
Human Health

Objective

To enhance capabilities in Member States to address needs related to the prevention, diagnosis and treatment of health problems through the development and application of nuclear and related techniques within a quality assurance framework.

Dosimetry of Small Static Fields Used in External Beam Radiotherapy

The use of small static fields in radiotherapy has grown rapidly over the past decade. To support consistent reference dosimetry traceable to metrological primary standards, the Agency, together with the American Association of Physicists in Medicine, issued *Dosimetry of Small Static Fields Used in External Beam Radiotherapy* (Technical Report Series No. 483), the first international code of practice dedicated to the dosimetry of small static fields used in radiotherapy. The publication provides a description of the physics of small field dosimetry and the underlying formalism and concepts, as well as recommendations on its practical implementation by medical physicists. The code of practice described ensures that reference dosimetry is traceable to the International System of Units and enables international harmonization of procedures to be followed by radiotherapy centres for the dosimetry of small static megavoltage photon fields.

Radiation Risk Assessments and Risk Perceptions in Medical Imaging

The rapid development of medical technology has expanded the spectrum of applications of radiation in medicine and has contributed to improved patient care. Medical imaging procedures for diagnosis or therapy involve exposure to a small amount of ionizing radiation for the patient, with a finite amount of risk. This risk depends on the amount of exposure, the number of exposures and the patient's age.

To inform health professionals and other interested parties about how to assess and communicate radiation risks, and to provide them with background information on risk perception in medical imaging, the Agency, together with the World Health Organization and the United Nations Scientific Committee on the Effects of Atomic Radiation, organized a joint side event during the 61st regular session of the Agency's General Conference. The event attracted more than 60 participants, who discussed the methodologies used for assessing radiation doses and associated risks; perceived magnitude and significance of dangers linked to medical exposures; and the importance of proper risk communication to patients.

Nuclear Techniques for Early Diagnosis of Alzheimer's Disease

An estimated 47 million people around the world have been diagnosed with dementia, two thirds of them in developing countries. Nuclear techniques can be instrumental in identifying the underlying disease process several years before symptoms appear and can thus improve treatment.

During the 61st regular session of the General Conference in September, on World Alzheimer's Day, the Agency arranged a side event entitled 'Neuropsychiatry: The Revolution of Molecular Imaging in Alzheimer's Disease'. The event highlighted the role of nuclear techniques in the evaluation of patients with dementia, including Alzheimer's disease, and other neurological diseases, and the Agency's activities and assistance to Member States in this area. It also covered aspects of living with a patient with dementia and the global burden of neuropsychiatric disorders.

During 2017, the Agency also developed new on-line educational materials for the Human Health Campus web site and provided training in the diagnosis of the Alzheimer's disease to over 120 medical professionals through three training courses held in Argentina, Brazil and Chile.

“the Agency arranged a side event entitled ‘Neuropsychiatry: The Revolution of Molecular Imaging in Alzheimer’s Disease’... [highlighting] the role of nuclear techniques in the evaluation of patients with dementia, including Alzheimer’s disease and other neurological diseases”

Addressing Malnutrition Using Stable Isotopes

The Agency, jointly with the World Health Organization and the United Nations Children's Fund, organized a workshop entitled 'Analysis of Biological Pathways to Better Understand the Double Burden of Malnutrition and to Inform Action Planning'. Held in Vienna in October, the workshop brought together some 50 researchers and public health professionals working in the fields of nutrition and diet related non-communicable diseases in 30 countries around the world.

Participants discussed the double burden of malnutrition, its epidemiology and the biological pathways that drive it, as well as nutrition related policies and programmes to address it. They emphasized the role of nuclear techniques in understanding the biological pathways and assessing the impact of nutrition interventions, and identified main areas of programmatic focus. The workshop underlined the growing importance of stable isotope techniques in providing accurate information for the design and evaluation of interventions, especially those related to feeding infants and young children in the first 1000 days — from conception to two years of age — and for the evaluation of diet quality.