

Policy number	Policy name	Policy date	Sunset date
PP 13-A	Dose Management in Diagnostic Radiology	7/18/2002	12/31/2012

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Policy text

The benefit of radiation to save the life or improve the treatment of a patient is well established. However, attention is needed to reduce avoidable or unproductive exposure of a patient from radiation generating machines. Patient risk from radiation injury ?stochastic and deterministic - must be weighed against the benefits of a proper medical study as well as the risk of depriving the patient from needed medical care. Arbitrary reduction of patient dose without regard to image quality is detrimental to providing proper medical care.

The imaging physician and the medical physicist have the expertise and the responsibility in patient care to optimize the procedure so as to use the lowest possible radiation dose while maintaining the necessary image quality to accomplish the clinical goals of the procedure. Sacrificing image quality to reduce patient dose is detrimental and potentially harmful to the patient. Qualified medical physicists and imaging physicians with their expertise can evaluate this tradeoff between patient dose reduction and image quality, educate users to avoid harmful practices, and establish protocols to follow-up potentially harmful exposures such as lengthy fluoroscopy procedures.

The establishment and use of Reference Values for patient radiation exposure provide an important methodology to control unnecessary radiation dose of patients. The use of Reference Values is encouraged. They provide an upper level of patient exposure that can initiate a facility investigation as to the reasons) for exceeding the value. Reference Values are not and should not be regulatory limits. They are established based on the judgment of qualified medical physicists and imaging physicians for standard imaging protocols. These protocols are based on some standard conditions (e.g., phantom, standard group of patients) with consideration to adequate image quality, appropriate technique factors for the radiation machine, procedure goals, and patient type.

Reference Levels were proposed by the National Radiological Protection Board (UK, 1990) and were addressed in the European Commission's Medical Exposure Directive (97/43/EURATOM (MED), 1997). A RPC Task Group Report recently approved by the AAPM Science Council recommended specific values for some studies in the United States. Reference Values will vary based on available technology and may not be available for all procedures currently performed. Professional radiological organizations are encouraged to determine appropriate Reference Values and protocols and reassess them periodically.