AbstractID: 7356 Title: Cardiology Dosimetry Study Based On Thermoluminescent dosimeters (TLD's) and Portal Film Dosimetry

Purpose: Recognizing the FDA's concerns (Radiology 197;449:1995), the NYS Department of Health is studying in 32 hospitals the radiation exposures of patients undergoing interventional cardiac procedures, based on TLD's. Goals are to establish baselines, identify problems and make recommendations for patient and operator safety. We completed and can compare initial results in our patients of TLD's with our ongoing portal film dosimetry measurements.

Methods: NYS TLD placement: two-dosimeter set placed on the spine at T-8 and a single-dosimeter set centered over the right scapula, secured with adhesive. Three types of portal films used: Kodal X-Omat V, EC films, and a new Radiochromic film (ISP), calibrated for doses up to 50, 150, 800 cGy, respectively. Films (singly or stacked) with the patient lying on the pack, exposed to procedure entrance radiation passing through the patient, developed, and evaluated for dose distribution. Individual dosimetry film was attached to the TLD sets revealing the detailed dose map of these areas.

Results: For the first 10 sets of NYS -TLD studies, the large dosimetry film (< 14″x17″) reveals well the distribution of the patient's posterior skin entrance dose. The dosimetry film attached to the TLD-set provides a reliable indication of whether the individual TLD readings reflect patient dosage. Details of the dose distributions will be presented and discussed.

Conclusions: While the TLD's give quantitative readings of patient's entrance exposure, the film dosimetry mapping reveals the complete dose distribution. These techniques may therefore be complementary in obtaining a more accurate measure of patient exposure.