assistance programs.



We conducted a series of studies on these issues in the NCTN Radiation Therapy Oncology Group (RTOG), which is now the NRG Oncology. NRG Oncology conducts practice-changing multi-institutional clinical and translational research with emphasis on gender-specific malignancies including gynecologic, breast and prostate cancers and on localized or locally advanced cancers of all types. Membership is comprised of over 1,000 member sites in the U.S. and Canada.

First, we assessed how accrual to CCTs is related to U.S. minority population density relative to clinical trial site location and distance traveled to RTOG trials sites. From 2006-2009, the RTOG U.S. site distribution was generally concordant with overall population density. Sites with highest accrual were located throughout the U.S. and parts of Canada, and overall accrual did not cluster by geographic location, nor did highest minority accrual cluster in areas of highest U.S. minority population density.<sup>2</sup> Importantly, rural residents were significantly more likely to perceive the price of gasoline as a problem compared to urban residents, whereas urban residents were more likely to perceive highway congestion as a problem. Location matters, but only to a degree, for minority compared to non-minority participation in CCTs. Geographic mapping helps identify geographic disparities of overall and minority CCT accrual as well as high density minority population areas without RTOG member sites. This helps us strategically identify radiation therapy sites for outreach efforts, as new partners in minority enriched locations, to facilitate equal access and reduce travel burden to CCTs. It also helps map sites with good

minority accrual to interview and share best practices.


Second, we examined the effect of rural and disadvantaged neighborhood residence on survival and PROs in RTOG clinical trials. Patients living in rural areas reported high rates of cancer-related mortality and other negative treatment outcomes. After analyzing the NRG RTOG 0415 trial, in which 1,092 men with low-grade prostate cancer were randomized to receive conventional radiation therapy or hypofractionated radiation therapy, we observed that rurality (using 2003 Rural-Urban Continuum Codes) and neighborhood socioeconomic deprivation (using the Area Deprivation Index) were significantly associated with disease-free survival when ethnicity was included in the analyzing model.<sup>4</sup> Men residing in rural and socioeconomically deprived areas may not receive adequate follow-up care after cancer treatment, and ultimately this results in more symptoms and a worse health state longitudinally. Supportive care services and interventions are needed to increase longitudinal PROs and survival among patients with prostate cancer in rural and neighborhood deprived areas through leveraging access to screening, treatment and ancillary health care resources.

Third, recognizing the adverse impact of a socioeconomically deprived residence — rural areas and disadvantaged neighborhoods — on CCT outcomes, our team is currently assessing how multilevel SDOH (e.g., individual, institutional and geographic factors), together with biological factors, work to influence CCT outcomes (funded by Oncology Nursing Society Foundation). Additionally, we are identifying solutions to decrease travel barriers in CCTs from multiple stakeholders' perspectives, including patients from rural areas and CCT support staff at the clinic (e.g., navigators, trial coordinators and social workers) involved in NRG Oncology CCTs. Cancer patients, particularly those with younger age, low income, uninsured or publicly insured, unmarried or with self-reported physical functional limitations, report difficulties attaining transportation for care. This may include limited access to public or private transportation, specific financial hardships, and distant proximity to a health care facility. Due to patients' limited awareness of available travel services for access to care, inconsistent institutional screening criteria, and complex procedures for the travel services utilization, our team is developing a Travel to Care Navigation Program, with a goal of navigating travel resources and reducing travel barriers for cancer care, thereby advancing equity in CCTs.

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## Implementing strategies

NRG Oncology has implemented multiple strategies to address equity issues in CCTs. Specifically, the NRG Oncology group National Community Oncology Research Program (NCORP) Health Disparities Research (HDR) Committee has transformed from a core educational committee into a protocol generating committee for developing interventional concepts and integrating secondary endpoints in NCORP trials and NRG Oncology treatment trials, all of which are focused on health disparities research and improving cancer care and outcomes for underserved populations. The overarching goal of the NRG Oncology HDR Committee is to address health disparities and help reduce the unequal burden of cancer in the U.S., with specific focus on behavioral health, symptom management, community engagement and SDOH.

Future research and practical plans include contacting high accruing sites in areas with lower minority density to determine best practices for recruitment and accrual. Further investigation of the impact of travel burden will guide novel strategies, such as the use of ridesharing companies, bus tokens, gas cards or other transportation services. It is important that we compare the impacts of various levels of neighborhood deprivation (quartiles of the adapted Area Deprivation Index) along with race/ethnicity on CCT breaks or stoppage, as well as their impacts on overall survival. Ultimately, we hope future projects will lead to more community-based strategies (e.g., the EMPaCT program<sup>3</sup>), helping design future trials for patient navigators, social workers or clinical trials coordinators to improve CCT treatment adherence and increase survival. 



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# Radiotherapy in Developing Nations: Access to Care and Training

BY BENJAMIN LI, MD, MBA; ROHINI BHATIA, MD;  
MARÍA CAICEDO-MARTÍNEZ, MD; AND  
LAVANYA NAIDU, MD

**QUALITY RADIATION TREATMENT** does not have to, nor should it, depend on the country where one lives. However, stark disparities in access to care and radiation therapy training are evident globally.

How can we describe the problem and the solution? There really is no single truth; however, we want to share a message based on a synthesis of our own radiation oncology resident/junior faculty perspectives. For some background, we (the authors) come from lower-middle to high-income countries and have each spent over the last five years immersed in global health conversations in our respective settings. As we describe the bits and pieces of the system from our experience, we hope that this will strengthen your foundation of understanding, inspire thoughts, and perhaps even embolden you to challenge our ideas. One thing is certain — efforts forward in global oncology will benefit from more critical and radical thinkers in this space because a radical change is needed if we want to create a world with equitable cancer care.

Two simple levers underpin the movement in modern global oncology efforts: 1) patients must be able to access care, and 2) the care must be effective. Historically, efforts have been supported and funded by partnerships within academic medicine that have helped explore and define the extent of the disparity. However, the issues cannot be solved solely with academically driven efforts. To fix resource shortages, we need to create space with policy makers, governments, industry and private organizations and use our insights as physicians, physicists and cancer clinicians to recognize and support action.

## Access to care

Access to care is defined as “the timely use of personal health services to achieve the best health outcome”<sup>1</sup> and is one of the greatest challenges in radiation. Poor access to radiation therapy leads to long wait times, ranging from several months to a year in the poorest settings, routine cancer upstaging (sometimes making necessary redoing staging, perpetuating the delays), and a separate market for privileged or preferential care, among many other cancer inequities. While each setting of care is defined by unique complexities and merits investigation, the primary issues blocking a path toward equitable access are related to financial forces.

These financial forces are indisputably powerful, prevalent, and, whether subtly or overtly, underlie many of the observations related to lack of equitable access to radiation therapy. After all, money can influence all of the following issues: from lack of equipment to politics that block infrastructure investments to patient ability to adhere to care recommendations. While these factors may interfere in varying capacities, in settings where resources are scarce, decisions are driven more by their financial implications.

The shortage of available radiation therapy equipment and lack of decentralized services have been well documented,<sup>2,3</sup> yet other aspects need to also be addressed.

