

AbstractID: 8353 Title: Comparison of dose-area-product (DAP) and fluoroscopy time between a mobile and a fixed C-arm unit for electrophysiology (EP) procedures

Purpose: To determine if there is a difference in dose-area-product (DAP) or fluoroscopy time between electrophysiology (EP) procedures performed using a mobile and a fixed C-arm fluoroscopic unit.

Method and Materials: DAP and fluoroscopy-time data was logged for 800 EP procedures performed using a mobile C-arm unit from 2003 to 2005. In early 2006, a fixed C-arm unit was installed and the same data logged for over 200 procedures. The procedures were sorted into five categories: 1. electrophysiology studies, 2. radiofrequency ablations, 3. pacemaker and implantable-cardiac-defibrillator implants, 4. biventricular interventions, and 5. lead changes. For each category, the distributions of DAP and time were compared and the average, median and range of values determined.

Results: The median fluoroscopy time more than doubled for all procedure categories when using the fixed unit. Median DAP increased significantly for procedures 3 and 4, but remained nearly the same for procedures 1, 2 and 5. In all cases, the procedures were successfully completed without evidence of compromising patient care for either unit. However, the cardiologists were much more conservative in their use of fluoroscopy for the mobile unit due to its heat loading limitations and, also, they worked quicker because of their impression that the older mobile C-arm gave more radiation dose to themselves and the patient. In addition, fluoroscopy at 15 frames per second was used on the fixed unit versus 7 frames per second on the mobile unit.

Conclusion: Although the DAP and fluoroscopy time generally was higher for the fixed installation, it should not be concluded that the mobile unit is to be preferred. Rather, these results point out the importance of physician training and dose monitoring, not only to track patient radiation risk, but also to provide physician feedback.

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