

# AbstractID: 4874 Title: Management of Patient Radiation Dose in Interventional Fluoroscopy

## **Purpose:**

Some complex interventional procedures require significant amounts of radiation for their completion. In 2006 JCAHO added a 15Gy single field fluoroscopic skin dose to the list of sentinel events. An active radiation management program contributes to optimization of the patient's benefit/risk ratio.

## **Method and Materials:**

- Periodic equipment quality testing and calibration.
- Patient radiation history to determine the quantity and location of previous significant radiation events
- Appropriate patient consent
- Operator and staff dose management during the procedure
- Documentation and clinical follow-up when significant doses of radiation are used
- Continuing clinical follow-up when deterministic injuries are suspected or observed

## **Results:**

Our program was implemented in June 2005. Significant issues include acquisition of the patient's radiation history, active management of dose rate by operators during procedures, and complete documentation at the end of each procedure. Post procedural patient discussions and integrating radiation follow-up into our standard 30 day post-intervention telephone call were easy.

The initial trigger level for immediate justification of significant radiation usage and patient follow up was 3 Gy cumulative dose at the IEC interventional reference point. In January 2006 and after consultation with the institutional radiation safety committee, the trigger was raised to 5 Gy (corresponding to a peak skin dose in the range 2 -3 Gy for most procedures). Special rules apply to patients with unusual or multiple procedures.

## **Conclusion:**

The world-wide occurrence of a major deterministic injury is estimated to be one or two orders of magnitude less frequent than death from an interventional procedure. Simple technical improvements such as better dose displays, low-dose-rate defaults, and automated data collection would be helpful. With these, operators and monitoring nurses can more easily maintain a level of dose awareness during a procedure appropriate to an ongoing benefit/risk analysis.