# ASIR technique significantly reduces radiation dose from CT colonography

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A newly adapted low-dose computed tomography (CT) technique called adaptive statistical iterative reconstruction (ASIR) can help radiologists reduce the already low radiation dose delivered during CT colonography (CTC) by another 50 percent, according to a study published in the July issue of the *American Journal of Roentgenology*.

ASIR is a technique that allows radiologists to reduce the noise in an image and improve image quality (like adjusting a TV antenna to make a "fuzz" image sharper) while reducing the radiation dose to only one-quarter of that delivered by a typical abdominal CT scan.

"Despite the fact that the radiation dose delivered by CTC was already low and a lack of conclusive data regarding risk from medical radiation, radiologists strive to reduce dose at every opportunity," said C. Daniel Johnson, MD, lead author of the study. "This new technique allows us to use far less radiation than even a typical abdominal CT scan without compromising image quality. CTC has been shown to be an effective front line screening tool for colorectal cancer. The fact that we can now screen patients with an increasingly lower dose can allay concerns, attract more patients to be screened and ultimately save tens of thousands of lives each year," said Johnson.

Performed at the Mayo Clinic in Scottsdale, AZ, the study included a colon phantom that was imaged at 50 mAs (approximately 5 mSv) and at 10-40 mAs (approximately 1-4 mSv) using six different ASIR levels and 18 patients that were scanned using a standard CTC dose of 50 mAs

(approximately 5 mSv) and at a reduced dose of 25 mAS (approximately 2.5 mSv) using 40 percent ASIR. "In patients, no significant image quality differences were identified between standard- and low-dose images using ASIR," said Johnson. The phantom study showed image noise reduction that correlated with a higher percentage of ASIR.

"The results of this pilot study show that the radiation dose during CTC can be reduced 50 percent below currently accepted low-dose techniques without significantly affecting image quality when ASIR is used," said Johnson.

**More information:** This study appears in the July issue of the American Journal of Roentgenology. www.ajronline.org

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