AbstractID: 8252 Title: Skin Doses in Interventional Radiology Procedures Associated with Oncology Diagnosis and Treatment – Are There Reviewable Sentinel Events?

Purpose: Fluoroscopic examinations with cumulative dose exceeding 15 Gy to a single field is now considered as a 'reviewable sentinel event' according to Joint Commission standards. Guidance from the FDA suggests that the potential for injury be recorded in the patient's record for cumulative absorbed dose of 1 Gy or more. The purpose of this study was to estimate the peak radiation skin doses for interventional radiology procedures performed at a high patient volume cancer center.

Method and Materials: A single-center, IRB-approved retrospective study was performed using data from an oncologic interventional radiology section. Peak skin doses were estimated from consecutive procedures performed during 2006 in three different fluoroscopic suites equipped for these studies. Of 6598 consecutive procedures, 3966 (60%) had dose-area-product (DAP) measurements recorded and were included in the study.

Results: The mean estimated peak skin dose was 0.19 Gy (range 4.95 microGy to 8.65 Gy) with a maximum individual skin dose of 8.65 Gy. No procedures resulted in skin doses >15 Gy and over 95% of the procedures resulted in skin doses <1 Gy. Procedures with specific instances of skin doses >1 Gy included: embolization, biliary drain/stent, IVC filter, nephrostomy, arteriogram, abscess catheters, foreign body retrieval, catheter change, cholecystostomy, and gastronomy tube check. Embolizations, and biliary drain/stent procedures were most likely to result in skin doses >1 Gy. Significant variations in skin dose were noted for various instances of the same procedure (e.g. range 0.6 mGy to 8.65 Gy for hepatic embolizations).

Conclusion: Even when potential errors in methodology are considered, it is unlikely that any typical case performed in an oncologic interventional radiology practice would exceed the Joint Commission 'reviewable sentinel event' level of 15 Gy. Identifying procedures that could have peak skin doses greater than 1 Gy can be useful for informed consent and clinical followup.