

Call the Nuclear Oncologist

Richard L. Wahl, MD, SNMMI President

The field of nuclear medicine began with a focus on therapy. Early applications of radiopharmaceutical therapy included the pioneering efforts of the sometimes forgotten Anastas Kocarev, a Macedonian physician who worked with Marie Curie on radium therapies in the 1920s. In 1941, ^{131}I was used for the therapy of thyroid disease by Dr. Saul Hertz and colleagues. Early nuclear medicine physicians included endocrinologists, with a focus on thyroid disease, and internists, among others. The inventions of the rectilinear scanner, gamma camera, PET, and PET/CT imaging, as well as development of innovative radiopharmaceuticals utilizing radioisotopes such as $^{99\text{m}}\text{Tc}$ and ^{18}F , changed the trajectory of nuclear medicine to a more diagnostic path. Now, with the continuing growth and evolution of radiopharmaceutical therapies—such as those developed for non-Hodgkin lymphoma, paragangliomas, neuroendocrine tumors, and bone metastases in castration-resistant prostate cancer—and the promise of new prostate-specific membrane antigen targeting agents in prostate cancer, as well as the growth in α -emitter treatments, we see nuclear medicine moving at accelerating speed back toward its therapeutic roots.

Our Practices Will Change and Evolve

Patients undergoing the broad range of cancer therapies are often under the care of a multidisciplinary team of specialists that frequently includes medical, surgical, interventional, and radiation oncologists. In addition, pathologists and nuclear medicine practitioners play important roles. As the new radiopharmaceutical therapies become more and more commonplace, the makeup of teams will expand, and roles will take shape and crystallize. Nuclear medicine must be a key and integral part of these treatment teams.

Nuclear medicine professionals have been the innovators and are currently most often the experts leading radiopharmaceutical therapy globally, but this may not always be the case. With so many professionals experienced and trained in closely related disciplines, there is ample opportunity for others to assume a growing role in radiopharmaceutical therapy. In the future, our role could grow further, but it could also be a more modest role—it all depends on the path we take and how we plan for that future.

We Need To Move Now To Define Our Path

If we are to stay critically involved in leadership in this new, fast-moving area of medicine, nuclear medicine physicians need to maintain a clearer and more distinct profile for the public and within health care. We need to be recognized as the specialists to whom cancer patients are sent for

evaluation for radiopharmaceutical therapy and, if appropriate, treatment. We must clearly be expert and recognized for our competence in radiopharmaceutical therapy of cancer. We need to take definitive action.

In May 2020, the SNMMI board of directors approved the term “nuclear oncologist” to define a nuclear medicine physician who works with radioisotope therapies. One cannot be a nuclear oncologist without being a nuclear medicine physician, because the nuclear medicine body of knowledge is essential to the role. To transition from nuclear medicine specialists to nuclear oncologists, however, several steps must be taken.



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First: Understand the Overall Cancer Management Paradigm

First, nuclear medicine professionals need to understand the bigger picture. We need to know how to better manage patients with cancer—not only with nuclear therapies but also with non-nuclear therapies. We need to take on a bigger role in the management and oversight of cancer patients; we need to take increased ownership of patients’ well-being while they are under our care. We need to understand all the care options and how they fit together: which options are best under which circumstances? Where does radiopharmaceutical therapy fit into that landscape, given the remarkable evolution of nonradioactive cancer therapies of a variety of types in the “precision medicine” revolution?

Next: New Knowledge, Experience and Training

To achieve that new level of understanding, nuclear oncologists will need wider exposure, an expanded body of knowledge, and additional/refined training. For example, we will need to gain more in-depth knowledge about the specific diseases that utilize both radiopharmaceutical and non-radioactive therapies. We will need increased involvement in medical, surgical, interventional, and radiation oncology to understand how information from nuclear medicine and molecular imaging impacts and interacts with other therapies. Increased involvement in multidisciplinary conferences can help to achieve this goal to understand new elements of research and care.

To have full command of this information, changes will likely be needed in nuclear medicine training programs, which must continue to evolve. There has been a push to

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