

AbstractID: 2024 Title: Temporal Dosimetry for Quantification of Operator Exposure within Different Segments of Radiographic Procedures

Though it is well known that many existing radiographic procedures present the clinician and technologists with long intervals of high exposure, it is often difficult to determine the rates of exposure during different segments of these procedures. Furthermore, newer technologies such as Positron Emission Tomography (PET), Interventional Brachytherapy (IB) and cardiac/interventional angiography have segments that contribute a disproportionate amount of exposure (i.e. cine runs, patient radiopharmaceutical injections, seed loading, etc.). In order to better evaluate methods to reduce exposure, it is important to know what parts of these procedures contribute the most radiation. These periods can be identified using dosimeters with memory that provide time-based histograms when worn by individuals. A technologist in a PET imaging suite and a doctor performing an interventional procedure were monitored with the dosimeters. These individuals recorded various key phases of the procedures in question, which were then correlated to exposure histograms from the dosimeters. In the PET area, the technologist recorded an average of 9.6 μSv per patient imaged. From the histogram, it was determined that 3 μSv were received during the time of injection. Also, from the dosimeter histogram and a doctor's account of segment timing within the interventional procedure it was established that during Digital Subtraction Angiography (DSA) runs, hand injections gave the highest exposure. Knowledge of these increased exposure segments permits efforts to be focused on dose reduction during times of high exposure.

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