- **Treatment affordability.** Even if all the expensive upfront investments are made to build clinics, acquire equipment and recruit personnel, the impact is far lessened if the patient cannot afford care. Many governments in low- and middle-income countries (LMICs) have public health policies in which cancer care is fully or partially subsidized by the government at government health centers.<sup>4</sup> Further, indirect costs include transportation, food, housing and opportunity costs, like missing work, that prevent patients from having adequate access to treatment. The financial fear of these associated health care costs could inhibit patients from seeking and adhering to medical care.
- **Geography.** Patients in Botswana, for example, live on average 134.7 km (52.8 - 392.9km) away from a radiation therapy center.<sup>5</sup> Poor roads and means of transportation can make this journey longer and more challenging, fueling the inability to access treatment. Consequences of this include low screening rates, delayed clinical presentations and worse outcomes.
- **Competing interests for financial resources.** In an area with competing priorities, how can

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we prioritize funding for radiation therapy to government entities? Health care spending is already low in LMICs and cancer is often prioritized low (“why invest in patients that are going to die” is an encountered sentiment in regions where historically most cancer cases are palliative). And unfortunately, within cancer, “radiation therapy” is often a foreign term or black box. Things that are not understood are less likely to be funded.

While an argument about the established cost-effectiveness of radiation therapy should spur investment, competing factors have minimized such progress. We also have not done enough comparison of the cost effectiveness of radiation therapy versus other health care interventions. Even if other options are more cost-effective, stakeholders may not necessarily make decisions based on the most effective intervention. As much as access to care is a money issue, money is hard to obtain (or acquire), and health investment dynamics and government priorities are often beyond our scope.

### Effective care via training

If access to care is addressed in the multiple facets mentioned above, the other component of care delivery is quality. Because, unlike the number of equipment, clinics, human resources, etc., to date training has not been quantified or measured. Aside from the inside clinician perspective that we share, we have a gap to close to communicate to the world what training is necessary and to measure the quality of training among existing centers in our field. This is an “eyes haven’t been opened yet” issue.

In medicine, the saying goes, “you don’t know what you don’t know.” This is true in radiation oncology. Wealthy health systems may have well-established apprenticeship models, but without mentorship, learning radiation oncology the right way the first time is very hard. Starting off on the right foot and ingraining *correct* habits of practice is imperative.

The current status of education and training globally is unknown and possibly another silent crisis in global oncology. If we do not measure training, how do we know whether it is good or bad? Though exams and certifications exist, these tend to be regulated by national organizations and vary widely. Many countries do not have board examinations or regulations on when to renew licenses to stay up to date. Furthermore, performing an in-depth assessment is more challenging in a resource-limited setting and not all aspects of clinical practice can be captured in an exam, especially in a field as technically complex as radiation therapy.

While heterogeneity in training is expected, in a world where knowledge exists to provide high-quality care, it is a systemic issue that we need to figure out to effectively transmit this knowledge.

### Can we move the needle?

To achieve an increase in access to quality care, a revolution is needed utilizing two key ingredients — metrics and empowerment through training.

To enact fundamental change, we need to define more diverse metrics for improving access to care and measure them. For accessibility, in addition to counting the number of treatment units, we must also focus on treatment wait times, patient out-of-pocket costs, distances traveled for care, costs of operations, etc., for LMICs globally. Similarly, in education and training, we need to define metrics surrounding the quality of training, its effectiveness and how this translates to access to care and patient outcomes. With specific metrics in mind, we can then develop and refine interventions that improve them. As the adage goes, “you achieve what you measure.”

For instance, although access to care is limited by finances, we have seen that we can still empower existing resources to improve specific metrics that we track. Sharing the model of a multidisciplinary team clinic led to developing and refining a workflow that reduced the average time from biopsy diagnosis of cervical cancer to radiation start date by 69 days (from 108 to 39 days) in Botswana.<sup>7</sup> If we identify interventions that improve specific metrics, we then have the opportunity for large-scale change. Another option is cancer center design. In a populous country like India, the majority of centers with advanced technology are concentrated in cities that are difficult to access both due to long distances and lack of accommodation at the facilities. One solution to this issue is the hub-and-spoke model developed by Tata Memorial, where sister institutions for cancer treatment centers have been developed in high burden areas.<sup>8</sup>

To support improvements, we need to work together to empower clinics to operate at our best ability, and we do this through training/knowledge sharing. Assuming we had the essential knowledge of radiation oncology packed in a box, we must consider that the culture of medical education is diverse globally and build solutions that effectively transfer knowledge. One example initiative is that of Rayos Contra Cancer (RCC), a 501(c)3 non-profit organization that is striving to share knowledge through virtual training programs in limited-resource settings across diverse regions.


RCC operates using four tenets of education:<sup>6</sup>




- **Accessibility:** RCC offers free live virtual education in multiple languages with accessible asynchronous components to learning as well.
- **Safe learning environment:** RCC encourages and receives questions from participants around the world and creates a space for learning and improving providers' ability to deliver the highest quality patient care with their available resources.
- **Targeted education:** RCC's programs cater to the background and needs of learners across different LMICs. It develops new training programs accordingly and iteratively refines its learning materials based on feedback.
- **Access to content experts:** RCC educators are experienced in their areas of teaching, distilling years of acquired experience into training sessions. Most educators are from the U.S., but many also are local experts from within the regions that programs are held.

Through its early efforts, RCC has provided free training for over 3,500 radiation therapy clinicians in LMICs and helped impact the care of hundreds of thousands of patients per year.<sup>6</sup>


To this end, the digital landscape of global oncology and complementary resources are growing.<sup>9</sup> Additionally, countless authors have worked on publishing and sharing their knowledge through textbooks and publications, and research continues to guide what practices should be taught. Professional medical societies also lend an important arm in this effort, and across other oncology disciplines, we are seeing innovations.

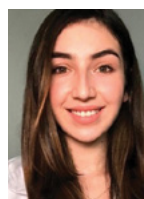
Utilizing the framework of meaningful metrics for access and training, we encourage individuals, organizations and funding mechanisms to fuel initiatives and scale activities that can drive these metrics efficiently towards improvement. 




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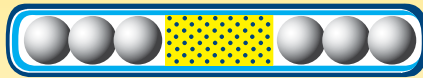
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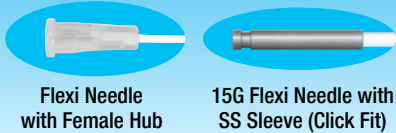
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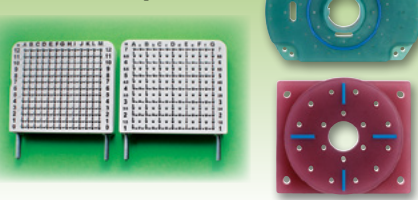


