

CT technique eliminates the need for X-rays in trauma patients with possible spinal fractures

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When trauma patients receive a computed tomography (CT) scan of the chest, abdomen, and pelvis, a technique called CT spine reformatting eliminates the need for X-rays of the thoracic and/or lumbar spine to detect spinal fractures. This technique can lower cost and overall patient radiation exposure, according to a study to be presented at the ARRS 2010 Annual Meeting in San Diego, CA.

CT spine reformatting is performed by a CT technician after a [CT scan](#) is complete. It helps the radiologist assess the thoracic and/or lumbar regions of the spine without additional imaging, which can reduce cost and patient radiation exposure.

"Background research shows that CT is much more sensitive and specific than X-rays in detecting thoracic and lumbar spine fractures," said Viesha Ciura, MD, lead author of the study. Our study looked at the percentage of trauma patients who had both reformatted CT data and X-rays of the thoracic and/or lumbar region of the spine and the additional [radiation dose](#) and cost associated with the unnecessary X-rays," said Ciura.

The study, performed at the University of Calgary, Foothills Medical Centre, included 897 trauma CT scans with spine reformats. 19 percent of the patients with reformatted CT data showing the spine also had X-rays of the same segment of the spine. "In patients with spinal fractures detected on the CT spine reformats, the X-rays provided no additional information, and in fact, some of these fractures were not seen on the X-rays," said Ciura. "Our calculations suggest that in every 1,000 trauma patients, the added radiation dose from spine X-rays that may not have been needed is 170 mSv; the additional cost per 1,000 trauma

patients was \$19,678.93," she said.

"At a time where radiation issues are gaining increasing importance in considering the utilization of diagnostic imaging, the addition of what appear to be unnecessary X-rays as part of managing trauma needs to be reconsidered," said Ciura.

"At our institution, we have introduced a new protocol, that all trauma patients undergoing CT of the chest, [abdomen](#), and [pelvis](#) also have CT reformats of the thoracic and lumbar spine to decrease the costs and excess [radiation exposure](#) associated with additional imaging," she said.

Provided by American College of Radiology

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