

Assessment and Interpretation of Internal Dose: Uncertainty and Variability

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Internal doses are calculated on the basis of knowledge of intakes and/or measurements of activity in bioassay samples, using biokinetic and dosimetric models. These models describe the behaviour of the radionuclides after ingestion, inhalation and absorption to the blood, and the absorption of the energy resulting from their nuclear transformations. They are intended to be used mainly for the purpose of radiological protection; that is, optimisation and demonstration of compliance with dose limits. These models and parameter values are fixed by convention and are not subject to uncertainty. During the past few years, the International Commission on Radiological Protection (ICRP) has devoted a considerable amount of effort in the revision and improvement of models to make them more physiologically realistic. ICRP models are now so sophisticated that they can also be used to calculate organ and tissue absorbed doses for scientific purposes, and in many other areas, including toxicology, pharmacology and medicine. In these specific cases, uncertainties in parameters and variability between individuals need to be taken into account.