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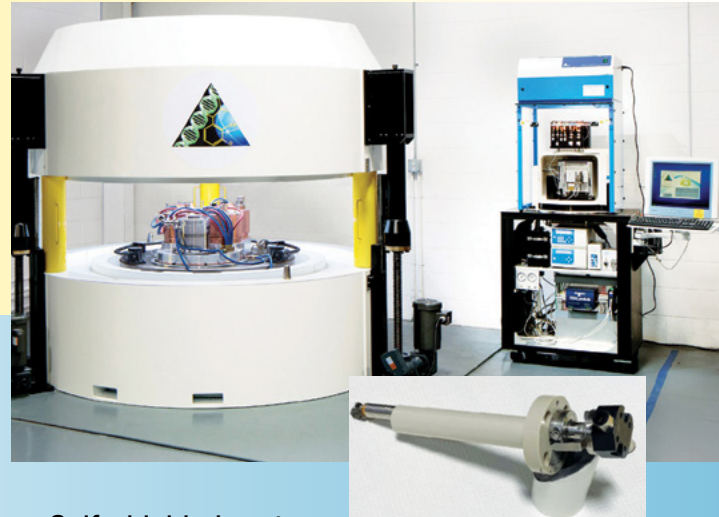
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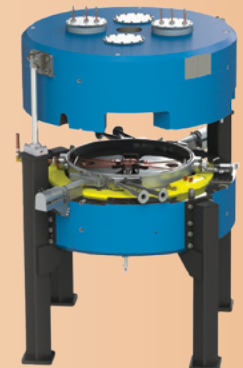


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# Oncology Outreach in the Agricultural Central Coast of California

BY CYNTHIA MALDONADO, RN, OCN, AND J. BEN WILKINSON, MD

## ALTHOUGH THE CENTRAL COAST OF CALIFORNIA

is better known for strawberries and wine grapes than advanced oncologic care, the modest cancer centers that dot Highway 101 between Los Angeles and San Francisco provide local residents an important safety net and health care infrastructure. While our region does not host mega-corporations, meaningful work is abundant in this section of the state, including hands-on harvesting of crops, various trade jobs, government positions and many professional posts such as education, law, and of course, health care.

Population levels in some communities may ebb and flow with semester or quarter class cycles at local universities. Our area's census, however, tends to fluctuate based on the seasonal needs of orchards, farms and wineries. At Mission Hope Cancer Center in Santa Maria, California, the primary language of almost half of our patients is Spanish, with some patients having some but usually incomplete English proficiency. Additionally, at least one in 10 patients speaks only Spanish or Mixteca (a dialect unique to Mexico's Oaxaca, Puebla and Guerrero areas), requiring dedicated translation services to understand their cancer diagnosis and treatment options.

Our physicians and hospital administrators understand the premise of accepting patients regardless of their ability to pay for required health services. Yet when you provide oncology services in a region with a non-English speaking and undocumented patient population, an additional obligation of health equity outreach becomes apparent. Thankfully, our partner hospital Marian Regional Medical Center's mission has been focused on and committed to the needs of our community for over 80 years. Naturally, this includes the known local residents and extends to our ever-increasing uncouncted and undocumented Hispanic neighbors.

One of the primary efforts that we undertake to reach the Hispanic population from an oncology perspective is a free or reduced-cost cancer screening program. These clinics are advertised via local news channels, social media, Hispanic radio stations and



## Mission Hope Cancer Center efforts to reaching migrant and/or undocumented residents:

- Free or reduced-cost cancer screening clinics on Saturdays
- Dedicated support services include Spanish/Mixteca translation, registered dietician, nurse navigators and a transport team
- Dedicated oncology social workers who establish trust and provide pathway to resources

communication with farm workers through flyers attached to their paychecks. Physicians and staff donate their time on various Saturdays to run these cancer screening clinics together with our family medicine residency program. When concerning findings are discovered, nurse navigators coordinate additional care and next steps for affected patients.

The “flyers to farm worker” initiative is an excellent example of an innovative way to reach migrant workers. Our community navigator serves as a single point of communication between our cancer center and the Hispanic population. Together with our social work team, this person is instrumental in creating a bond of trust. The navigator addresses barriers to care that include arranging transportation, coordinating care, assisting with health literacy, financial concerns, food disparities, and fear of deportation for some. The Mission Hope community navigator directly engages Hispanic neighbors by visiting people where they work and live. Mission Hope also partners with Hispanic

barbers, beauty salons and laundromats in a grassroots effort to educate the community on cancer prevention and proper screenings.

Once a Hispanic patient has decided to move forward with a consult, Mission Hope has numerous health professional staff to assist the underserved community at no charge. Services available during consultation and follow-up appointments include Spanish/Mixteca translation, dedicated oncology social workers, an oncology registered dietician, oncology nurse navigators and our terrific transport team.

While it can be more convenient to conduct a consultation or follow-up quickly without using an interpreter or by relying on a family member in attendance, we have found that official translation services are critical for patients to feel comfortable with information about their diagnosis and treatment plan. In our experience, patients are more likely to ask questions about their diagnosis or care plan when an official Spanish or Mixteca interpreter is used during the consult appointment.




Photo credit: Luis Escobar, Innovative Produce

In addition to community outreach and translation services, Mission Hope's dedicated oncology social workers are a significant part of establishing trust and assisting our Hispanic community as they are the pathway to many available resources. These include registration for state-provided health insurance (Medi-Cal) and communication with their employer regarding a diagnosis or disability application. Our social workers also assist the hospital team with home health assessments and placements when a Hispanic patient is admitted for a new cancer diagnosis. Mission Hope social workers are also the connection between patients and several local non-profit organizations that provide direct financial support for patients who exhibit financial need.

As with other cancer centers around the globe, building community for patients during and after their diagnosis and treatment is important. Social workers and nurse navigators at Mission Hope work together to provide Hispanic-oriented support groups where

patients can connect with others who share similar experiences. These support groups offer information and resources on how to navigate the health care system and we find that Spanish language groups are essential for those who feel ethnically isolated.

Likely the greatest barrier that we experience as a health care team is often centered around trust. This is primarily true for undocumented community members as they are hesitant to apply for support services out of concern that registration in a state or hospital database may affect their immigration status. While we do not have control over this process, we do our best to assure them that appropriate diagnosis and treatment of a malignant condition is the most important item in front of them. In this space we find that difficulty trusting a health care system can be common for patients who grew up in other countries. Their relationship with health care may have been different or absent in their home country. While Americans may be used to exam rooms and electronic portals with test results, our Hispanic community members that did not grow up in the U.S. may have not received regular health care growing up. This makes the process of meeting with medical staff and trusting their recommendations a potentially new concept.

While we cannot change the difficulties that patients have encountered prior to meeting us, we can work together to lessen the health care barriers that are currently present between our centers and patients. Join our work through ASTRO to help make patient education, access to care, and high-quality radiation therapy available to all of the people within the communities we serve. 



