

X-Drape® Study Abstract

Rush University Medical Center, Chicago, IL

TITLE: Reduction in Catheter Laboratory Operator Radiation Exposure Following Introduction of Lightweight Radiation Protection Lead Drape.

AUTHORS: Shari R. Slyder, Damien Kenny, Zahid Amin, Ziyad M. Hijazi, Rush University Medical Center, Chicago, IL

BACKGROUND: Increasingly complex trans catheter cardiac interventions in patients with structural and congenital heart disease have led to increasing fluoroscopy times and subsequent radiation exposure to interventional cardiologists. Adequate radiation protection continues to be a challenge in this setting. This study evaluates the introduction of a lightweight, sterile radiation protection lead drape (X-DRAPE ®) in decreasing the occupational radiation dose to a single primary operator during cardiac catheterization procedures.

METHODS: From April 2009 to March 2010, 264 procedures were evaluated for occupational skin entrance dose levels measured in milirems. 132 procedures were performed without the use of the lead drape and 132 following its introduction. All cases were performed with the operator's standard 0.5mm lead equivalency apron, 0.35mm standard table shield, and the 0.25mm steerable lead shield. The total output dose (measured in Roentgens) and fluoroscopy times were recorded per case and compared pre-and post introduction of the sterile drape. All three occupational radiation exposure skin entrance dose readings (deep, eye, and shallow) pre- and post- introduction of the drape were also evaluated.

**Results: There was no significant difference in the total radiation output dose ($p=0.74$) or fluoroscopy times ($p=0.10$) pre- and post-introduction of the lead drape. Although there was no significant difference in radiation output dose readings between the groups when looking individually at deep, shallow and eye exposure, there was a significant decrease in the total single operator occupational skin entrance dose following introduction of the drape ($p=0.002$). This translated to a total reduction in skin entrance doses of 53.6%.
Conclusions: Use of the AADCO Medical X-Drape significantly reduces the skin entrance dose to the primary operator during cardiac catheterization in patients with congenital and structural heart disease. Further evaluation of the impact of this simple, safe, measure on radiation skin doses in both the patient and other catheter laboratory personnel is warranted.**

**To be presented March 2011 at the
PEDIATRIC & ADULT INTERVENTIONAL CARDIAC SYMPOSIUM**