AbstractID: 13129 Title: Computed Tomography Dose Data Mining and Surveillance as an ongoing Quality Assurance Improvement Process

Purpose: The purpose of this ongoing quality assurance project is to use our Radiology Information System (RIS) as a data mining tool to monitor the computed tomography (CT) dose length product (DLP) at a Level 1 Trauma Center and use it as a general indicator of proper CT exposure technique and radiation dose.

Method and Materials: Technologists enter the total exam DLP from the CT console for multiple CT systems after each completed CT study into the RIS system. A query report is run to extract the total CT exam DLP. Data falling outside two SD are removed from the analysis to exclude extreme outliers. The effective dose (ED) is also derived from the DLP by multiplying with age specific k-factors. This data is compared with the previous quarter's data and initial baseline data to observe the trends with respect to the institutional goals. The results are presented at radiology QA meetings with radiologists, technologist supervisors, physicists and administrators in attendance. The trend in DLP is then used to modify either CT techniques or protocols to continuously reduce the radiation dose in keeping with the ALARA principle. The entire cycle is repeated every quarter as an ongoing quality assurance improvement project.

Results: The ED for trauma CT exams was reduced 22.5% while the ED for non-trauma of the CT exams was only reduced 2.3%. We are still working on reducing the DLP for CT exams which result in consistently high dose (e.g., CTA) by CT technique modification or the elimination of extra scan series as part of a CT protocol.

Conclusion: This project demonstrates that DLP data can be mined successfully to monitor radiation dose in CT and implement ALARA by modifying CT protocols using dose reduction strategies to reduce patient dose.

Conflict of Interest (only if applicable): N/A