*Cynthia Maldonado, RN, OCN, has been in the medical field for 28 years, with the last 20 spent in oncology. She currently serves as the Manager of the Nurse Navigation Program at Mission Hope Cancer Center in Santa Maria, California.*



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*Editor's note: In addition to the observations discussed by the authors, a facility may also have legal and regulatory requirements to provide medical interpretation services.*

Photo credit: Lee-Volker Cox

# Redirecting, Reimagining, and Realigning

## Challenges and solutions to providing care from rural Kentucky

BY WALEED F. MOURAD MD, MARCUS E. RANDALL MD, FASTRO, AND ARADHANA KAUSHAL, MD

**AT THE START OF 2020**, the reality of health care inequities, including cancer burden, in disenfranchised populations was further exacerbated by the COVID-19 pandemic in many locales. As a rural state with the highest cancer incidence in America, the situation in Kentucky became a crisis. Herein, we will focus on radiation oncology challenges in rural America, drawing on our personal experience in Kentucky. As Mahatma Gandhi once said, “Be the change you wish to see in the world and if you want to change the world, start with yourself.” Rural radiation oncology is doing just that, at the grassroots level. The contributory issues include but are not limited to the following:

- a) Suboptimal utilization and maldistribution of radiation oncology resources and workforce.
- b) Delayed cancer screening, diagnosis and treatment with resultant presentation of advanced oncologic stages, creating downstream effects of treating more advanced cases and the financial consequences inherent within.
- c) Challenges of delivering optimized communication and coordinated care at the institutional, interdisciplinary and patient level.
- d) Difficulties faced in accomplishing quality assurance, accreditation and modern evidence-based medicine and research.

Realizing some of these broader issues, we performed a root cause analysis of our underserved area’s needs attempting to delineate these issues in a more granular, actionable way. The problems and solutions discussed represent our own unique experiences at the University of Kentucky over the last two plus decades, specifically at a radiation oncology center in Morehead, a clinic in rural Appalachian eastern Kentucky.

**Challenge:** Diminishing workforce is one of the most urgent issues facing radiation oncology.<sup>1</sup> Attending physicians are less interested in residing in or traveling long distances to rural areas, so efficiently maximizing the currently available resources in the rural environment becomes even more critical. Additionally,

radiation medicine, in general, is at the distal end of the service line because of downstream referral patterns and largely depends on hospital subspecialties for diagnosis and ongoing co-management. Often, specialty and subspecialty expertise is lacking in rural areas, resulting in delayed and suboptimal care (Figure 1).

Figure 1.<sup>1,7</sup>

- 19% of the U.S. population resides in a U.S. census defined rural locality, but only 7% of oncologists practice there.
- In 2017, the proportion of rural radiation oncologists (12.6%) dropped significantly from the prior study in 2012.
- Four out of 10 rural Americans currently with or who have had cancer say there aren't oncologists in their vicinity.
- 36% of rural patients say they had to travel "too far" to see the oncologist managing their care, versus 19% of non-rural patients.

**Solution:** In our experience a rural radiation oncology center can benefit from a staffing model that relies on a relationship with robust, active academic faculty such as the University of Kentucky. This approach facilitates intermittent university-sponsored oncology-centric educational offerings that can contribute to local physicians’ awareness of newer clinical knowledge and treatments.

We currently have a multidisciplinary tumor board with consultants from the main hospital every two weeks with pathology and radiology review. The attendings who staff the Morehead clinic maintain active ties to the academic campus, the importance of which cannot be overstated. Not infrequently now, because of this relationship, a complex patient who is seen as an inpatient at the university campus receives

outpatient radiation, and often other therapies such as chemotherapy at the rural facility, which both expedites care and promotes implementation of an integrated treatment plan. Aspects of care that cannot be provided locally can be made available to patients in a more coordinated manner at the main campus.

**Challenge:** Uncoordinated radiation therapy (RT) administration in the appropriate care setting.

**Solution:** The RT fractionation paradigm over the past couple of decades has evolved to hypofractionation in many palliative and curative situations. However, nothing will eliminate the need for a patient to be treated in person at a radiation facility. As an example, quad shot has demonstrated efficacy for prompt hemostasis and pain control.<sup>2</sup> Similarly, a single fraction can often effectively palliate osseous metastases. A large single fraction of spatially fractionated RT (GRID or SFRT) synergizes with a later, shortened conventional radiation course for durable local tumor control in advanced bulky tumors (often seen in rural areas)<sup>3</sup> and occasional abscopal (Radsopal) effect. Hypofractionation for breast, prostate, skin, early stage lung and rectal cancer are becoming industry standard as supported by the recent clinical trials and need to be applied, irrespective of the practice setting.<sup>4</sup> Shorter RT course, when appropriate, can have quite positive impacts, especially in rural areas, where compliance can be challenging due to transportation and work-related limitations.

We made connections with various referring services in the hospital and community to deliver expedient, effective hypofractionation regimens as appropriate in the palliative and/or curative setting. Discussion of these clinical scenarios facilitates more cost-effective care particularly when referring physicians do not initially consider radiation as a treatment option or when patients are resistant to a time-consuming course of RT. Embedding a nurse navigator from the local rural community familiar with the inhabitants in order to foster trust and understanding toward delivering culturally competent care is another strategy to increase compliance.

**Challenge:** Uneven application of high-quality clinical care consistent with industry standards.

**Solution:** Academic faculty (physicians and physicists) are present at both academic and rural sites and are facile with delivering a high level of planning and treatment utilizing modern techniques such as IMRT/VMAT, application of evidence-based trial

data, etc. Attendings who currently staff the rural center maintain committee involvement in national societies, cooperative groups and one currently serves as an ABR examiner. Encouraging constant learning and incorporating this knowledge leads to a current standard of care being delivered. Radiation therapy technologists are similarly able to train for and learn new techniques and new equipment by virtue of the relationship with the academic main campus. Formal accreditation by ASTRO, ACR and/or ACRO is a recognized national standard care of quality. Our accreditation encompasses both our main campus as well as the rural Morehead campus, using the same criteria of quality and peer review. Our facility is also engaging in novel quality programs such as American College of Surgeons, “Breaking Barriers,” a program to investigate and reduce RT patient attrition in rural areas. Medical students and RTT students rotate in the Morehead clinic, and we are in the process of establishing a formal rotation for our radiation oncology and medical physicist residents at the Morehead clinic. Maintaining main campus academic involvement of faculty and learners is critical to creating and sustaining an atmosphere and culture of constant learning.

ASTRO’s peer-to-peer mentorship program provides underserved sites with a platform to have a fellow radiation oncologist review charts and treatment plans. These national initiatives make peer review possible, better ensuring that high quality care and some oversight can be done even in small rural practices.

*Continued on the following page*



*Photo credit: University of Kentucky and Mark Mahan of Mahan Multimedia*

**Challenge:** Lack of clinical trial access for patients in rural practices.

**Solution:** Radiation oncology practice is significantly impacted by clinical trial outcomes, and opportunities to enroll patients in prospective trials is often desirable. The National Cancer Institute (NCI) Community Oncology Research Program (NCORP) is the primary route of accrual to NCI cancer control symptom management trials and to health-related quality of life trials. Currently, there are 46 community sites and 14 are listed as Minority/Underserved Community sites. None currently exist inside Kentucky.<sup>5</sup> To this end, this summer we will be opening our first funded, fully electronic and app-enabled (not requiring onsite clinical research assistant) protocol at our Morehead facility. Specifically, this study will examine cannabis utilization in a first attempt to collect data and toward delivering culturally competent care.

**Challenge:** Lack of transportation and internet connectivity.


**Solution:** Utilization of a virtual private network (VPN) can allow remote dosimetry planning, clinical chart rounds and some physics quality assurance without having daily on-site technical personnel, as our satellite has done. In addition, some routine follow-up care can be done via telemedicine. We are in the evaluation stage of a telemedicine palliative care consult service for those at end of life who are burdened by the cost and time of traveling.

