

AbstractID: 1496 Title: Patient Dosimetry and Shielding Designs for Fluoro-guided Interventional Procedures---Experience in an Expanding Teaching Hospital

At Stony Brook University Hospital, we experienced rapid increases of workload in radiological applications, performing more special procedures, fluoro-assisted interventions in a new heart center (5 fully equipped Cath and EP labs), dedicated fluoro units for GI-endoscopy (ERCP), vascular surgery, orthopedics, urodynamic suite and the pain-clinic. This led to two major concerns of ours. First, a larger population of patients would be at risk for radiation exposure. Second, shielding considerations in converting into radiological suites from general rooms in existing buildings. On the former, we studied radiation doses and developed a full-range film dosimetry (Kodak G,V, and EC films, ISP radiochromic films), capable of mapping skin entrance doses in the range of 1-1000cGy. Results showed positive efficacy in reducing radiation exposure through training of residents/fellows and monitoring patient doses from the procedures performed. A dose of 2 Gy or higher may be received by 5% of patients in cath labs, 3% in interventional radiology, and less than 1% in vascular surgery. The finding stresses the importance of routine monitoring in order that cases exceeding set dose levels can be identified and followed up. On the latter, we faced a unique shielding situation in modifying a general use room located directly above the heavily used OR and recovery suite in a multi-level structure. This was satisfactorily resolved by adding lead sheets on existing floors having only a 4"-6" low density concrete.