IAEA Technical Cooperation Programme

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Protecting patients during medical exposure to radiation in Latin America

The challenge…

Medical radiological procedures are the largest human-made source of exposure to ionizing radiation. The collective exposure of patients is about 150 times greater than all occupational exposure from all sources used in medicine and industry. Patient exposure surveys have shown that doses delivered may vary by a factor of 50 and higher. The lack of dose optimization results in unnecessary exposure, particularly for children, who are sometimes examined under the same exposure parameters as adults. Interventional radiological procedures are increasing rapidly but are often administered by medical staff who do not have specific training in radiation protection.

In Latin America, accidental exposures in radiotherapy have led to serious injuries which could have been avoided. To prevent unnecessary exposure and to ensure that patients, family members and patient comforters are protected, efforts to support optimized dose protection in Latin America in line with international radiation safety standards are essential.

The project…

Through a regional technical cooperation project, the IAEA has trained professionals to optimize protection by bringing into balance diagnostic image quality and patient exposure. Fellowships were used to develop technical expertise for radiation protection in conventional radiology, mammography, computed tomography, interventional procedures, nuclear medicine and radiotherapy. Special attention was devoted to groups with higher sensitivity, such as pregnant women and children. Under the project, a dedicated web site in Spanish was set up to support access to information.

Practical exercise on radiation protection and optimization strategies in interventional cardiology.

The IAEA is supporting the issuance of regional recommendations on diagnostic imaging for referral doctors, taking into account the Principle of Justification, and is helping Member States to put into practice guidelines on the release of patients who have received nuclear medicine therapy.

The project also addresses the critical issue of new technologies, such as digital radiology and hybrid systems that may lead to unnecessary exposure.

The impact…

As a result of this project, health professionals in Latin America and the Caribbean have received training, equipment has been upgraded and guidelines have been designed for the release of patients following nuclear medicine therapy to ensure the quality and efficiency of the procedures used, as well as the safety of both patients and medical personnel. In addition, reference levels in diagnostics have been established. Through the project, software was developed for quality control in mammography, and activities related to the prevention of accidents and injuries in radiotherapy and interventional procedures have been carried out.

Programmes and strategies that ensure patient protection are being put in place with the help of the IAEA's technical cooperation programme. Access to up to date information on doses and best practices will significantly reduce the risk of unnecessary exposure of patients and medical personnel.

Technical cooperation project RLA/9/067: Ensuring Radiological Protection of Patients during Medical Exposures (TSA3)