

THE IAEA'S ACTIVITIES IN RADIOLOGICAL PROTECTION IN DIGITAL IMAGING

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The International Atomic Energy Agency (IAEA) has an active program on the Radiological Protection of Patients (RPOP), which was established in 2001 in an International Action Plan with the cooperation of a number of international organisations and professional bodies. This program was developed in compliance with the mandate of the IAEA to develop standards of safety and apply these standards in Member States. The activities in this presentation are grouped into a) Coordinated Research Projects, b) Technical Cooperation activities aimed at building competence in Member States, c) developing guidance documents, d) information exchange through training activities and through the RPOP website, and e) mechanisms to report incidents.

Three Coordinated Research Projects were completed during 1991-2000, and the results were published as TECDOCs (Nos. 796, 1423 and 1447). In recent years, four Coordinated Research Projects have been completed, namely i) Avoidance of unnecessary dose to patients while transitioning from analogue to digital radiology, ii) Dose reduction in CT while maintaining diagnostic confidence, iii) Quantitative evaluation and promotion of patient dose limitation in fluoroscopically guided interventional procedures, and iv) A pilot study exploring the possibility of establishing guidance levels in X-ray directed interventional procedures. The results of these projects are under publication as IAEA TECDOCs, and indicate a significant reduction in doses to patients. Another important activity is the technical cooperation (TC) projects launched in over 80 countries of the world. The actions relevant to digital imaging are: 1. Avoidance of radiation injuries in interventional procedures using X rays and limiting probability of stochastic effects, especially in children; 2. Surveys of patient doses and image quality for establishing and using guidance levels in diagnostic examinations and comparison of values with international standards; 3. Survey of mammography practice from the optimization of radiation protection viewpoint; and 4. Patient dose management in computed tomography with special emphasis to paediatric patients. These actions have helped many Member States to take the first steps in patient dose assessments. Results from some countries are at the publication stage, whereas others are still in the initial stage.

A number of guidance documents are under preparation: Radiation protection aspects in PET/CT; Strategies for patient dose reduction in diagnostic radiology and their financial implications; Radiation protection aspects in cardiac CT; Radiation protection aspects in CT colonoscopy. The Agency has launched a website on radiological protection of patients <http://rpop.iaea.org>, the purpose of which is to reach millions of health professionals who need authentic information from international source(s) on patient protection in radiological imaging and radiation therapy.

During the last 5 years, over 50 training courses have been supported by the Agency and standardised training material has been developed that is freely available on CDs and can also be downloaded from the above website. CDs can be obtained by writing to patient.protection@iaea.org.

A methodology to quantitatively assess the position of Member States on a scale of compliance with international standards is currently under development and evaluation. In the coming years, the IAEA is going to develop a web-based system for incident reporting in interventional radiological procedures, develop guidelines for qualified experts in radiation safety for different areas, and develop a web-based examination system for qualified experts. In addition, the IAEA is carrying out projects on radiation protection in paediatric radiology and pregnancy, as well as another project on developing a system for long-term record of patient doses.

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