

# SNMMI Nuclear Oncology Fellowship: Enhancing Cancer Care Competencies

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Radiopharmaceutical therapies (RPTs) for cancer have evolved rapidly in recent years. Numerous clinical trials and studies are complete or underway, and results are demonstrating favorable outcomes for new agents aimed at targeting specific types of cancer.

Nuclear medicine, now used as a complement to and in conjunction with surgery and radiation, chemo-, immuno- and hormonal therapies, requires additional training to enhance competencies for comprehensive cancer care, says Richard Wahl, MD, Elizabeth E Mallinckrodt Professor and director of Mallinckrodt Institute of Radiology at Washington University School of Medicine in St Louis, Missouri.

“Nuclear medicine’s seat at the cancer treatment table has been somewhat more limited to diagnostic [care], directing and informing therapy as opposed to giving therapy in a broadening range of cancers,” says Dr Wahl, also the immediate past president of the Society of Nuclear Medicine and Molecular Imaging (SNMMI).

“But recently, several radiopharmaceuticals have proven to be effective as cancer therapies beyond thyroid cancer and neuroendocrine tumor therapies. As therapies increase in complexity, nuclear medicine physicians really need to know more about the broader landscape of nonradioactive therapies, too.”

SNMMI, recognizing that nuclear medicine’s role must be prominent in cancer treatment teams, approved the term “nuclear oncologist” in 2020, and recently secured funding for two one-year nuclear oncology fellowships at training institutions to be determined by a selection process.

Fellows will expand their clinical skills in RPT to learn more about diagnostic imaging procedures

that guide therapies, in-depth patient assessment processes, RPT integration with external-beam radiation and other therapies, appropriate care pathways for FDA-approved radiopharmaceutical therapies, and updates on investigational radioisotopes and molecules. Learning to manage patient toxicities with colleagues across cancer care specialties will be vital.

“Complex treatments incorporating various combinations of chemotherapy, immunotherapy, external-beam radiation, radioembolization, and radiopharmaceutical therapies are being used in cancer care.

“When cases are presented at multidisciplinary tumor boards, having someone who specializes in the domain of nuclear oncology will bring more informed recommendations in personalized cancer care,” explains Munir Ghesani, MD, system chief of nuclear medicine at Mount Sinai Health in New York City and president of the SNMMI.

“Having a nuclear oncologist who is not just familiar with what [they do], but with everything else that’s going on with the patient outside nuclear medicine is critical.”

Nuclear oncologists not only contribute at tumor boards but will be expected to collaborate with other care team members for the duration of cancer treatment, often through multiple cycles. The patient’s co-existing and pre-existing conditions, as well as the impact of other available therapies, will play a role in nuclear oncology’s recommendations and the sequence of treatments. For example, research recently showed that prostate cancer patients who received one cycle of targeted RPT before going into the OR had better surgical outcomes,<sup>1</sup> Dr Ghesani reports.

“These multidisciplinary treatments are becoming

ing more commonplace, and collaborations are important. A trained nuclear oncologist who has the knowledge of that literature and other treatments can provide the appropriate recommendation on which specific modalities are optimal in the patient care armamentarium, as well as their sequence and the logic behind their use," he says, noting that as RPT use continues to increase, the complexity of the relationships with other providers will also expand.

"It is no longer sufficient for a nuclear medicine physician to offer a diagnostic exam interpretation and generate a report. As radiopharmaceutical therapies are increasingly being used, we need to follow patients closely, re-evaluate periodically and determine the rationale for continuing RPT. This requires considerably more clinical knowledge and interactions with colleagues in other specialties, which is why getting this fellowship in place is so important," Dr Ghesani says.

Eligible applicants are SNMMI members and US or Canadian unrestricted licensed physicians who will have completed training in nuclear medicine, nuclear radiology, or diagnostic radiology before entering the fellowship. Applicants must also be on a path to authorized user status to administer RPTs.

Training sites looking to host the one-year nuclear oncology fellowship will be expected to include curricula with rotations in medical oncology, uro-oncology, radiation oncology, gastrointestinal oncology, surgical oncology, thyroid oncology, pathology rotations in nuclear medicine, and have access to most or all of the approved RPTs, imaging agents, and referral sources.

Engagement in an active research program in radiopharmaceutical therapy will also be important. Sites may be an SNMMI center of excellence in radiopharmaceutical therapy, but it is not a requirement, Dr Wahl adds. The organization will soon have an application program in place, and will officially announce a competition for the fellowships through its Mars Shot program, introduced at the annual meeting in June.

The ultimate goal of any new training pathway, says Dr Ghesani, is to receive formal recognition via approval from the Accreditation Council for Graduate Medical Education (ACGME). "Having the SNMMI play a key role in getting these nuclear oncology trainees started in the pathway is so important. Once we see the success of the concept, we can roll it out in more institutions and make more data available to ACGME for subsequent approvals down the road," he says.

Currently, centers vary in their approaches to prescribing RPTs depending on their cancer management paradigm. For example, some radiation oncologists play a large role in administration of RPTs, while at most US institutions, they have little exposure to radiopharmaceutical training or practice. In Europe and most of the world, RPT is entirely the purview of nuclear medicine, Dr Wahl says. In some cases, complexity of administration plays a role, too, he adds, noting that some agents require a fixed dose or patient weight for dose calculation, while some newer and investigational agents require patient-specific dose adjustment driven by dosimetry.

"The evolution of RPT will likely be more use of radiopharmaceutical dosimetry involving gamma or PET imaging of a tracer or of the therapy itself to define how much radiation dose we give the tumor and to key normal tissues that may be dose-limiting. With nuclear imaging, dose planning, validation, and adjustment, this falls into the current wheelhouse of nuclear medicine," Dr Wahl says, adding that there is "a lot of physics expertise in rad onc that would, no doubt, be valuable to help grow this space as well."

In a recent look at scope of practice for RPT among radiation oncologists, the American Society for Radiation Oncology noted limited data on usage, but survey respondents showed a strong interest in prescribing RPTs.<sup>2</sup> Barriers included interspecialty relations, treatment infrastructure, lack of training and financial considerations.

"In my own center we have evolved a cooperative program where both nuclear medicine and radiation oncology are involved in the care of radiopharmaceutical therapy patients. Our goal is to be collaborative, as opposed to competitive," Dr Wahl says. "It comes down to the people: those who have the right training and experience are the right ones to do the therapy."

## References

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