

Radiation and Transport Safety

Objective

To achieve global harmonization of the development and application of the Agency's radiation and transport safety standards, and 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.

Approval of the Revised Basic Safety Standards

In 2010, agreement was reached within the Agency's four Safety Standards Committees¹ on the remaining technical issues concerning the revised International Basic Safety Standards for Protection against Ionizing Radiation and for the Safety of Radiation Sources (the BSS). These issues included: exemption and clearance; dose constraints;

and December the Committees approved the revised BSS for submission to the Commission on Safety Standards for endorsement.

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Reducing Unnecessary and Unintended Exposures in Medicine

As part of its efforts in 2010 to reduce unnecessary radiation exposure from medical imaging, the Agency



FIG. 1. Radiologists perform non-surgical intervention on a patient using fluoroscopic guidance.

exposure to radon in homes and workplaces; non-medical imaging; and exposure of air crew to cosmic radiation. Moreover, at their meetings in November

¹ The Nuclear Safety Standards Committee; the Radiation Safety Standards Committee; the Transport Safety Standards Committee; and the Waste Safety Standards Committee.

initiated an international campaign on the 'three As': awareness (through effective communication about risk), appropriateness (through up to date referral guidelines) and audit (through clinical audit of risk-benefit considerations) as recommended by the Steering Panel for the International Action Plan on the Radiation Protection of Patients, which met in Vienna in March 2010 (Fig. 1). The Agency also

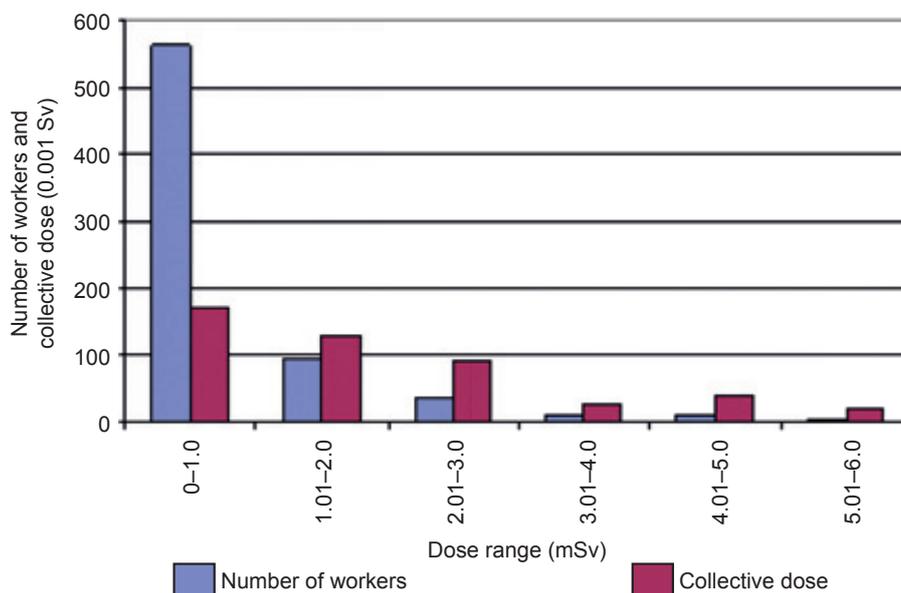


FIG. 2. Distribution of dose received by Agency staff in 2009. The figure shows that the Agency complies with existing dose limits in conducting its activities and that the majority of the doses recorded are well below the occupational dose limit.

provided recommendations for Member States and professional societies on the tracking of radiation exposure of patients through its 'SmartCard/SmartRadTrack' initiative. A number of technical

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cooperation projects were also conducted to assist in the reduction of patient doses.

To enhance safety in the use of ionizing radiation in medicine, the Scientific Forum, at the 2010 General Conference, and the Senior Regulators Meeting devoted topical sessions and discussions to standards and good practices to protect against unintended exposures in medicine. The Agency's patient protection web site (rpop.iaea.org) recorded ten million hits (with some 150 000 unique visitors) in 2010.

Strengthening of Radiation Protection Services

The Agency's Radiation Monitoring and Protection Services support implementation of IAEA radiation safety regulations. In 2010, a quality

management system was implemented and the monitoring methods used for assessing occupational and workplace exposures were accredited according to ISO 17025 standards.

As part of the Action Plan for Occupational Radiation Protection, the Agency inaugurated a web site on occupational radiation protection (ORPNET, <http://www-ns.iaea.org/tech-areas/communication-networks/norp/default.asp>) in October 2010. This site links all regional as well as reasonably achievable networks and other important systems in radiation protection such as the IAEA-OECD/NEA Information System on Occupational Exposure, the Information System on Occupational Exposure in Medicine, Industry and Research, and the Agency's web site on the radiation protection of patients (rpop.iaea.org).

