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Implementation and Education of the PACS System at Outside Hospitals Reduces the Number of Avoidable Repeat CT Scans Done on Trauma Patients Transferred to Fletcher Allen Health Care

Trauma patients imaged at community hospitals often receive duplicate computed tomographic imaging (CT scan) after transfer to regional trauma centers. CT scanning is expensive, resource intensive, and carries the inherent risk of radiation exposure. The Picture Archiving Communication System (PACS) was implemented to provide a data link between hospitals for the efficient transfer of CT images. In phase one of this study (Airway, breathing, computed tomographic scanning: Duplicate computed tomographic imaging after transfer to trauma center, 2012), it was found that technological transmission errors were the biggest reason for repeat CT scans at our rural Level I trauma center. At that time, only about 50% of the OSH involved in the study had direct PACS-to-PACS transfer capabilities. In this phase II study, the frequency of repeat CT scans due to technological transmission issues after implementation and education of PACS at outside hospitals (OSH) was investigated.

Patients in the Fletcher Allen Emergency Department were screened by trained emergency medicine research associates (RA) for eligibility between May 2012 and November 2012. Any trauma patient transferred from an outside hospital to the Emergency Department by ambulance was eligible and included in the study. If a repeat of an outside hospital scan was ordered, the attending physician was given a questionnaire to determine the reason for a repeat.

Out of 125 eligible patients, 38 patients were found to have received a duplicate CT scan at Fletcher Allen. The number of repeat CT scans due to technological transfer issues was down to zero as compared to 37% in phase I of the study. The results support the conclusion that the implementation of the PACS system, which created a better data link between hospitals, helped to reduce the number of avoidable repeat CT scans due to technological transfer issues at Fletcher Allen Health Care.