

AbstractID: 2504 Title: Quality Assurance Methodology to Monitor Patient Dose in Interventional Radiography

PURPOSE: The purpose of this preliminary quality assurance project is to use thermoluminescent dosimeters (TLD) to monitor the equivalent dose patients receive while undergoing interventional radiology procedures at our institution.

METHOD AND MATERIALS: A TLD is placed centrally on the collimator face of two AP tubes in the angiography department for each patient exam. The TLDs are sent out weekly to be read by Landauer, Inc. Inverse square correction is applied to yield patient equivalent dose at the minimum and maximum possible distances to the patient entrance surface (source-to-skin distance, SSD). The inverse square corrected results are entered into a database and analyzed according to exam type and radiation dose threshold categories. All exams having an equivalent dose of greater than 2 Gy (skin erythema threshold) are red-flagged in the database. These red-flagged exams are then shared with the angiography section chief radiologist and technologist for feedback and corrective action with the attending physician.

RESULTS: Of the 1852 exams surveyed (from July 2003 through the present time), the equivalent dose for minimum SSD was less than 1 Gy for 94.0% of the exams and between 1 and 2 Gy for 2.6% of the exams. The skin erythema threshold dose of 2 Gy was exceeded for 3.1% of exams throughout this time period. It is encouraging that over 96% of measured equivalent dose are below the skin erythema threshold. The remaining 4% of measured equivalent dose were red-flagged for follow-up with the physicians responsible for the exam.

CONCLUSIONS: This preliminary quality assurance and feedback mechanism is a quick and practical way to increase physician awareness of administered patient dose and whether skin injury dose thresholds have been exceeded. It is expected that this monitoring methodology will encourage physicians to practice ALARA.