

Experts offer pointers for optimizing radiation dose in pediatric CT

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An article in the January issue of the *Journal of the American College of Radiology* summarizes methods for radiation dose optimization in pediatric computed tomography (CT) scans. Approximately seven to eight million CT examinations are performed for various pediatric clinical indications per year in the United States.

Justification of clinical indication is the most important aspect of reducing [radiation dose](#) with CT scanning. A substantial number of pediatric CT scans lack appropriate justification or can be replaced with other imaging modalities with lower or no [ionizing radiation](#), such as radiography, ultrasonography and [magnetic resonance imaging](#) (MRI), which can provide similar diagnostic information for some clinical conditions.

"When not clinically indicated, not performing a CT examination is certainly the best radiation dose reduction strategy. However, when a CT scan is indicated, there are steps that can be taken to optimize the dose that children receive. It's important that all imaging providers take these steps as indicated," said Mannudeep K. Kalra, MD, author of the article.

Investigators from Massachusetts General Hospital, Harvard Medical School, in Boston, MA, and Johns Hopkins University in Baltimore, MD, reviewed practical strategies for reducing radiation dose associated with pediatric [CT examinations](#).

"Radiation dose reduction in children starts with the optimization of

pediatric CT protocols. CT protocols should be strictly optimized on the basis of body size, body region, clinical indication and the availability of prior imaging," said Mahadevappa Mahesh, MS, PhD, author of the article.

Additional steps include using a lower tube current (and voltage), restricting the scan length to include only the region of interest and using new techniques of image post-processing and reconstruction.

"Children are more sensitive to radiation-induced risks and need special attention. Therefore, while designing CT protocols, it is crucial to keep clinical indications, weight and prior available imaging in mind to optimize radiation dose," said Mahesh.

More information: www.jacr.org/

Provided by American College of Radiology

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