

AbstractID: 1531 Title: Practical Implementation of New US NRC Regulations for Gamma Knife

The US Nuclear Regulatory Commission (NRC) revised its regulations for the medical use of radioactive materials in April 2002. In the revised regulations, a completely new set of regulations was introduced for the gamma stereotactic radiosurgery units (Gamma Knife). A brief interpretation of the new regulations is presented. Besides routine regulations regarding the use of sealed radioactive sources, the new regulations also require full calibration and monthly spot-check measurements for the Gamma Knife. The regulations cite some specific parameters to be tested. The practical methods developed for implementing new NRC regulations for a Gamma Knife (Leksell Model C) are presented. A set of typical measurements and their analysis for the full calibration and the monthly calibration is presented. We find that some of the required electro-mechanical tests on a monthly basis are too frequent and perhaps fall in the realm of equipment servicing.