

Standardizing Radiation Dose in Pediatric Nuclear Medicine

SNM and the Society of Pediatric Radiology (SPR) recently approved the new North American Guideline for Radiopharmaceutical Dose for Children. Working with the Alliance for Radiation Safety in Pediatric Imaging, the groups have expanded their pediatric radiation protection initiative by standardizing doses (based on body weight) for 11 nuclear medicine procedures commonly performed in children and providing a consensus on minimum radiopharmaceutical doses used in pediatric nuclear medicine.

“Children may be more sensitive to radiation from medical imaging scans than adults. A radiopharmaceutical dose too low may risk poor diagnostic image quality, which may in turn require a repeat study that needlessly exposes a young patient to additional radiation. Doses too high may expose the child to unnecessary radiation exposure without benefit,” said S. Ted Treves, MD, strategy leader of the Image Gently Nuclear Medicine Initiative, chief of nuclear medicine and molecular imaging at Children’s Hospital Boston (MA), and professor of radiology at Harvard Medical School. “It is important that we standardize dose to help ensure that all pediatric nuclear medicine providers consistently get medical images that they can read effectively while only using the amount of radiation necessary to obtain these images. These latest SNM and Image Gently efforts are a major step forward in this area of medicine.” These new guidelines are available on the SNM (www.snm.org), SPR (www.pedrad.org), and Image Gently (www.imagegently.org) Web sites.

As part of this effort, the alliance has produced a new education brochure on pediatric nuclear medicine for parents and providers. The new brochure, “What You Should Know About Pediatric Nuclear Medicine and Radiation Safety,” can help families and physicians gain a better understanding of the complex factors involved in providing safe, effective nuclear medicine examinations to children. The Image Gently campaign encourages pediatric nuclear medicine specialists to download the new brochure and make it available to parents in waiting rooms and offices. A dedicated section of the web site, now under construction, will offer parents the latest information on pediatric imaging so they can better understand the benefits and concerns associated with nuclear medicine.

“This brochure is a tremendous resource to parents about radiation risk and safety. A group of pediatric radiologists in pediatric nuclear medicine from the Society for Pediatric Radiology and SNM collaborated to ensure it emphasizes the importance of not only lowering dose but lowering it effectively and tailoring it to each patient,” said

Marguerite T. Parisi, MD, member of the Image Gently Pediatric Nuclear Medicine Panel, chair of the SPR Committee on Nuclear Medicine, and chief of PET/CT and ultrasound at Seattle (WA) Children’s Hospital.

The Alliance for Radiation Safety in Pediatric Imaging began as a committee within the SPR in late 2006. In 2007, SPR leadership reached out to friends and colleagues in the American College of Radiology, the American Society for Radiologic Technologists, and the American Association of Physicists in Medicine, who launched the alliance and Image Gently campaign in 2007. Today the effort includes 58 participating organizations and represents more than 800,000 health care professionals. Since its inception, the campaign has had a central message urging appropriate radiation doses for children. The new nuclear medicine guidelines follow this message by urging practitioners to:

- “Child-size” the amount of radiopharmaceutical used;
- Individualize doses and technique based on the specific clinical task;
- Involve physicists to review adult and pediatric nuclear medicine protocols;
- Work collaboratively with technologists to implement changes; and
- Be familiar with recommended administered activities.

“We pediatric nuclear medicine practitioners are working together to standardize dose so that physicians who do not work with children on a day-to-day basis will have a resource and be able to find things to help them do better imaging,” said Michael J. Gelfand, MD, member of the Image Gently Pediatric Nuclear Medicine Panel, past-president of SNM, and chief of nuclear medicine at Cincinnati (OH) Children’s Hospital. “Dose reduction and standardization are at the top of the mind for radiologists of all imaging specialties. This effort reflects our commitment to maximizing benefit and reducing any possible risk for our patients.”

“This is a great accomplishment. SNM Practice Guidelines are in the process of being updated, and the new SNM guidelines will incorporate the dose recommended in the American Guideline for Radiopharmaceutical Dose for Children,” said Dominique Delbeke, MD, PhD, SNM president and director of nuclear medicine and positron emission tomography at Vanderbilt University Medical Center (Nashville, TN).

Alliance for Radiation Safety in Pediatric Imaging