Additionally, one of our residents will be formalizing efforts to deliver educational materials through a cost-effective patient-driven digital platform to make supportive care more accessible and effective and less personnel intensive. An informal survey at Morehead shows that transportation and/or a lack of temporary housing during treatment are frequent obstacles. Our patients are able to utilize only one transportation service that mandates a minimum of three days' notice prior to pick up, and there are often long waiting times for daily trips. This is a recalcitrant and overwhelming issue that we have not been able to consistently impact, suggesting the need for more attention and support at the federal or state level.

Maintaining access for cancer patients in underserved settings should be defined as a national priority given that a high percentage of the population is rural. Radiation plays a pivotal role in over half of cancer treatment regimens, and its essential role cannot be overstated. Without proper planning and decisive action, the evolving legislative and logistical changes

will continue to hamper access to care in underserved rural areas, running the risk of recreating the radiation oncology access disaster of Ontario in the 1990s.<sup>6</sup>

Overcoming the challenges described at the national level will require a multipronged, collaborative approach incorporating bottom-up plus top-down solutions that involve patients, private-public partnership, radiation oncology leadership, national societies, hospital administration and politicians. Sweat equity in creating these collaborative efforts with the community cannot be understated. Rural radiation oncology practice at the University of Kentucky can serve as a model for other rural practices.


A more thorough exposition of all the complex issues at hand can be referenced in our original paper published in *The Lancet Regional Health, No Oncology Patient Left Behind: Challenges and Solutions in Rural Radiation Oncology*.<sup>8</sup> 

**Acknowledgements:** The authors would like to thank the University of Kentucky Morehead staff for continuously taking care of eastern Kentucky patients since 1989.




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*Waleed F. Mourad, MD, is a Professor at the University of Kentucky and Medical Director of Morehead Cancer Center and also the Physician Founder of Cameroon Oncology Center, serving seven countries in Africa. He is currently an active member of the ABR Core exam and ASTRO CHEDI committee.*  *Twitter: Waleed246*



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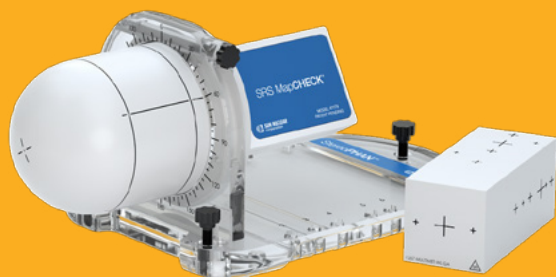


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# Making Cancer Health Disparities Funding a **PRIORITY** in Low-Resource Settings

BY MALCOLM MATTES, MD

**SAFETY NET PRACTICES ARE DEFINED** by the Institute of Medicine as those providers that organize and deliver a significant level of health care and other needed services to uninsured, Medicaid and other vulnerable patients. Safety net hospitals, often located in poor and underserved communities, tend to serve large populations of racial and ethnic minorities and face unique challenges in providing high quality care in resource constrained environments.

While adequately addressing social determinants of health in order to reduce cancer health disparities is important in any setting, an additional level of attention, creativity and systemic strategies are necessary when financial resources that support modern technology and adequate support staff are limited.

Many of the other technology-oriented services in a hospital are in the same situation as radiation oncology, competing annually for the limited available budget for capital purchases. Lobbying hospital leadership may be effective in some instances but may be insufficient at many institutions. As in most aspects of radiation oncology, developing partnerships is critical to bring about positive change. Partnership with a larger academic institution facilitates recruitment of faculty members at competitive salaries and allows trainees to be exposed to treatment of more diverse conditions not seen as often at private institutions. Partnerships with state government through available state-sponsored grants can be a useful mechanism to obtain the large amount of capital needed for modern radiation treatment capabilities.

Seeking funding from smaller grants can also help overcome some of patients' more common barriers to cancer screening or treatment. For instance, in New Jersey, additional funding was obtained by my institution through the Department of Health's ScreenNJ program to fund the salary of a patient

navigator to facilitate lung cancer screening, the cost of low dose CT scans for uninsured patients, and colorectal screening kits to distribute to qualified patients.

Organizations like the American Cancer Society have also provided grant funding for health fairs and to offset transportation costs for screening tests or radiation therapy. Working with nonprofit foundations like Axiom Reach has also enabled receipt of funds to offset the cost of housing, utilities, groceries and other financial assistance to patients undergoing active cancer treatment identified as needing financial support. Philanthropic donations are another mechanism of obtaining funding that supports high quality patient care.

While addressing the financial needs of a low-resource institution is important, it is equally necessary to engage in quality improvement initiatives to identify cancer care disparities and implement systematic changes that could result in improvement of outcomes for vulnerable patients. For instance, financial toxicity may be reduced through use of hypofractionated radiation therapy or offering telemedicine visits or multidisciplinary clinics. Culturally competent patient forms and education materials should be developed. Attention should be given to survivorship care in order to optimize management of patients' other comorbid conditions. Clinical trial infrastructure should be established to promote enrollment of racial and ethnic minorities. Many avenues for improvement exist if attention is given to optimizing a patient-centered experience.

*Continued on page 32*

## Article Highlights

- Safety net practices are defined as providers that organize and deliver a significant level of health care to uninsured, Medicaid and other vulnerable patients.
- Systematic strategies are necessary to address health disparities, optimize cancer care and improve outcomes.
- Strategies for resource constrained settings to secure additional funding include:
  - Developing partnerships with larger academic institutions, state government or nonprofits.
  - Engaging in quality improvement initiatives to identify disparities and implement systematic changes.



# Barriers to Radiation Care in Immigrant Populations

BY PATRICIA SANTOS, MD, MS, AND FUMIKO CHINO, MD

**CANCER IS THE LEADING CAUSE** of death among immigrants in the United States. Over 60% of all U.S. immigrants identify as Asian or Hispanic/Latino, and in 2019, one in four Asian Americans and one in five Hispanic/Latino Americans died of cancer. Reliable access to preventative care including cancer screenings, remains out of reach for many immigrants. For those with serious medical illnesses such as cancer, and in particular, for undocumented immigrants, access to specialized treatments such as radiation therapy can be especially limited and vary widely based on state of residence.

In 2021, an estimated 21 million noncitizens and 24 million naturalized citizens were living in the United States, representative of ~14% of the total population. Among noncitizens, estimates are that one in two are undocumented; experts agree that this is likely an underestimate, given the inadequacy and unavailability of reliable reporting and tracking mechanisms. Regardless of documentation status, immigrants as a whole face significant challenges to accessing basic medical care. About a third of noncitizens have not had a usual source of care or a doctor's visit in the past year. One in 10 has gone without needed medical care in the past year due to cost. The drivers for health disparities affecting immigrants are likely multifactorial — reflective of both low socioeconomic status and structural racism, as well as linguistic barriers, religious beliefs, and sociocultural preferences and attitudes. Collectively, these factors may impact access, affordability, health literacy and adherence to care.

