



Factsheet for Decision Makers

Radiation Protection of Patients

RADIATION PROTECTION IN MEDICINE

Why is it important?

The use of ionizing radiation in diagnostic and interventional radiology, nuclear medicine and radiation therapy is an integral part of modern medical practice. It is estimated that every year, more than 3 600 million diagnostic medical examinations and more than five million radiotherapy treatments, are performed around the world. Also, the number of occupationally exposed persons is much greater in medicine than due to any other source or practice.

What do I need to know?

Radiation protection in medicine needs to consider occupational exposure of staff performing procedures, medical exposure of the patients undergoing procedures, and exposure of members of the public.

Two general principles of radiation protection, justification and optimization of protection and safety, are applicable to all exposure situations in medicine. Dose limits do not apply to medical exposure, as they may limit the benefits for the patient; they apply to occupational and public exposure only, in medical uses.

Justification of the medical exposure will determine whether the procedure will take place or not. If it is to take place, the procedure should be performed in such a way that radiation protection and safety is optimized.



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

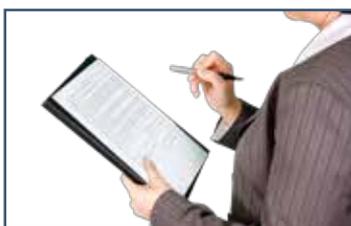
Radiation Protection and Safety of Radiation Sources: International Basic Safety Standards

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.

Particular attention in radiation protection in medicine should be paid to:

- Justification of the use of a given radiological procedure for the individual who undergoes the procedure;
- Optimization of protection and safety:
 - ▶ In diagnostic and interventional procedures, keeping the exposure of patients to the minimum necessary to achieve the objective
 - ▶ In therapy procedures, keeping the exposure of normal tissue as low as reasonably achievable while delivering the required dose to the target.
- High-dose procedures for patients, and procedures that may give substantial doses to medical staff;
- Protecting pregnant or breast-feeding patients, as well as children;
- Health screening programmes for asymptomatic populations;
- Prevention of incidents involving ionizing radiation in medicine.



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>