

SIR 30th Annual Scientific Meeting

Ernest N. Morial Convention Center

New Orleans, LA

March 31 – April 5, 2005

Scientific Session 10

Interventional Radiology Practice / Radiation Safety

Abstract No. 64

April 2, 2005, 8:48 am

The Value of Composite Protective Shields in Exposure Reduction during Interventional Procedures.

G.D. Hartwell, University of Virginia Health Systems, Charlottesville, VA, USA;
A.R. Goode; D.J. Spinosa; J.F. Angle; A.H. Matsumoto

PURPOSE: To evaluate the effectiveness of composite lead equivalent materials for the reduction of scatter radiation during interventional procedures.

MATERIALS AND METHODS: An anthropomorphic torso phantom was placed on an angiographic table (Siemens, Axiom Artis TA) 110 cm above the floor, with the C-arm configured so that the X-ray tube was under the table. A RadCal 9015 Dosimeter with a 180 cc chamber was fixed on a tripod 1 meter from the point where the beam intersected the phantom. It was then adjusted to eye (170 cm), chest (145 cm), waist (105 cm) and knee (75 cm) levels and exposure measurements were recorded with and without the composite shields in place at each height during fluoroscopy. Measurements were made with the C-arm at 0, 15, 30, and 45 degrees oblique.

RESULTS: The table shows the exposure with and without the shields at the levels and angles indicated.

CONCLUSION: The composite shields when applied in the appropriate combinations reduced the exposure to the operator as simulated by the dosimeter chamber by greater than 80% under all conditions tested.

Exposure with and without Shields:

Height/Obliquity	without shield	with shield
Eye @ 0	12.6	2.2
Chest @ 0	19.0	3.0
Waist @ 0	21.3	3.1
Knee @ 0	22.2	6.9
Eye @ 30	15.6	2.1
Chest @ 30	20.0	2.9
Waist @ 30	26.4	3.1
Knee @ 30	30.2	2.9

Values in mrem/sec. (end of abstract)

[Note: "Composite shields" used were RADPAD[®] Shields]