Although the majority of uninsured individuals in the United States are citizens, immigrants are significantly more likely to be uninsured than native born citizens. Undocumented immigrants, in particular, are even more vulnerable; ineligible for most traditional forms of public health insurance coverage under the Affordable Care Act, at least 42% of undocumented immigrants are uninsured. For immigrants with cancer, the downstream consequences of this disparity are especially dire. Multiple studies have shown that cancer screening rates are lower in immigrant groups and thus immigrants present at later stages of disease — when treatment is more costly and less effective. This is especially concerning as certain immigrant groups have a higher incidence of preventable cancers with infectious etiologies (e.g., cervical, nasopharyngeal, oropharyngeal, and stomach cancers). Based on racial/ethnic background, specific immigrant groups also have a higher incidence of tumor histologies with effective screening tests (e.g., breast, cervical, prostate, lung) that are highly treatable with radiotherapy (as part of the standard care), particularly, at earlier stages of disease.


As a fundamental component of the standard of care for several cancers, high-quality radiation therapy is essential to improving survival and quality of life. However, as a highly specialized and personalized form of cancer treatment, with high technical and operating costs, radiation therapy is a limited resource. For undocumented immigrants without employer-sponsored private insurance, available avenues for

*Continued on the following page*

basic medical care including charity-based or federally qualified health centers do not provide access to this level of specialty care. In the absence of traditional avenues of health insurance coverage, undocumented immigrants may be able to receive cancer therapy via Emergency Medicaid — a federally funded, state-run public health insurance program that was intended to provide coverage for the acute management of qualifying “emergency” medical conditions to income-eligible individuals, regardless of immigration status. However, coverage varies significantly state to state.

At present, New York is the only state where Emergency Medicaid beneficiaries can receive coverage for outpatient cancer treatment, including chemotherapy and radiation, provided that their cancer diagnosis was the underlying reason for the initial clinical destabilization. Recognizing these barriers to health insurance coverage, some states have begun to take steps to broaden their eligibility criteria. California is now the first state where all income-eligible individuals can apply for traditional Medicaid, regardless of immigration status. New York will soon follow suit, with plans to broaden eligibility criteria to include all individuals over the age of 65 years old who meet Medicaid income requirements.

Outside of legislative campaigns to broaden access to public health insurance, radiation oncologists and other cancer specialists can take important steps to address the health care needs of immigrants with cancer. Research suggests that the development and implementation of culturally sensitive interventions and community-based outreach can help account for sociocultural norms and individually tailored education to promote health literacy at the community level. Such interventions often include community figures, religious leaders, or local health care workers. Similarly, changes at the health systems level, such as direct referrals for cancer screening and patient navigation, may also help to improve immigrant health outcomes. Lastly, research effectors that use disaggregated data and promote workforce diversity to increase rates of ethnic concordance between patient and physician dyads may further improve outcomes in diverse immigrant populations.

As the U.S. immigrant population continues to grow in number, representation and age, the health of immigrants, and in particular, immigrants with cancer, will become of increasing socioeconomic and political importance. Working to improve access to care along the cancer cascade from screening to survivorship is an essential move toward equity for this uniquely vulnerable population that are the backbone of the American dream. 



*Patricia Mae G. Santos, MD, MS, is a rising PGY-5 in the Memorial Sloan Kettering Radiation Oncology Residency Program and MPH candidate at the Harvard T.H. Chan School of Public Health. Her research is focused on health disparities and access to cancer care among immigrants and underserved populations.*



*Fumiko Chino, MD, is a cancer researcher, Assistant Attending in Radiation Oncology, and co-lead of the Affordability Working Group at Memorial Sloan Kettering. Her research is focused on the financial toxicity of cancer care, survivorship, health care disparities, equity and access.*



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## STAYING CONNECTED

BY DAVID C. BEYER MD, FASTRO,  
AND JOIN Y. LUH, MD

# THE IMPORTANCE OF PEER-TO-PEER REVIEW FOR RURAL PRACTITIONERS

## AN UPDATE FROM ASTRO'S RURAL TASK FORCE

### ONE OF THE TRUE PLEASURES

of a rural practice is the relationship we form with our patients. We see them in our community. They assist us at the hardware store, stand with us at the grocery store and sometimes even join us for an impromptu lunch. Sharing Thai food with a prior head and neck patient can be surprisingly instructive and gratifying. All these interactions are reminders of the importance we can play in the fabric of our small communities.

In 2019, the ASTRO Board created a task force to assess issues surrounding rural radiation oncology. Several important and valuable insights came out of this project. First, we learned that there is a group of ASTRO members who were anxious to participate but who had never before been volunteers. It was a reminder that every one of us has a role to play within ASTRO but need relevant projects on which to work. We also learned that while rural practices share many challenges with more urban centers, many issues are indeed unique to rural patients and rural practices.

First, though, we had to define "rural." Some rural communities are within an hour from a major city, while others are significantly geographically isolated. For example, the largest town in Humboldt County, Eureka, California, is five mountainous hours from the nearest university medical center south, and seven of the same tortuous hours north. This is not unique to California with some of the most rural radiation oncology clinics located in North Carolina, Michigan and Georgia.

### Challenges for patients

Geographic isolation is often valued by rural communities when they are well but can be a hardship when sick. This is especially important in areas with unpaved roads and mountainous locations. In these areas, using a rideshare app is meaningless if it is not available or if roads are blocked by downed trees, mudslides or snow. Even with lodging offered by an isolated hospital for those traveling long distances, many patients cannot leave their property for long,

due to the responsibilities of land and livestock. Delays and interruptions to daily radiation treatment are common during the winter months when storms affect travel. These hardships are greater for patients needing to access tertiary care.

A lack of redundancy of all medical services pervades these communities. Examples abound. The solo thoracic surgeon may not be available 24/7/365, an aging scanner may be down, FDG may not be available due to weather, etc. Patients are often forced to postpone studies or travel to a distant facility. Advocacy organizations like the American Cancer Society or local cancer support groups like Humboldt County's Breast and Gyn Health Project (ASTRO 2014 Survival Circle Grant Recipient) can help, but funds are limited and many communities lack programs.

Geographic isolation can limit options for patients who face other obstacles we identified, including health illiteracy, internet access and poverty. For example, on the rural Navajo Nation spanning parts of Arizona, Utah and New Mexico, more than one in three households lacks running water. Sadly, 2 million Native Americans countrywide lack this basic necessity many of us take for granted. Rural patients struggle with all the same issues as their urban counterparts as well as additional issues unique to being rural.

### Challenges for practitioners

The clinics, hospitals and radiation oncologists across the country also face unique problems in rural settings. Among the many issues identified by the task force are challenges with clinic supervision, service and maintenance issues, recruiting of physicists and other qualified staff (RN, RTT and CMD in particular), physician recruiting, access to clinical trials, availability of a multidisciplinary team and professional isolation. We also identified telehealth as a major issue, but subsequent events surrounding COVID-19 turned this issue on its head for both rural and urban practices. Although the relaxed regulations allowing more use of telemedicine eased the burden of travel for many rural patients, reimbursement for telephone only visits served as a lifeline for many rural patients lacking internet access, laptops or smart phones.

