

Ask EuroSafe Imaging Tips & Tricks

CT Working Group

First aid kit for complying with the radiation protection requirements in a CT ward

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PROFESSIONAL

- *Now, that I am the new director of the CT division, what are my, and my staff's, obligations concerning radiation protection?*

PERSONAL

- *I, as a patient, am about to undergo a CT exam and, since I know X-rays are potentially harmful, what are the measures I need to look for to ensure radiation protection is properly applied in my case?*

Directive 2013/59/Euratom is mandatory for all EU countries. The answers to the above questions are clearly defined by national laws and institutional regulations. However, implementation may differ from one country to another.

The present material has been elaborated based on the specific legislative experience of the authors and may not necessarily apply to all institutions.

Professional

- The **PERSON RESPONSIBLE FOR RADIATION PROTECTION** must check for:

A. PRIMARY MEASURES

- authorization for operation of the equipment
- authorization for relevant employees to practice
- radiation management plan of the unit
- contract with a qualified radiation expert

B. EQUIPMENT

- service contract
- periodic check and recheck after every maintenance procedure

C. PERSONNEL

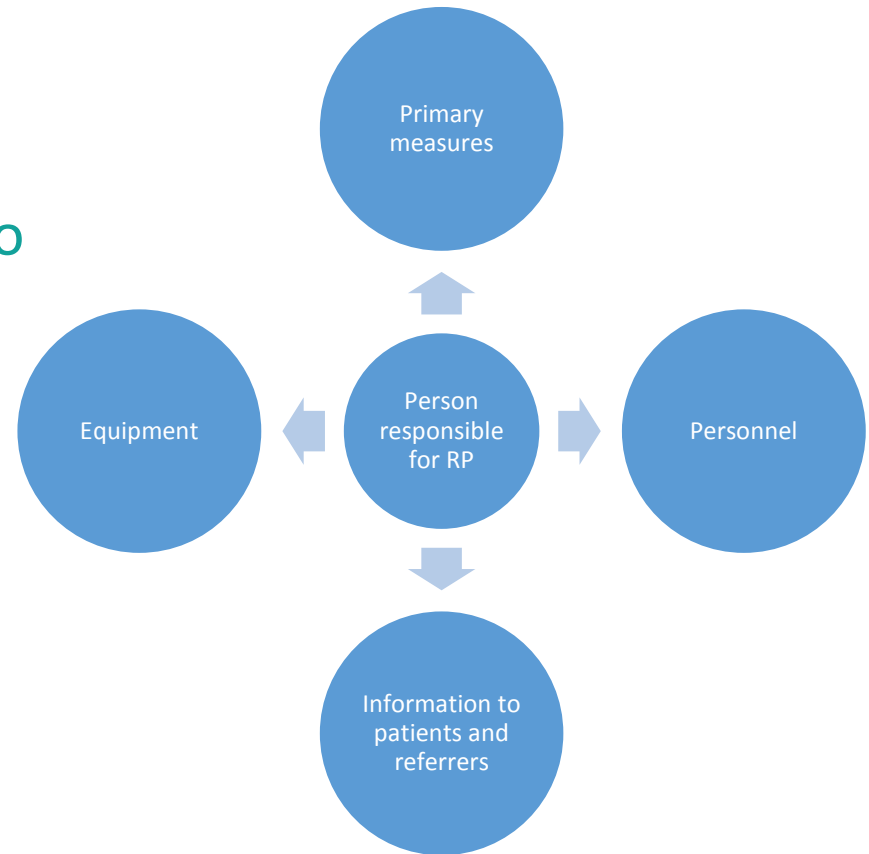
- initial and periodical radiation protection instruction
- Personal radiation monitoring devices – usage instructions and workup contract

Professional

- The **PERSON RESPONSIBLE FOR RADIATION PROTECTION** must check that:

D. RELEVANT INFORMATION on radiation protection is provided to the:

- referrers
 - Institutional policy
- patients
 - Fliers
 - Warnings
 - Informed consent form



Professional

- The **RADIOGRAPHER** is responsible for:
 - Proper identification of the patient and procedure
 - Obtaining the informed consent of the patient
 - Application of the physical radiation protection measures for the patient and the personnel
 - Ensuring correct patient positioning in the gantry
 - Using the designated examination protocol with dose reduction measures
 - Recording the technical information from the scan: scan duration, DLP etc.
 - Signaling any incident or potential hazard

Professional

- The **RADIOLOGIST** is responsible for:
 - Making the final decision to perform or reject the request to perform a CT exam
 - Making the final decision of whether to use contrast or not
 - Optimizing the examination and scan protocol in collaboration with the Radiographer and Medical Physicist
- Limiting, when clinically appropriate, the dose through measures such as:
 - Reducing the scanned area
 - Reducing the number of phases
 - Changing the scanned area / preparation
 - Switching to a nonionizing method

Personal

- On the way to the CT unit, check for:
 - Discussion about the procedure, its benefits and risks
 - Questionnaire about prior irradiation, incident to iodinated contrast, allergies, diabetes, thyroid, kidney and liver disease and pregnancy
 - Informed consent

- While arriving to the CT unit, look for:
 - Special posters such as: restricted area / controlled area / radiation hazard signs
 - Posters on the necessity to inform the personnel if you are or might be pregnant
 - Fliers with basic information on the benefits and risks of CT

Personal

- After being laid on the CT table, before the procedure starts, check:
 - A brief explanation of the procedure is given by the personnel
 - An explanation of the physical radiation protection procedures that will be undertaken is provided
 - When appropriate, if parts of the body are covered with shields.

- At the end of the procedure, look for:
 - A record of the irradiation dose received, usually labelled as DLP. This should be marked on the medical report and also be contained in an image along with the examination image set.

Conclusion

- *Radiology professionals, at different levels, have specific responsibilities concerning radiation protection*
- *Radiation protection measures and means should be obvious for the non-professional and should be integrated with patient communication before, during, and after the procedure*
- *As radiation protection is regulated by national laws, differences in approach are to be expected both between countries and between institutions.*

References

1. [Directive 2013/59/Euratom](#)
2. [Ordinul nr.752/3978/136/2018 al ministrului sănătății, al ministrului educației naționale și al președintelui CNCAN pentru aprobarea Normelor privind cerințele de bază de securitate radiologică \(Romania\)](#)