

# Radiation and Transport Safety

## Objective

To establish global radiation and transport safety policies, criteria and standards, and to achieve a global harmonization of their application for the safety and security of radiation sources and thereby to raise the levels of protection of people, including Agency staff, against radiation exposure.

## New Requirements for Safe Transport

A revised version of the Agency's transport regulations was published in 2009. These safety requirements are increasingly being implemented internationally through coordination with other United Nations agencies and through the active involvement of Member States and industry in their development and application. While denials and delays of shipment of radioactive material continue to occur in all parts of the world, an inter-agency database, developed as part of an action plan to address denials of shipment, is helping to identify trends in order to focus international actions on root causes and responses.

In 2009, the Agency participated in discussions held by a group of coastal and shipping States, with a view to maintaining dialogue and consultation

aimed at improving communication and mutual understanding, and building confidence in relation to the safe maritime transport of radioactive material. In a related activity, a concept document was initiated describing the necessary response of coastal States to maritime emergencies involving radioactive material.

## Improving Radiation Safety Infrastructure

As part of its efforts to improve regulatory infrastructure for radiation safety, the Agency undertook 24 missions to Member States. In addition, it launched a new web based platform called RASIMS (the Radiation Safety Information

Management System (<http://rasims.iaea.org>)) to provide Member States with a clearer picture of the status of national radiation safety infrastructures

(Fig. 1). RASIMS is also intended to help identify country and region specific needs and facilitate prioritization of resources to enhance safety.

## Improving the Control of Radioactive Sources

There is a possibility of radioactive sources falling out of regulatory control at the end of

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*"A revised version of the Agency's transport regulations was published in 2009."*

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FIG. 1. The RASIMS web page for collecting and evaluating information on national radiation safety infrastructures.

their useful lives. This problem of orphan sources is exacerbated by the lack of suitable disposal facilities. Long term management strategies for these disused radioactive sources were discussed at a meeting in Vienna to share experience in implementing the Code of Conduct on the Safety and Security of Radioactive Sources, at a meeting of senior regulators at the General Conference, and at an international conference on 'Effective Nuclear Regulatory Systems', held in December in Cape Town. From these discussions, it was concluded that the management of disused sources is the weakest point in the chain of control over radioactive sources, and that one option for remedying the situation would be to facilitate the exchange of experience and information on the implementation of the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management, and to strengthen the implementation of the Code of Conduct on the Safety and Security of Radioactive Sources.

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*“During 2009, drafts of the revised BSS were discussed by the Agency’s four Safety Standards Committees, and agreement was reached on the text to be provided to Member States for comment.”*

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## Education and Training in Radiation, Transport and Waste Safety

In 2001, a strategic approach to education and training in radiation protection and waste safety was endorsed by General Conference resolution GC(45)/RES/10C. It outlined the vision, objectives and outcomes to be achieved at the end of ten years. In view of the end of the implementation period, the Secretariat, in July 2009, carried out an analysis to identify current strengths and areas where activities need to be continued or improved.

The analysis pointed out that the African, Asia-Pacific, European and Latin American regions all now have at least one operational regional training centre for the provision of training according to the Agency’s safety standards and in response to regional and national needs. In addition, a comprehensive portfolio of training materials is available, as are mechanisms for collecting and collating the data and information needed to determine education and training needs in these regions (e.g. the Education and Training Appraisal service).

Areas for improvement were also identified, such as the need to strengthen the train the trainers approach and to consolidate the activities of the regional training centres through long term

agreements. Detailed guidance was also required on the development of a national education and training strategy in radiation protection and safety.

## Radon in Dwellings and Workplaces: A New Approach in the International Basic Safety Standards

The *International Basic Safety Standards for Protection against Ionizing Radiation and for the Safety of Radiation Sources* (the BSS) are currently being updated. During 2009, drafts of the revised BSS were discussed by the Agency’s four Safety Standards Committees, and agreement was reached on the text to be provided to Member States for comment. A key technical issue addressed was the control of

exposure to radon, a naturally occurring radioactive gas, in both dwellings and workplaces. At a technical meeting held on this issue in Vienna in December, the participants recommended that exposure to radon in workplaces where the exposure is directly related to the work should be regarded as occupational exposure. All other exposure in workplaces and in dwellings should be controlled through the use of reference levels and optimized radiation protection measures. Different reference level values were recommended to reflect differences in the numbers of hours typically spent at home and at work.

## Investment in Training for the Protection of Patients

Current studies show large differences in exposure for the same medical examinations, indicating a significant potential for dose reduction and optimization of medical exposures. The Agency provides theoretical and practical training, as well as training materials, for health professionals on the radiation protection of patients (Fig. 2). It also provides guidance to end users through a dedicated web site (<http://rpop.iaea.org/RPoP/RPoP/Content/index.htm>), which last year generated more than half a million hits per month.

## Radiation Protection of Workers: A New Information System

Detailed operational and feedback information is lacking on occupational exposures in the medical, research and industrial areas, where radiation uses



FIG. 2. Practical training in dose measurement using computed tomography at a regional training course in Nicaragua (left); and Agency training materials in Spanish on radiation protection of patients (right).

can lead to significant occupational exposures, both in normal operations and in accident situations. To address these gaps, the Agency developed the Information System on Occupational Exposure in the Medical, Industrial and Research Areas (ISEMIR). The first working group of ISEMIR focused on interventional cardiology. In addition, questionnaires sent to regulatory bodies and interventional cardiologists showed that information on occupational exposure in interventional cardiology was limited and of poor quality, that radiation protection habits in cardiac catheterization laboratories were well short of desired levels, and that regulatory requirements for radiation protection training needed improvement. A pilot trial began in December aimed at developing a system for regular collection of occupational exposure data.

### The 2009 ISOE International ALARA Symposium

As part of its responsibilities as the technical centre for the Information System on Occupational Exposure (ISOE), the Agency hosted the 2009 ISOE International ALARA Symposium. Co-sponsored by the Agency and the OECD/NEA, the ISOE provides a forum for radiation protection professionals from both nuclear power plant utilities and regulatory authorities to share dose reduction information and operational experience and to coordinate international cooperative projects to optimize radiological protection of workers at nuclear power plants. Papers and presentations from the symposium are available on-line (<http://www.isoe-network.net/>).