

PROFESSION

CT cancer risk prompts high-tech efforts to cut radiation dose

Physicians are urged to skip unneeded tests. Now more facilities are adopting methods that can dramatically slash the radiation delivered from the scans.

By **KEVIN B. O'REILLY**, *amednews staff*. *Posted Sept. 3, 2012.*

Hospitals and other imaging facilities across the nation are employing new scanning technology and protocols to reduce and track the radiation doses delivered to patients during imaging studies. The developing trend joins ongoing efforts to help physicians and patients rethink when to opt for advanced imaging tests.

More than two dozen U.S. hospitals have adopted a lower-dose method of reconstructing the images obtained through computed tomography. The technology, marketed as Veo and launched by General Electric Co. subsidiary GE Healthcare in December 2011, can help capture a chest CT scan that delivers virtually the same radiation dose as a two-view chest x-ray. Older CT scanning technology sometimes delivers as much as 50 times the radiation dose of an x-ray.

In June, New York's North Shore-LIJ Health System announced the \$12 million purchase of 15 lower-dose GE scanners. In late July, Salt Lake City-based Intermountain Healthcare System announced its participation in GE's Blueprint program, which aims to help imaging facilities measure and track radiation doses while improving the education and training of radiologic technologists.

Intermountain has upgraded four of its CT scanners, and 10 more could be added soon, said Keith S. White, MD, the system's medical director of imaging services. The new technology can help obtain images comparable to older machines with an average of 40% less radiation exposure, he said.

"We're trying to take a comprehensive approach to managing all the different aspects and all the different touch points of radiation management," Dr. White said. "We're trying to identify what are the opportunities for intervention and improvement. The strategy then is to take that information and to try to put together a comprehensive program for how we're going to reduce dose."

A Chicago-area health system is expected to announce a significant imaging technology agreement with GE in early September, but details were not publicly available at this article's deadline. GE officials acknowledged that new technology is only part of the answer in reducing radiation dose. Tracking doses and tapping best practices on optimal dosing for different kinds of imaging studies are elements of its Blueprint program.

"It's not just about who bought the latest and greatest widget," said Ken Denison, PhD, who heads GE Healthcare's CT dose program. "There are [health] systems who are buying into this and saying, 'Let's take a holistic approach to where we are.'"

Quantifying CT's cancer risk

These moves come at a time of heightened concern about deadly radiation overdoses and the lifetime cancer risk of radiation in an era when diagnostic imaging has grown dramatically. Overall use of CT tripled from 52 tests per 1,000 HMO patients in 1996 to 149 per 1,000 in 2010, said a June 13 study in *The Journal of the American Medical Association*. That study and data from other sources suggest that imaging orders began to slow in the middle of the last decade and have been flat for the last few years.

Experts say that growing consciousness of imaging's cancer risk has contributed to the slowdown. The risk of CT radiation is hard to pin down. About 1.5% to 2% of all cancers may be due to radiation exposure from CT scans, said a Nov. 29, 2007, review article in *The New England Journal of Medicine*. One in every 270 women undergoing a CT coronary angiography at age 40 would develop cancer from the scan, according to estimates in a Dec. 14/28, 2009, *Archives of Internal Medicine* study.

Meanwhile, regulatory pressure is growing. A California law that took effect July 1 requires imaging facilities to record radiation doses and report them to patients and their treating physicians. Congressional legislation dubbed the CARE bill would require basic education and certification standards for the technicians who carry out imaging studies as a condition of Medicare participation. The bill is supported by the American College of Radiology, radiological technologists and many other radiological organizations, but has yet to be voted out of committee in either the House or Senate.

GE is not alone in delivering new technology that can reduce the radiation dose of CTs, said Richard L. Morin, PhD, a diagnostic medical physicist at Mayo Clinic in Jacksonville, Fla. Scanners sold by Siemens, Philips and Toshiba also can help slash doses by 20% to 50%, he said. Morin chairs the American College of Radiology's Dose Index Registry, which allows health care organizations to benchmark the CT radiation doses they are delivering against regional and national numbers. Nearly 500 U.S. hospitals and imaging facilities are participating in the registry, Morin said.

In 2008, the college launched its Image Gently campaign to advise radiology professionals on lowering radiation dose when

imaging children. The companion Image Wisely campaign, which began in 2010, offers education on lowering doses in all patients and ensuring that unnecessary tests are avoided. The message on optimizing medical radiation is starting to sink in at every level, Morin said.

“There’s more awareness and attention to radiation dose than there ever has been in the U.S.,” he said.

ADDITIONAL INFORMATION:

WEBLINK

“Five Things Physicians and Patients Should Question,” Choose Wisely initiative, American College of Radiology, April (choosingwisely.org/wp-content/uploads/2012/04/5things_12_factsheet_Amer_Coll_Radiology.pdf)

“Creating a Progressive Dose Management Strategy Requires a Broad Perspective,” GE Healthcare (www3.gehealthcare.com/en/News_and_Initiatives/GE_Blueprint/)

American College of Radiology’s Dose Index Registry (www.acr.org/Quality-Safety/National-Radiology-Data-Registry/Dose-Index-Registry)

“Use of Diagnostic Imaging Studies and Associated Radiation Exposure for Patients Enrolled in Large Integrated Health Care Systems, 1996-2010,” *The Journal of the American Medical Association*, June 13 (jama.jamanetwork.com/article.aspx?doi=10.1001/jama.2012.5960)

“Radiation Dose Associated With Common Computed Tomography Examinations and the Associated Lifetime Attributable Risk of Cancer,” *Archives of Internal Medicine*, Dec. 14/28, 2009 (archinte.jamanetwork.com/article.aspx?articleid=415384)

“Computed Tomography —An Increasing Source of Radiation Exposure,” *The New England Journal of Medicine*, Nov. 29, 2007 (www.ncbi.nlm.nih.gov/pubmed/18046031/)

Copyright 2012 American Medical Association. All rights reserved.

RELATED CONTENT

- » **CT orders level off as awareness of radiation risk grows** June 25
- » **Training, EMR tracking can slash risk of radiation overdoses** Nov. 28, 2011
- » **Most back pain patients don’t need diagnostic imaging** Feb. 14, 2011
- » **Medical imaging tests can be cut with clinical support systems** Jan. 24, 2011
- » **Stricter training urged for imaging, radiation** March 15, 2010
- » **New studies try to quantify cancer risk from CT scans** Jan. 11, 2010