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## Peer-to-Peer Reviews

As part of our commitment to quality, peer review has become baked into our practices over many years. We identified peer review as one pervasive challenge in rural practices. ASTRO is well positioned to address this issue for the benefit of our members and our patients. Chart rounds and peer review are challenging for every solo practice, but the issues are magnified when the nearest radiation oncologist may be in the adjacent county. To address this need,

we created a matching program for virtual peer-to-peer reviews.

It was intended to provide an opportunity for similar practices, familiar with similar treatment planning systems, to pair up and virtually perform those peer-to-peer reviews that can help every one of us identify potential mistakes and learn new approaches to managing our shared rural practice problems.

This program can be found in the ROhub on the ASTRO website. It has been lightly used for its intended purpose and has also become the backbone of a subsequently created mentorship program. It was created for uniquely rural sites but remains available for any small practice struggling with peer review that is so important for patient safety and practice accreditation.

For overwhelming challenges, the singular conversations and sharing of best practices are critical. As practitioners optimize resources such as peer-to-peer, we can begin to chip away at issues of access and information and build momentum to lay critical groundwork for better health care. 



*David C. Beyer MD, FASTRO, has served ASTRO in many capacities, including past President and Chair. He is currently Medical Director at Cancer Centers of Northern Arizona Healthcare, Sedona and Flagstaff, Arizona.*



*Join Y. Lub, MD, is a radiation oncologist at the Dr. Russel Pardoe Radiation Oncology Center at St. Joseph Hospital, Eureka, CA, and a trustee of the Radiation Oncology Institute and past vice-chair of ASTRO's Health Information Technology Subcommittee.*

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- Access posters on site and online in the Annual Meeting Portal, the MyASTROApp and the Virtual Poster Library. New this year, a section focused on clinical trials in progress.



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## Reinvigorating a Rural Practice Focused on Quality and Safety

**CODY, WYOMING. POPULATION: 10,000.** A small town at the eastern edge of Yellowstone National Park and the location of Cody Regional Health Big Horn Basin Cancer Center, a single linac radiation oncology department run by a solo radiation oncologist, one medical physicist, two radiation therapists and one nurse. Despite the beauty of the town, before Bryce Lord, DO, joined the practice in 2019, it was difficult to retain a radiation oncologist due to the remote practice location. Patients were seen by a rotating group of locums. This posed challenges for consistency and Dr. Lord was set on promoting high quality and safe practice, a passion stemming from his mechanical engineering background and study of quality control and processes.

ASTRO staff interviewed Dr. Lord to learn more about his experiences in a rural practice that uses RO-ILS: Radiation Oncology Incident Learning System® and is seeking accreditation through ASTRO's APEx – Accreditation Program for Excellence®.

### Tell us about your facility's quality and safety journey.

**Dr. Lord:** Given the practice's history, we basically had to start from scratch. We needed to make sure we had an appropriate framework of quality assurance, planning templates, standardized nomenclature, etc. "Rules of the road" were missing, so we needed to draft them and set clear expectations for staff. I brought in RO-ILS and APEx to help set standards, develop policies and procedures, and promote consistency. If someone steps in to cover me, everything can continue smoothly and uniformly.

### What are the challenges in rural settings?

**Dr. Lord:** Being in a remote location as a subspecialist isn't easy. Patients may travel hundreds of miles for imaging or treatment and often receive care at multiple facilities. For example, I coordinate with four different medical oncology groups, each within a different hospital system with minimal staff. Coordination of care between specialists requires clear communication and documentation, lack of which can delay care and lead to errors. Unfortunately, some people have a negative perception of quality in rural settings. We are still early in our journey for APEx, but accreditation


is more than just a feather in your cap in a competitive market, it provides credibility by acknowledging a high standard of practice. It also seems accreditation is becoming more an expected bar and may be a future necessity.

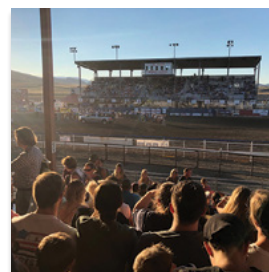
### What benefits have you experienced with ASTRO programs?

**Dr. Lord:** We adopted RO-ILS last year and it's already helped us immensely with instilling a culture of safety. Upon my arrival, I was told that "we have never made a mistake." Since then, the focus shifted from blame to fixing the problem, so we don't harm a patient. RO-ILS makes it easy for us to collect our safety events and then sit down to discuss

issues, the root cause and possible solutions. Before our implementation of RO-ILS, people were worried about admitting a mistake, but we've seen a big change in staff openness to discussion and initiative to improve processes. A benefit of working with a small group is being nimble to quickly make process changes and educate staff. It's been a good collaborative project with the whole team, and we benefit from RO-ILS education to learn what other error pathways and mitigation strategies exist.

### Any concluding thoughts?

**Dr. Lord:** Nobody wants to be involved in a sentinel event. By studying how mistakes are made, we all can improve our processes. RO-ILS allows us to collect data and evaluate. APEx gives a structure and format for quality care. I believe that's where the data and programs like RO-ILS and APEx come in – they help us better ourselves and not let things slip through the cracks. 



Photos top to bottom: Bryce Lord, DO; Cody, Wyoming: Rodeo Capital of the World; Yellowstone's Grand Prismatic Spring

## ABR Commitment to Equity and Inclusivity

**THE MISSION OF MEDICINE**, and of radiation oncology, is to deliver outstanding care to all in need. To best accomplish this mission, physicians should reflect the breadth of the treated population. Most patients feel comforted when treated by a physician they believe can understand their situation and give knowledgeable advice. That is the importance of diversity, equity and inclusion.

Marques Bradshaw, MD, a nuclear radiologist at Vanderbilt University, wrote about the struggles of underrepresented minorities in residencies that function with an inequitable sense of belonging, bias and discrimination. Dr. Bradshaw reminded members of the American Board of Radiology (ABR) that statements and policies that are only surface level are insufficient to move the needle to a more equitable society.

In the pandemic, the disease severity of those with COVID-19 was significantly higher for non-white patients.<sup>1</sup> When restrictions were lifted, there was an early exacerbation of inequities as patients from communities with higher rates of poverty, unemployment and chronic disease were less likely to undergo examinations. To combat these modern examples of health care disparities, the expansion of diversity in radiation oncology is crucial. A diverse workforce is associated with efforts to increase access and elimination of racial barriers to care.<sup>2</sup>

Founded to protect the public by assessing and certifying physicians and physicists, the ABR is accountable to the medical profession and the patients they treat. The ABR can assist in efforts to eliminate structural barriers to equitable care by looking critically at the qualifying and


certifying exam process. With the appointment of a Diversity, Equity and Inclusion (DEI) committee, the ABR seeks to ensure sensitivity to DEI issues and help expand the diversity of working radiation oncologists and radiologists.

With this mission at the forefront, ABR Trustee Paul J. Rochon, MD, was chosen to lead the committee in the fall of 2021. As a starting point, Dr. Rochon shared the article “How We Got Here: The Legacy of Anti-Black Discrimination in Radiology,”<sup>3</sup> a sobering educational saga. The newly formed committee assumed responsibility for making recommendations and supporting initiatives to develop and nurture an equitable and inclusive environment for all candidates, diplomates, volunteers and staff.

