

Radiation and Transport Safety

Objective

To achieve global harmonization of the development and application of the Agency's radiation and transport safety standards. To increase the safety and security of radiation sources and thereby raise the levels of protection of people, including Agency staff, against the harmful effects of radiation exposure.

Radiation Protection Safety Standards

Radiation protection, sometimes referred to as radiological protection, applies to the protection of people and the environment from the harmful effects of ionizing radiation and to the safety of radiation sources. The radiation risks to people and the environment that may arise from the use of radiation and radioactive material must be assessed and controlled through the application of standards of safety. One of the most widely used radiation protection standards is the *International Basic Safety Standards for Protection against Ionizing Radiation and for the Safety of Radiation Sources* (BSS), a revised interim edition of which was recently published. In 2012, the co-sponsoring organizations, namely, the European Commission, FAO, the Agency, ILO, the OECD/NEA, PAHO, UNEP and WHO, formally confirmed their intention to jointly sponsor the revised BSS, which will be published in 2013.

The Agency continued to facilitate Member State implementation of the BSS by organizing three regional workshops, hosted by the Governments of Costa Rica, Malaysia and Ukraine. These regional workshops covered topics on new or strengthened safety requirements in the BSS and were attended by 83 representatives from 42 Member States. The workshops also provided opportunities for the Agency to discuss implementation issues and to receive valuable feedback on topics that required more detailed guidance.

In November, a 'Task Group on the Implementation of the International Basic Safety Standards' was established consisting of representatives of all of the co-sponsoring organizations. The Group, which is chaired by the Agency, will coordinate and monitor the implementation of the BSS in a consistent and coherent manner in United Nations system Member States in accordance with the respective roles and responsibilities of each co-sponsor.

Radiation Protection of Patients

'Appropriateness criteria' are the rationale used by a physician when deciding whether or not a particular imaging study is justified, taking into account risk and benefit, for answering the clinical questions about a patient who exhibits a specific set of conditions. These criteria have an important role in improving referral patterns in diagnostic imaging, and thereby reducing unnecessary exposure of patients. In March, the Agency organized a technical meeting in Vienna on 'Radiation Protection of Patients

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through the Development of Appropriateness Criteria in Diagnostic Imaging' where participants agreed on the key principles of a methodology for the development of appropriateness criteria in order to work towards harmonization of these guidelines.

At the General Conference in September, the Agency hosted a side event on 'Event Reporting of Medical Exposures', reviewing the importance of learning lessons from radiation incidents in medicine with the aim of enhancing patient safety. Since December, the Agency has been providing a voluntary safety reporting and learning system known as Safety in Radiation Oncology (SAFRON), which allows health professionals to learn lessons from reported radiation incidents in radiotherapy (Fig. 1).

The Agency held an international conference on Radiation Protection in Medicine: Setting the Scene for the Next Decade, in Bonn, Germany, in December. Co-sponsored by WHO and attended by participants from 77 Member States and 16 international organizations, the conference called for global action to improve patient and health worker protection. International bodies were urged to achieve the highest benefit with the least possible risk to patients. In addition, it was recommended



FIG. 1. Learning about safety in medical radiation therapy through the SAFRON system, available on the Agency's radiation patient protection web site at rpop.iaea.org.

that the responsibilities of stakeholders be identified regarding radiation protection in medicine for the next decade.

Occupational Radiation Protection

A Safety Report was published on occupational radiation protection in the titanium industry, an area with naturally occurring radioactive material (NORM). The publication examined the processes and materials involved in the related industries, and the radiological considerations that need to be taken into account by the regulatory body when determining the nature and extent of radiation protection measures to be taken.

Regulatory Infrastructure and Transport Safety

The Agency continued to support Member States in their enhancement of governmental, legal and regulatory frameworks for radiation safety through Integrated Regulatory Review Service (IRRS) missions. Four States were visited in 2012; in addition, advisory missions visited 15 States. The Agency also conducted a specific IRRS scoping mission in Kazakhstan.

In the area of national regulatory infrastructure for safety, the Agency's technical support to

Afghanistan's regulatory body, as well as a regional workshop in Jamaica for Caribbean States, focused on strengthening the regulatory control of sources, in particular in the medical sector. Workshops on orphan source search and strategies to regain control over such sources were organized in Morocco, Turkey and the United Republic of Tanzania (Fig. 2).

Two major tools to help States ensure both the adequacy of their national radiation safety



FIG. 2. Participants at a training course on searching for orphan sources.

regulatory infrastructure and their compliance with the Agency's safety standards were updated. One was the Regulatory Authority Information System (RAIS) and other the Self-Assessment of Regulatory Infrastructure for Safety (SARIS) (<http://www-ns.iaea.org/tech-areas/radiation-safety/source.asp?s=3&l=22>).

Transport Safety

The 2012 edition of the *Regulations for the Safe Transport of Radioactive Material* (IAEA Safety Standards Series No. SSR-6) was issued and included, among other revisions, significant changes to fissile material exceptions that enhance safety and reduce costs to industry. In addition, the outcomes and recommendations of the international conference on the Safe and Secure Transport of Radioactive Material, held in 2011, and a follow-up technical meeting, held in 2012, received support by the General Conference and continued to be implemented by the Agency.

Efforts to further harmonize the UN Model Regulations on the Transport of Dangerous Goods (the 'Orange Book'), the European Agreement Concerning the International Carriage of Dangerous Goods by Road, and the Agency's Transport Regulations continued (Fig. 3). The International Steering Committee on Denials of Shipment of Radioactive Material updated its Action Plan identifying 12 key elements for 2012 (for example, increasing the focus on interagency cooperation), and proposed improvements to the reporting mechanism for instances of denial or delay. A regional project to strengthen effective compliance assurance for the transport of radioactive material was initiated in Africa, and implementation of a similar project continued in the Asia-Pacific region.

Education and Training in Radiation Safety

In line with the Agency's 'Strategic Approach to Education and Training in Radiation, Transport and Waste Safety', a series of regional workshops in 2012 assisted Member States in establishing their own national strategies in this area. The workshops described the key factors to be considered, with emphasis being placed on comprehensive training



FIG. 3. A transport cask containing radioactive material being loaded for shipment.

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needs analysis as a basis for the strategy. The long term goal is to enhance national expertise in a sustainable and effective manner.

Radiation Safety Infrastructure Information Management

Member States and the Secretariat expanded their use of the Radiation Safety Information Management System (RASIMS) to collect and analyse information about national radiation safety infrastructures. The first workshop of RASIMS national coordinators led to a significant improvement in the quality and quantity of the data in RASIMS, which greatly enhances the planning and provision of Agency assistance.