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Spinal team wins accolades for CT radiation study

Research poster weighing the risks of cone-beam CT scans wins best in show at national conference

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A relatively new type of CT scan that aids spinal surgeons in positioning their instruments during less-invasive surgery does not increase exposure to radiation over traditional CT scans, according to researchers from UMass Medical School's Department of Orthopedic Surgery. Increased use of CT scans in general could pose long-term risks, however, and those risks should be a consideration when multiple scans are needed for a procedure, according to the study.

Jeffrey Lange, MD

The research findings "Radiation Dose Imparted by Cone-beam Computed Tomography in Thorasco-Lumbar Spinal Surgery" were presented at the annual meeting of the American Academy of Orthopaedic Surgeons (AAOS) and received an award for best overall poster at the conference.

"We were asking one small question that caught everyone's eye," said Jeffrey Lange, MD, a second-year research resident and first author of the study. "There are certain situations when you know the surgery is going to be complex and a visual aid using a CT scan could be helpful. This is just one more bit of information that tells us whether the risk of possible radiation exposure outweighs the risk of more invasive surgery, or even the use of older fluoroscopic techniques."

Besides the buzz they created at the AAOS, the research findings were notable in that Dr. Lange and his spinal team worked closely with another UMMS department, radiology, in what he described as "a true collaboration." Andrew Karellas, PhD, professor of radiology and second author, used his radiological expertise to aid in describing the radiation exposure of the cone-beam CT technology to similated patients in a simulated operating room.

"The spine team is interested in a large variety of clinical questions and this is just one of them," said Lange. "The reaction we received at the AAOS was very positive. It was an interesting question to them and we were honored to hear the feedback."

Other authors include first-year resident Natalie Egge, MD; Jason C. Eck, DO, MS, assistant professor of orthopedics & physical rehabilitation; Anthony Lapinsky, MD, assistant professor of orthopedics & physical rehabilitation and pediatrics; Patrick Connolly, MD, clinical professor of orthopedics & physical rehabilitation; Christian P. DiPaulo, MD, assistant professor of orthopedics & physical rehabilitation; and John Street, MD, PhD, from the Unviversity of British Columbia.