

Care Provider or Service Provider: What Should the Role of Radiation Oncologists Be in the Future?

Neha Vapiwala, Lawrence N. Shulman, and Charles R. Thomas Jr

University of Pennsylvania, Philadelphia, PA; and Oregon Health & Science University, Portland, OR

As cancer therapies and technologies rapidly proliferate and evolve, clinical decisions about the integration or substitution of one treatment option with another are continually confronted by oncology patients and providers. As members of the cancer care team, radiation oncologists (ROs) can function primarily as service providers at the behest of other specialists or as care providers more fully engaged in the decision-making process with colleagues and patients. As the eras of personalized medicine and patient-centered care merge, which role will the RO of the future choose to play for an individual patient and for the larger cancer community?

At the turn of the 19th century, the serendipitous discoveries of x-rays and naturally occurring radioactivity by William Roentgen and Henri Becquerel, respectively, paved the way for radiation to become the world's first effective antitumor "drug." This phenomenon in turn sparked the beginnings of multidisciplinary cancer treatment, and the field of radiation oncology was born. Today, approximately two thirds of all patients with cancer may be referred to ROs at some point in their illness.^{1,2} As advanced surgical techniques and groundbreaking systemic therapies have emerged, so too have innovative technical capabilities pertaining to radiation treatment planning and delivery. Diagnostic image fusion, inverse planning, stereotactic localization, and particle beam therapy are a few examples of the physics-based sophistication that has revolutionized

modern-day radiotherapy. For many solid malignancies, incorporation of radiation has promoted the advent of organ preservation, protocols with less-radical resection, and/or dose-reduced chemotherapy. Multimodality approaches can optimize tumor control ideally with minimally overlapping toxicity profiles. Coupled with a deeper understanding of tumor and radiation biology, these advances have enhanced the therapeutic index of radiotherapy such that morbidities previously deemed unavoidable are now minimized if not altogether avoided.

As this modern-day integration of surgery, systemic agents, and radiation becomes both more common and more complex, effective communication and care coordination is increasingly requisite at all stages of the therapeutic spectrum, from definitive therapy to palliation.³ Furthermore, advancement beyond the existing treatment paradigms and into more innovative multidisciplinary frontiers, such as radiation and immunotherapy, necessitates the input of all cancer providers. Patients benefit from the perspectives of all involved cancer specialists in reviewing tailored therapeutic options and developing personalized treatment plans. Just as providers have to adapt to the dynamic needs of the patient and the growing quantity and quality of the therapeutic arsenal, the relative roles of ROs and surgical and medical oncologists have to adapt as well. For decades, surgery was considered the only cancer treatment

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option available for most tumors, and the Commission on Cancer in fact emerged from the American College of Surgeons in 1922. In the 1950s and 1960s, the pioneering efforts of Vera Peters and Henry Kaplan in Hodgkin lymphoma treatment put the RO in the driver's seat. With the emergence of potentially curative systemic therapies starting in the 1970s, an inflection point occurred as radiation therapy became more of an ancillary service administered at the request of surgeons or medical oncologists. Consequently, the RO's role on the team eroded into that of consultant who relies on referrals and provides a service rather than as a caregiver who shares ownership of the patient.⁴ Deep engagement of the RO in patient management lessened. Such inequities—real or perceived—can compromise team cohesiveness and hinder the team's ability to deliver optimal personalized care. Furthermore, by virtue of the inherently smaller population, ROs tend to be relatively underrepresented in the room, whether it is an institutional tumor board or a national guidelines panel. So can ROs evolve nimbly and sufficiently enough to meet the needs of tomorrow's patient with cancer? Should the pendulum swing back from therapists (ie, technicians poised to deliver sophisticated radiation treatments when directed) to oncologists and full-fledged members of a multidisciplinary team responsible for patient-centered care?