In 2010, the workplace monitoring and individual monitoring of Agency staff occupationally exposed to radiation showed an average annual effective dose below 1 mSv, which is the internationally agreed dose limit for the public. This low dose confirms the high level of protection of staff during assignments and is a result of the extensive training delivered to minimize the occupational risk involved. The dose distribution of Agency staff in 2009, the last year for which figures are available, is given in Fig. 2.

Strategic Plan for Education and Training

The *Strategic Approach to Education and Training in Radiation, Transport and Waste Safety 2011-2020*,

a revised and updated version of the 2001–2010 strategy, was noted in September by the Agency's Board of Governors. This revised strategy emphasizes the importance of Member State commitment in taking the lead in developing and implementing their national strategies for education and training based on identified needs in order to achieve the desired level of competence in radiation, transport and waste safety.

Control of Radioactive Sources

In 2010, the Agency, in cooperation with Member States, initiated a programme on strengthening regulatory control of radioactive sources. The aim is to avoid unnecessary human exposure to radioactive sources. A new Safety Requirements publication on the *Governmental, Legal and Regulatory Framework for Safety* (IAEA Safety Standards Series No. GSR Part 1) was issued in 2010, which covers the key requirements for establishing a regulatory body and for taking other actions necessary to ensure the effective regulatory control of facilities and activities, including those involving radioactive sources.

Work continued on Safety Guides dealing with national strategies to regain control over orphan sources and other radioactive material in the metal recycling and production industries. The Agency conducted appraisal and advisory missions in Angola, Bosnia and Herzegovina, Brunei, Cambodia, the Democratic Republic of the Congo, Gabon, Laos, Lesotho, Malawi, Mali, Mauritius, South Africa and The Former Yugoslav Republic of Macedonia to review or advise on national infrastructures for the control of radioactive sources.

In addition, expert missions were conducted and training courses organized to promote the use of relevant tools for regulatory bodies, including workshops on the Self-Assessment Tool (SAT) and Methodology in Australia, Bulgaria, Georgia, Hungary, Montenegro, Poland, Romania, South Africa, Tajikistan and The Former Yugoslav Republic of Macedonia. The Agency organized regional training courses on the Regulatory Authority Information System (RAIS) in Botswana and the United Arab Emirates, and on authorization and inspection of radiation sources in Algeria, Ethiopia, Greece and Ukraine.

As of November 2010, 100 States have explicitly stated their commitment to use the Code of Conduct on the Safety and Security of Radioactive Sources as guidance in the development and harmonization of their policies, laws and regulations.

Assessment of National Radiation Exposure and Radioecological Reviews

In 2009, the Government of France requested that the Agency conduct a peer review of the methodology used by French experts to assess radiation doses to populations in French Polynesia that had been exposed to the atmospheric nuclear tests conducted by France between 1966 and 1974. The assessment of doses by France is aimed at establishing a technical context for the consideration of compensation to exposed groups in French Polynesia who developed potentially radiogenic diseases later in life. An ad hoc panel of international experts convened by the Agency reviewed the information submitted in a process that ended in July 2010. The conclusion of the panel was that the general approach to dose

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estimation by the French experts had been to choose the higher available measured values and that as a result the exposures actually received by the populations in French Polynesia were likely to be lower than the values provided in the assessment by the French experts.

At the request of the Government of Kazakhstan, an Agency review team visited the Semipalatinsk Test Site in order to determine whether the release of this site would comply with the Agency's safety standards. The review team's report, which will serve as a basis for the decision on eventual release of the site for use, was submitted to the regulatory body of Kazakhstan, the Atomic Energy Committee.

Transport Safety

Publication of Transport Safety Guides

The central pillar of Agency work in the safe transport of radioactive material is the provision of consensus based safety standards. In 2010, *Schedules of Provisions of the IAEA Regulations for the Safe*

Transport of Radioactive Material (2005 Edition) (IAEA Safety Standards Series No. TS-G-1.6), the final Safety Guide in the current series, was published

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completing the set of one Safety Requirements publication and six Safety Guides. This publication provides a road map to the regulations for those involved in transport operations.

The future of the Agency’s transport regulations was discussed by the Transport Safety Standards Committee in December, leading to a decision

to work closely over the next two years with the United Nations Economic Commission for Europe, International Maritime Organization and International Civil Aviation Organization to ensure greater harmony between the various international provisions.

PATRAM Conference Highlights

The 16th international symposium on the ‘Packaging and Transport of Radioactive Materials’ was held in London in October 2010. Hosted by the United Kingdom, in cooperation with the Agency, the International Maritime Organization and the World Nuclear Transport Institute, the conference discussed a range of technical issues related to the Agency’s transport regulations, including: emerging regulatory issues; long term storage and transport; denials and delays of shipment; and public acceptance of shipments.