

Radiation can be reduced while maintaining high quality in CT colonography

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A new study by a Rhode Island Hospital researcher has found it's possible to maintain high-quality CT colonography diagnostic images while reducing the radiation dose. This is important as the use of CT colonography, or virtual colonoscopy, becomes more widely used for colorectal cancer screenings.

Through his research, Kevin J. Chang, M.D., of the department of diagnostic imaging, found that decreasing the tube voltage would not negatively impact the integrity of the CT colonography. His research is published in the current issue of the journal *Radiology*.

"Radiation dose is a concern for many in health care – from the clinicians and patients to the government agencies that regulate the industry," Chang said. "The theoretical risks of radiation exposure as a cancer causing agent must be weighed realistically against the substantial benefits of [colon cancer screening](#)."

According to the [American Cancer Society](#) (ACS), [colorectal cancer](#) is the third most common cancer diagnosed in both men and women in the U.S. The ACS estimates that in 2013, the U.S. will see 102,480 new cases of colon cancer, and 40,340 new cases of rectal cancer. Colorectal cancers are expected to cause about 50,830 deaths during 2013.

The study was conducted to assess the effect of decreasing the radiography voltage on dose and ultimately on 3D image quality in patients undergoing [CT colonography](#), and how these changes are

affected by patient size. After studying the CT colonography results in 63 patients, the results showed a statistically significant decrease in radiation dose while only slightly decreasing 3D image quality in patients of all sizes.

Chang says that more study is needed, but that he and other experts anticipate even more decreases in CT radiation dose in the coming years.

"Colorectal cancer screenings are an important part of preventative medicine," Chang said, "and by lowering the [radiation dose](#), we can lower patients' concerns and their exposure, while maintaining the diagnostic quality of the exam and providing early detection and treatment."

Chang's principal affiliation is Rhode Island Hospital, a member hospital of the Lifespan health system in Rhode Island. He also has an academic appointment at The Warren Alpert Medical School of Brown University, department of diagnostic imaging. Other researchers involved in the study are William W. Mayo-Smith, M.D., Dominique B. Caovan, M.D., and David Grand, M.D., of Rhode Island Hospital's department of diagnostic imaging; and Walter Huda, Ph.D., of the Medical University of South Carolina, department of radiology and radiological science.

Provided by Lifespan

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