

Strengthening justification of medical exposure in diagnostic imaging

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Abstract

The use of radiation in medicine has increased dramatically in recent times. In some countries the population dose from medical exposures now rivals that from natural background. Scientific studies show a significant and widespread practice of inappropriate examinations in diagnostic imaging, where much of this arises from health systems' deficiencies and a lack of knowledge. There is a need to strengthen the implementation of the principle of justification.

The International Commission on Radiological Protection first presented the three-level approach to justification in medical exposures in the mid-90s, and this approach continues today. It is in particular at the third level of justification, the use of a given radiological procedure for a given patient, that there needs to be more effective implementation, especially in diagnostic imaging. The transfer of the concept to day-to-day practice has proved difficult due to several factors, including the respective role and responsibilities of the referrer and the radiological medical practitioner, conflicts of interest – financial or defensive medicine, societal or cultural differences in the practice of medicine – particularly the relationship of radiology with other areas of medicine, and simply the logistics of a busy imaging department. Further, the patient is having increasing “ownership” of their medical care, and self-presentation is another factor.

The International Atomic Energy Agency (IAEA) has recently revised the International Basic Safety Standards (BSS) and the new requirements in the area of justification of medical exposures are intended to provide the framework for effective implementation in the real world.

At the same time, the IAEA has also explored this issue through a series of consultancies. Means for ensuring effective implementation of justification in medical decision making were grouped under three practical issues: *Awareness*: devising means of effectively communicating about radiation risk to the relevant persons, including patients, public and physicians; *Appropriateness*: devising means of ensuring that those referred for radiological examinations really need them; and *Audit*: the audit of the effectiveness of the referral and related processes. These are the 3 A's of strengthening justification.

Recent media releases over the levels of unnecessary diagnostic medical exposures and the potential for some patients to receive quite significant doses during their lifetime has provided impetus to the idea of tracking patient doses. Clinical context is crucial in each instance of justification for a patient, including information from previous radiological procedures. It has been argued that cumulative dose should be part of this information.