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NEWS

RSNA Press Release

Thyroid Treatment Can Trigger Homeland Security Detectors

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At A Glance

- Diagnostic nuclear medicine tracers — such as those used in PET scans, bone scans and cardiac scans — can be detected in the body for periods between 24 hours and 30 days.
- Therapeutic radiopharmaceuticals, such as iodine used in the treatment of thyroid disorders, may persist in detectable amounts for up to three months following therapy.
- Radioactive tracers used in nuclear medicine can set off portable Homeland Security radiation detectors.
- In 2002, 18.4 million nuclear medicine procedures were performed in the U.S.
- The U.S. Department of Homeland Security estimates that 10,000 portable radiation detectors have been procured by state, local and federal officials.

CHICAGO - Medical procedures such as iodine therapy, a popular thyroid treatment, can result in patients triggering radiation detectors for up to three months after treatment, according to a study presented today at the annual meeting of the Radiological Society of North America (RSNA).

Diagnostic nuclear medicine procedures, including FDG PET scans, bone scans and cardiac scans, can have a similar effect, although for shorter periods.

"The nuclear medicine community has been aware that patients set off detectors, but now we expect it to become a more common occurrence with the increasing number of extremely sensitive portable Homeland Security radiation detectors deployed among security personnel," said the study's author, Lionel Zuckier, M.D., a radiology professor at the New Jersey Medical School - University of Medicine and Dentistry of New Jersey and director of nuclear medicine and PET at University Hospital in Newark, New Jersey. "Our study helps estimate the amount of time following a procedure that these detectors can still be triggered."

The amount of radiation a patient receives in a typical nuclear medicine imaging procedure is comparable to that received from an x-ray and poses no danger to the public. Radiopharmaceuticals are radioactively labeled drugs that interact with specific organs or tissues and can be imaged using specialized cameras and computers. In therapeutic procedures, greater amounts of radioactivity are directed to specific tissues, and patients may be sequestered from the public for several days.

In their study, Dr. Zuckier and colleagues estimated the maximum length of time that diagnostic and therapeutic radiopharmaceuticals could set off radiation detectors such as

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those used for Homeland Security purposes, specifically:

- FDG PET scan — less than 24 hours
- Bone and thyroid scans — 3 days
- Cardiac exams with thallium — up to 30 days
- Iodine therapy — up to 95 days

Dr. Zuckier supports the recommendations made by the Society of Nuclear Medicine (SNM) and the U.S. Nuclear Regulatory Commission that hospitals develop an official letter or card indicating what type of nuclear medicine procedure a patient received, the date of service and whom to call at the hospital for verification.

"Physicians need to make their patients aware of the need to carry proper documentation following a nuclear medicine procedure," Dr. Zuckier said. "This study suggests guidelines as to how long this documentation should be retained."

The U.S. Department of Homeland Security estimates that 10,000 portable radiation detectors have been procured by state, local and federal officials at borders and ports of entry to prevent smuggling and illicit use of radioactive materials.

In 2002, 18.4 million nuclear medicine imaging and therapeutic procedures were performed, a 9.5 percent increase from 2001, SNM reported.

Dr. Zuckier's study co-authors are Gary S. Garetano, M.P.H., Matthew A. Monetti, M.S., Venkata K. Lanka, M.S., and Michael G. Stabin, Ph.D.

Abstract:	• Sensitivity of Personal Homeland Security Radiation Detectors to Medical Radionuclides and Implications for Counseling of Nuclear Medicine Patients

Images (.JPG format)

Sensor Technology Engineering Radiation Pager	Laurus System's mini rad-D	Laurus System's Polimaster unit

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RSNA is an association of more than 37,000 radiologists, radiation oncologists and related scientists committed to promoting excellence in radiology through education and by fostering research, with the ultimate goal of improving patient care. The Society is based in Oak Brook, Ill.

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