

60 Years

Atoms for Peace and Development

Factsheet for Decision Makers

Radiation Protection of Patients

RADIATION PROTECTION IN DIAGNOSTIC RADIOLOGY

Why is it important?

For more than a century, X rays have been used in medicine to detect and diagnose disease and injury, manage patient care, and guide many forms of treatment.

Every year more than 3,600 million diagnostic radiological procedures are carried out around the world, but some of these examinations are identified as unnecessary. Radiation doses to patients for the same examination may also vary extensively among facilities. Additionally, there are more occupationally exposed people in medicine than in any other practice or from any other source.

What do I need to know?

Justification and optimization are the two cornerstones of radiation protection of patients. Dose limits do not apply in medical exposures as they may limit the benefits to the patient. Dose limits apply to occupational and public exposure only.

The process of justification allows determining whether the exposure will take place or not. Once justified, the procedure should be optimized and performed such that the exposure of the patient is managed in order to achieve the medical objective.



The International Basic Safety Standards (BSS) are the international benchmark for radiation safety. The BSS are used in many countries as the basis for national legislation to protect workers, patients, the public and the environment from the risks of ionizing radiation.

IAEA Safety Standards for protecting people and the environment

Radiation Protection and Safety of Radiation Sources: International Basic Safety Standards

Jointly sponsored by
EC, FAO, IAEA, ILO, OECD/NEA, PAHO, UNEP, WHO

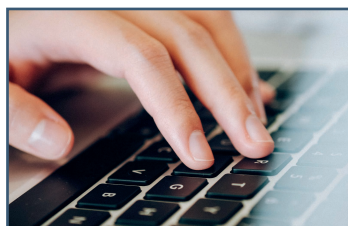


General Safety Requirements Part 3
No. GSR Part 3



The BSS are based on the most recent scientific evidence on the effects of ionizing radiation and take into account practices and experiences from around the world in the use of ionizing radiation and nuclear techniques. Eight international organizations sponsor the BSS.

What actions are required?



The government is responsible for establishing and implementing a legal and regulatory framework for radiation protection in medicine.

The regulatory body is responsible for establishing requirements and guidelines, authorization and inspection, and for enforcing legislative and regulatory provisions.

The hospital management has a prime responsibility for safety and for establishing and implementing a radiation safety programme.

Medical staff is responsible for the overall protection, both for patients and for themselves, in the delivery of medical exposures.

Pay particular attention in diagnostic radiology to:

- Justification of the use of a given radiological procedure for an individual, considering:
 - ▶ The appropriateness of the request;
 - ▶ The urgency of the procedure;
 - ▶ The characteristics of the exposure and of the individual patient;
 - ▶ The relevant information from any previous procedures;
 - ▶ The relevant referral guidelines;
- Optimization of protection and safety, considering:
 - ▶ The management of exposure to the patient as necessary to achieve the medical objective.
 - ▶ Setting standards for:
 - o Acceptable image quality;
 - o Typical doses to patients for common procedures;
 - o Diagnostic reference levels;
 - o A comprehensive programme of quality assurance;
 - o Special considerations for the protection of patients who are pregnant or breast-feeding, as well as children.



Resources

Radiation Protection and Safety of Radiation Sources: International Basic Safety Standards, No. GSR Part 3

http://www-pub.iaea.org/MTCD/publications/PDF/Pub1578_web-57265295.pdf

Radiation Protection of Patients (RPoP) website

<https://rpop.iaea.org/RPoP/RPoP/Content/index.htm>