

In 2005, the Joint Commission established a new reviewable Sentinel Event tied to radiation exposure. Proper identification and investigation of Sentinel Events are critical issues for maintaining Joint Commission accreditation of a hospital, mandating that the physicist correctly approach this problem. The newly defined sentinel event treats both radiotherapy and fluoroscopy, but we consider only the issues arising from the specific inclusion of prolonged fluoroscopy procedures that result in high (> 1500 rads) cumulative skin doses. The specific details of what constitutes the fluoroscopic Sentinel Event, mechanisms for detecting potential events, how to investigate an event, and what happens in the course of reviewing a Sentinel Event are addressed.

The air kerma monitors required by the FDA on fluoroscopic equipment manufactured since 2006 are very useful tools for dose determination in these cases, but they do not provide a direct or complete answer. Case studies are reviewed that illustrate how to estimate doses both with and without cumulative air kerma readings.

#### Learning Objectives:

- 1) Review the definitions of the new Joint Commission Sentinel Event for fluoroscopic radiation exposure.
- 2) Identify monitoring policies and procedures to detect potential fluoroscopic Sentinel Events.

3) Discuss practical aspects and pitfalls of using air kerma monitors and technique values to calculate maximum skin doses.