

A Step-by-Step Procedure to Aid the Assessment of Intake and Doses from Measurement Data

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The interpretation of bioassay data to assess intakes and doses depends not only on the biokinetic model used but also on the choice of parameter values made by the assessor. Therefore, it is understandable that different assessors will draw different conclusions from the same datasets even if the same models are used. A systematic step-by-step procedure is proposed for the assessment of cases with comprehensive data in which the time of intake is known. The aims are to promote harmonisation of dose assessments and to assist in obtaining the best available assessment of intake and dose from the monitoring data. The procedure is illustrated by means of an example reported recently in the literature. The case which involves a 6 y follow-up of a subject who inhaled ²⁴¹Am, is somewhat unusual in that there are comprehensive in vivo measurements, but few excretion data. The rate at which activity is absorbed from lungs to blood can be one of the largest sources of uncertainty in any inhalation assessment, and significantly improved fits to the measurement data were obtained by choosing appropriate values for the relevant parameters. 'The best estimate' of the resulting effective dose in this case was higher by a factor of ~2 or 3, respectively, than those obtained assuming ICRP default values for Type M or Type S.

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