The latter is already happening to some degree. ROs play key roles in the development and administration of innovative therapeutic strategies for patient populations that previously may not have benefited from radiation. A prime example is the aptly named RADVAX paradigm in which hypofractionated radiotherapy to isolated index lesions is hypothesized to potentiate the activity of immune checkpoint inhibitors ([ClinicalTrials.gov](https://clinicaltrials.gov/ct2/show/study/NCT02303990) identifier: NCT02303990). In addition to advancing our understanding of the underlying mechanisms of action behind some of these newer agents and expanding the therapeutic repertoire for a variety of malignancies, such clinical trials foster team-based patient assessment and management, with ROs very much at the table. Not all centers will have the infrastructure for such vanguard pursuits, but the enabling and encouragement of such activity benefits the larger oncology patient and provider community. More standard approaches, such as the choice between surgery and stereotactic body radiation therapy for the treatment of localized lung cancer, require nuanced and individualized discussions with patients on the potential benefits and risks of each option when weighed

against the individual patient's medical status and comorbidities. Full engagement of the RO with other team members and the patient will optimize this process. Evidence-based decisions about when radiation is required and when it can be omitted are often complex and must occur in the context of overall management; radiation postlumpectomy for older women with hormone receptor-positive breast cancer or postmastectomy on the basis of response to preoperative therapy are prime examples.

Another area where an RO can play a key role in patient management is palliative care and symptom management.⁵⁻⁷ Establishment of the Society for Palliative Radiation Oncology was a symbolic step to enhance RO training in palliative care, but membership currently comprises approximately 130 residents and attending physicians of the American Society for Radiation Oncology's more than 10,000 members. Radiation oncology also is one of only six Accreditation Council for Graduate Medical Education-recognized specialties that can sponsor the American Academy of Hospice and Palliative Medicine's hospice and palliative medicine fellowship program. Yet, exceedingly few ROs have pursued this path despite increasing stereotactic body radiation therapy use for limited metastatic disease (ie, solitary metastases, oligometastases). This growing indication offers ROs renewed opportunities to better engage in the ongoing medical comanagement of patients with more-advanced disease.

Beyond the treatment phase, the RO's role in survivorship clinics traditionally has been variable.⁸ Some ROs (alone or in collaboration with departmental nurse practitioners/physician assistants) regularly follow patients for decades, whereas others may discharge care to other cancer providers until further radiation therapy is needed.⁹ The latter approach may be appropriate at times in patients in whom long-term radiation toxicity concerns are low and/or in those who are actively receiving systemic therapy. But for conditions where short- and long-term radiation toxicity can be significant, abdication of post-treatment responsibility to providers not trained in radiation can be a disservice to the patient who manifests late radiation complications unfamiliar to other clinicians.¹⁰ It also impedes the RO's ability to assess the impact of radiation therapy on a given patient from a practice quality improvement standpoint, lessons only a longitudinal perspective can provide.

Another potentially effective step forward is development of more RO-staffed inpatient services in the United States, but

multiple hurdles to widespread adoption of this exist, including legal and credentialing issues and the need for buy-in from all affected stakeholders. Successful precedents exist. Princess Margaret Cancer Centre at the University of Toronto's Medical and Radiation Oncology Inpatient Unit enables ROs to admit and care for patients who require treatment or toxicity management.¹¹ In the United States, effective collaborative partnerships among ROs, hospitalists, medical oncologists, and palliative care specialists highlight the opportunity and ability of ROs to help to guide the care of hospitalized patients with cancer.⁵ Relevant US professional societies and associations could explore a pilot to develop this specialized RO-hospitalist model further, which is a solid step toward addressing inpatient staffing needs and more directly addressing the longstanding criticism that ROs do not, cannot, or will not manage the problems they cause.

In summary, tomorrow's RO will be defined by how this inflection point is navigated in the near term. If supported by the care team and relevant accreditation and regulatory bodies, these expansions to the scope of practice could capitalize on the RO's ability to contribute both general medical and radiation-specific skills.¹² The successful accomplishment of these changes in a nonthreatening, collaborative, and win-win-win manner will require constructive engagement and input from all cancer providers, with the ultimate shared goal of an optimally functioning multidisciplinary team that provides timely, efficient, and thoughtful clinical care throughout and beyond cancer diagnosis and treatment. We hope that today's cancer provider community is poised for this reevaluation and evolution toward a more patient-centered paradigm. **JOP**

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Corresponding author: Neha Vapiwala, MD, Department of Radiation Oncology, Perelman Center for Advanced Medicine, University of Pennsylvania, 3400 Civic Center Blvd, TRC 2 W, Philadelphia, PA 19104; e-mail: vapiwala@uphs.upenn.edu.

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AUTHORS' DISCLOSURES OF POTENTIAL CONFLICTS OF INTEREST

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Neha Vapiwala

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Charles R. Thomas Jr

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Lawrence N. Shulman

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