The ABR supports inclusiveness by avoiding scheduling exams during religious holidays, critically examining questions to incorporate gender-neutral terminology, introducing a new residency leave policy, and ensuring that the ABR is compliant with the Americans with Disabilities Act to accommodate volunteers, candidates, diplomates and staff. A current priority is to address unconscious bias, as even unintentional bias could impact the exam experience for candidates. An educational series is being developed for ABR volunteers and staff as the next step to fostering a culture of social justice and belonging.

Further emphasizing the commitment to society, in 2021, the ABR became an inaugural member of the Radiology Health Equity Coalition (RHEC).<sup>4</sup> The RHEC is a group of 10 patient-focused societies with the intent

to “collect, assess and disseminate resources and best practices, advocate for and connect with patients and community members, and collaborate on programs and services to improve access and utilization of preventative and diagnostic imaging.”<sup>5</sup> With national representation from many radiologic specialties, the RHEC has a unique opportunity to affect change involving all aspects of patient care, from screening through diagnosis and treatment, to long-term follow-up for underserved or underrepresented members of the population.

The ABR and all health care-related groups are learning and addressing inequity in health care as well as unconscious bias built into the system. While enacting transformative change may take time, the first step is identifying the issues and engaging with thought leaders. The ABR DEI Committee and membership in the Radiology Health Equity Coalition demonstrate that the ABR is dedicated to upholding their obligations to the entire population. 

### References

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## Red Journal Article on Geographic Differences and RT Nonadherence: An Interview with Bonny B. Morris PhD, MSPH, RN

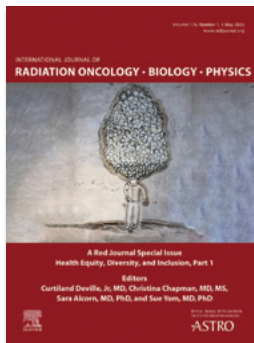
Dr. Morris, thank you so much for speaking with *ASTROnews* about your recent article in the Red Journal, “Sociodemographic and Clinical Factors Associated with Radiation Treatment Nonadherence and Survival Among Rural and Nonrural Patients with Cancer,” published in the May 2023 issue.

### Could you please give a brief overview of your study and its findings?

**Dr. Morris:** The goal of this study was to determine sociodemographic and clinical factors associated with missing RT fractions among patients with cancer living in rural and nonrural areas, determine how these factors may influence survival, and assess for disparities in nonadherence and survival. We examined cancer registry, medical records and billing claims data at a safety net academic medical center (n=3077, 34% black, 14% rural). We found treatment nonadherence to be prevalent, and the proportion of missed fractions provided the best model fit statistics and prediction of survival to be used as the indicator in nonadherence analyses. Rural patients with a treatment delay were more likely to miss more fractions of RT and had worse overall survival, even after controlling for the proportion of RT missed. Other factors that contributed to nonadherence were marital status (patients who were widowed), later stage cancer and a lung cancer diagnosis.

### Why did you engage in this project?

**Dr. Morris:** Unfortunately, patients who live in rural areas have a higher cancer mortality rate than those living in nonrural areas. Given that cancer treatment nonadherence is associated with higher rates of cancer recurrence and survival, we wanted to see if geographic differences in nonadherence could be contributing to the higher cancer mortality rate observed among rural residents. Further, nonadherence has been defined in various ways across the literature, so we wanted to see what definition of nonadherence had the biggest impact on survival to recommend as a clinically meaningful definition to use in future research.



### What did you find surprising about your research/results?


**Dr. Morris:** Maybe less surprising than it is a call to action: Patients living in rural areas who experienced a treatment delay were more than **twice as likely to die** as nonrural residents who experienced a delay, and nearly twice as likely as rural residents who did not experience a delay. Put another way, the two-year survival rate was **76%** for nonrural residents who did not experience a treatment delay versus **27%** for rural residents who experienced a treatment delay.

### How can this article be used to inform clinical practice?

**Dr. Morris:** Not receiving the prescribed radiation treatment plan impacts patients' chances of survival, especially for patients living in rural areas who miss treatments at the beginning of their treatment course. The health care system can play an important role and, I would say, has an ethical responsibility to reduce and better yet eliminate these disparities. This could take the shape of targeted support through programs like patient navigation. Patient navigation is an evidence-based intervention that improves health equity across the cancer continuum by addressing social determinants of health to improve symptom management, treatment adherence, quality of care and ultimately reducing cost for patients, providers and the larger health care system. However, until patient navigation is reimbursed by payors as a covered service, navigators will only be available in health systems that are able to invest in navigation (often relying on short-term grant funding that limits sustainability and growth).

The American Cancer Society (ACS) is tackling the gap in patient navigation coverage by launching the ACS CARES program (Community Access to Resources, Education, and Support). Beginning in June 2023, people with cancer and caregivers can use the ACS CARES digital app, connect with another person who has experienced cancer, call a cancer information


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specialist 24/7, or engage with a navigation volunteer in person at one of our four pilot health systems to more easily and effectively access information and resources to support their cancer journey. We have specifically included health systems that serve rural residents and are recruiting volunteers who have navigated cancer while living in a rural area to enhance navigation support for the rural population and reduce the rural cancer disparities observed in our paper. 

*Bonny B. Morris, PhD, MSPH, RN, leads patient navigation at the American Cancer Society, where she conducts research and implements programs like ACS CARES to reduce barriers to care and cancer disparities, including rural disparities.*

*This article is available at [https://www.redjournal.org/article/S0360-3016\(22\)00638-1/fulltext](https://www.redjournal.org/article/S0360-3016(22)00638-1/fulltext), and is part of the Red Journal's two-part special edition on Health Equity, Diversity and Inclusion in Radiation Oncology.*

*Continued from* **MAKING CANCER HEALTH DISPARITIES FUNDING A PRIORITY IN LOW-RESOURCE SETTINGS**

Vulnerable patients are treated at a variety of institutions in the United States, ranging from larger safety-net hospitals in metropolitan areas, to smaller suburban or rural community practices. In each of these settings, systematic strategies are necessary to address health disparities, optimize cancer care and improve outcomes. There are many challenges inherent to treating cancer patients in low-resource environments, but with those challenges comes the opportunity to overcome long-standing structural and systemic inequities in health care delivery and improve the lives of patients that may not receive high-quality, cutting-edge cancer care otherwise. Those individuals who choose to rise to the occasion will appreciate the rewarding nature of this important work. 



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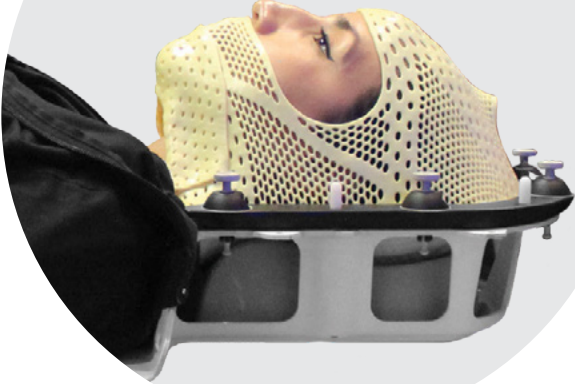
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