

Ensuring Quality and Safety in Nuclear Medicine Imaging and Therapy

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The field of nuclear medicine and molecular imaging has seen extraordinary advances over the past several years. From the approval of ^{177}Lu -DOTATATE and the promising published results of the ^{177}Lu -PSMA-617 phase 3 VISION trial in prostate cancer to advances in quantitative SPECT imaging and commercial internal radiation dosimetry software, we have made great strides in providing exceptional patient care. As more patients with prostate cancer benefit from nuclear medicine imaging and therapies, we must be prepared to safely expand our clinical services. SNMMI offers programs and services to ensure the quality and safety of these innovations. By supporting the field in this way, SNMMI helps to pave the road for the growth of nuclear medicine and molecular imaging domestically and around the world. SNMMI helps ensure that appropriately trained professionals, excellent facilities, and the best protocols are available to safely deliver growing patient care services in the radiopharmaceutical therapy space.

SNMMI provides a wide range of educational opportunities to help nuclear medicine physicians, technologists, physicists, pharmacists, radiologists, and others develop expertise in the latest innovations in nuclear medicine and molecular imaging. These educational offerings are presented at SNMMI's Mid-Winter and Annual Meetings and other in-person conferences, as well as virtually through online education programs, case reviews, and continuing education articles in *The Journal of Nuclear Medicine*. A record number of programs have been made available during the pandemic.

The society has taken several steps to ensure that comprehensive education is available on advances in radiopharmaceutical therapy. An inventory of existing SNMMI continuing education material related to therapy—including articles, courses, webinars, videos, specialty conferences, and more—has been curated and reviewed for gaps in content. In addition, SNMMI has conducted a thorough needs assessment for residency training programs. The results of this assessment are being analyzed and used to develop new content for students. SNMMI is also offering support for new therapy fellowships and for practitioners. The Therapeutics Conference in March 2022 will be delivered in person and will provide a comprehensive update on radiopharmaceutical therapies. With such a robust education program, we are confident that our trained nuclear medicine professionals can meet the needs of their patients, serving as their “nuclear oncologists” during their therapeutic interactions.

To ensure excellence in imaging, SNMMI provides guidance for nuclear medicine and molecular imaging professionals through appropriate use criteria, value and quality metrics, and procedure standards. By standardizing best practices to enhance operational efficiency, we can improve the quality of nuclear medicine and molecular imaging.

The SNMMI Dosimetry Task Force has been focused on developing processes and standards for performing dosimetric measurements of radiopharmaceutical therapy in research and clinical settings. A special *JNM* supplement was published in December 2021 comprising 7 articles that address both the rapid progress and the challenges in applying patient-specific radiation dosimetry to guide radiopharmaceutical therapies. The task force is working on reimbursement issues, a compendium of dosimetry software and hardware, and a white paper on the use of dosimetry in drug development and clinical practice, as well as compiling data from the SNMMI ^{177}Lu Dosimetry Challenge. The dosimetry supplement illustrates SNMMI's leadership

in this important space, which is likely to be increasingly important in precision nuclear medicine.

SNMMI is also developing a Radiopharmaceutical Therapy Registry (RaPTR) that will provide the framework to support a community of practices committed to patient-centered imaging and therapy, patient safety, optimized radiation dose, improved outcomes, practice transformation, and innovation through ongoing data collection and quality improvement. RaPTR will initially focus on ^{177}Lu -DOTATATE data, and launch is planned for January 2022.

To further promote quality and safety in therapy, SNMMI has launched a Radiopharmaceutical Therapy Center of Excellence Program (CoE) designed to further raise the quality bar on centers performing radiopharmaceutical therapies. Its mission is to establish criteria and standards to recognize facilities that provide excellence in clinical practice, research, and teaching. Certification and accreditation are planned for these centers, which will provide a clinical and comprehensive level of assessment. These programs will help ensure patients and providers that sites performing therapies meet specific standards. The Therapy CoE is dedicated to advancing quality patient care and promoting health care by ensuring that these centers meet rigorous standards for transdisciplinary, state-of-the-art research focused on developing new and better approaches to preventing, diagnosing, and treating cancer.

In addition, a comprehensive resource for nuclear medicine therapy has been launched for SNMMI members. Available at <https://therapy.snmmi.org>, the SNMMI Radiopharmaceutical Therapy Central portal provides information and content related to education, research, dosimetry, clinical guidelines, coding and reimbursement, accreditation, and other aspects of radiopharmaceutical therapies. SNMMI will continue to monitor the content of this portal and provide feedback for regular updates.

With the volume of recent advances in radiopharmaceutical therapy, however, challenges still remain. Patient service needs will be large, and we must meet the needs of our patients, safely. A recent survey published in *Advances in Radiation Oncology* showed that more than half of radiation oncologists would like to prescribe radiopharmaceutical therapy but cite infrastructure, interspecialty relations, lack of training, and financial considerations as barriers to doing so. Nuclear medicine facilities generally have training and equipment in place for radiopharmaceutical therapies.

No one can work in a vacuum, and collaboration and teamwork are critical in our efforts to ensure quality and safety. Teams of physicians working together for the best in patient outcomes through effective collaborations are often the best approach. SNMMI will continue its work with its partners to address all aspects related to quality and safety for new innovations in nuclear medicine and molecular imaging. We are confident that with dedicated training and resources, our nuclear medicine and molecular imaging professionals can improve the health of patients around the world and that the term *nuclear oncologist* will be more widely applied to discuss nuclear medicine physician activities in this space.



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