Use of regional PACS network associated with lower repeat rates, costs and less radiation exposure

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According to a study in the Sept. issue of the *Journal of the American College of Radiology*, using a combination of the Internet and compact discs (CD) to transfer images during inter-hospital transfer is associated with much lower repeat imaging rates, suggesting that regional PACS networks may be useful for reducing cost and radiation exposure associated with trauma.

The establishment of regional trauma systems where patients are transferred from non-tertiary emergency departments (EDs) to major trauma centers has been shown to improve survival. Transfer patients are often critically ill, with higher mortality rates and longer hospital stays than patients who undergo treatment at the hospital of first arrival. However, imaging utilization, especially computed tomography (CT) scans and X-rays, on transferred patients may be considered high.

"The purpose of our study was to evaluate the use of the Internet and immediate CD importation to transfer images to a level I regional trauma center on imaging repeat rate, cost, and radiation dose and compare this with previously published repeat rates, all of which are from trauma centers without the capability to electronically transfer images," said Martin L. Gunn, MBChB, author of the study.

Five hundred consecutive trauma patients transferred to a level I trauma center were included in the study. Images were transferred from an

outside facility to the trauma center using the Internet and CDs and uploaded to the trauma center's PACS. Repeat rate, costs, and radiation doses of transferred and repeated CT scans were calculated.

Four hundred ninety-one patients met the inclusion criteria. Three hundred eighty-three patients had 852 CT studies and 380 non-extremity X-rays imported into the trauma center's PACS. At the trauma center, 494 completion CT scans and 2,924 X-ray studies were performed on these patients. Sixty-nine repeat CT scans were performed on 55 patients, equaling a 17 percent repeat rate. The total value of imported studies was $244,373.69. Repeat imaging totaled $20,494.95.

"Our study shows that repeat rates using electronic transfer of imaging are lower than those in the literature and that because of this, patients are exposed to less radiation and the imaging charges are lower to the health care system as a whole," said Gunn.

"Further studies to evaluate the effect of this technology on transfer time and patient morbidity and mortality are necessary to accurately determine the full impact on health care costs and outcomes," he said.

Provided by American College of Radiology

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