

## AbstractID: 14412 Title: Patient Dose and the Modern Angiographic System

Recently, the FDA announced a new initiative to promote the safe use of fluoroscopy and CT devices which includes enhancement of radiation dose measurement, display and recording. This initiative has resulted from increased scrutiny of patient radiation exposure from medical procedures and notable incidents of deterministic effects resulting from high exposure levels. In the present environment, it is critical that medical physicists have a clear understanding of radiation dose quantities and measurement methods. This course will focus on radiation dose in fluoroscopic equipment.

Quality control testing of fluoroscopy systems should include measurement of patient dose to ensure dose rates are appropriate and meet regulatory requirements and verify that displayed dose values are accurate. The medical physicist should also understand the variation in dose rate and image quality with respect to spectral filtration, kVp, pulse rate and patient thickness. This understanding is necessary to ensure appropriate dose settings are available to the operator. Education of fluoroscopy operators in how to optimize image quality and minimize patient dose is another important role for the medical physicist.

Educational objectives include:

1. Review fluoroscopic dose quantities.
2. Understand the operation of kerma-area-product meters.
3. Learn how to verify the accuracy of displayed dose values, including recommended quality control testing frequencies and control limits.
4. Understand how to measure fluoroscopy and fluorography phantom entrance air kerma for comparison to expected reference standards and regulatory maximum limits.
5. Review equipment factors and operator factors that affect patient fluoroscopy dose and image quality optimization.