

MEDICAL APPLICATIONS OF IONIZING RADIATION SOURCES IN MOLDOVA: OPERATOR FREQUENT INFRINGEMENTS

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The question of risk from radiation exposure is a largely debated topic. The predominant risk from typical medical radiation exposure can be linked to cancer. The issue of medical radiation exposure is not a matter of safety, it is a matter of benefit compared to risk. For properly performed common medical radiation procedures that are necessary in light of the patient's medical condition, safety is not an issue. The question should be rephrased as, if in regard to the medical condition of this person, are these X rays necessary for proper medical care? That decision can only be made by the one who is familiar with the medical condition and the procedures that are necessary to treat this condition. Thus, the need for radiation protection is primary because exposure to ionizing radiation can result not only as benefits for patients, but also is the possibility to conduct unpredictal long-term negative consequences that manifest themselves.

The owner is ultimately responsible for the radiation safety of a diagnostic and treatment facility. It is the responsibility of the owner to ensure that the equipment provided to users and operators, and the facilities in which such equipment is installed and used, meet all applicable radiation safety standards.

In the Republic of Moldova ionizing radiation sources are used mainly in medicine in the radiodiagnostic, nuclear medicine and radiation therapy.

Statistical data shows that the most frequent infringements in the X-rays of the operator are: lack of the warning labels and indicators on the entrance of controlled areas; lack of established Dose Guidance (or Reference) Levels; deficiency (use of irrelevant measure units) of the patients dose records; lack of carrying out periodic testing of the X-ray equipment to ensure that the equipment is maintained properly and functions correctly. Unfortunately, in the Republic of Moldova there are only two authorized institutions for carrying out quality assurance and quality control of such activities, which is insufficient taking into account the number of X-ray installations in the country.

The most frequent infringements in the nuclear medicine are: administered activity of radio-pharmaceuticals is calculated for the standard patient and the weight of the patient is not taken into consideration; the work place monitoring is not conducted properly.

The main problem in radiotherapy is the absence of the treatment plan audit within the country.

In our opinion is necessary to enhance the implementation of the following principle of justification:

- a. Introduce and apply the 3A's (awareness, appropriateness and audit), which are seen as tools that are likely to facilitate and enhance justification in practice;
- b. Develop harmonized evidence-based criteria to strengthen the appropriateness of clinical imaging, including diagnostic nuclear medicine and non-ionizing radiation procedures, and involve all stakeholders in this development;
- c. Implement clinical imaging referral guidelines globally, keeping local and regional variations in mind, and ensure regular updating, sustainability and availability of these guidelines;
- d. Strengthen the application of clinical audit in relation to justification, ensuring that justification becomes an effective, transparent and accountable part of normal radiological practice;
- e. Introduce information technology solutions, such as decision support tools in clinical imaging, and ensure that these are available and freely accessible at the point-of-care;
- f. Further develop criteria for justification of health screening programmes for asymptomatic populations (e.g. mammography screening) and for medical imaging of asymptomatic individuals who are not participating in approved health screening programmes.