

Radiation exposure to patients undergoing interventional procedures at neuro, cardiac, and certain vascular sites is always a concern despite clearcut balances on benefit/risk considerations. Recent FDA directory focusing attention on monitor/reduction of skin dose is helping to redouble such efforts. Various direct and indirect means of measuring patient dose have been reported, with improvement being developed by manufacturers of x-ray systems and dosimetry instruments. We have successfully mapped actual patient dose distribution by a simple, fast, and inexpensive method. Placing three portal films (Kodak X-Omat V film calibrated for doses up to 50 cGy, EC-L film up to 150 cGy, and a new radiochromic film XXRF-10404 currently under development by ISP for doses up to 800 cGy and beyond) stacked together to monitor doses by the procedure allows mapping of actual patient exposure. This in turn makes possible to verify results of skin dose minimizing effort involving: low dose fluoro mode, last image hold, cone down fields, at multiple entrance angles. For example, a patient underwent two consecutive cerebral embolization procedures at the same site, with a combined fluoro time of 293 min, 129 DSAs, showed a maximum dose, in only a small skin area, of 150 cGy, well within levels for temporary skin erythema.