Absorbed-Dose Specification in Nuclear Medicine (Report 67)

Contributed by DJ Smith
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A number of reasons have led to a reappraisal of dose specification for nuclear medicine. These include an appreciation of non-uniformities in the distribution of radioactivity in the body, at all levels, for even the most common diagnostic and therapeutic agents; an increasing need to deal with the complexities of varying dose rates; the imperative to provide individual rather than standardised dose estimates as targeted radio-nuclide therapy becomes more sophisticated; as well as improvements in technology.

Book Review

This Report deals first with biological considerations that inform the rational use of radionuclide dosimetry. Radiobiological factors in the selection of radionuclides and tumour and normal-tissue doseâ€“responses are discussed. Then, the MIRD (medical internal radiation dose) approach to nuclear medical dosimetry, a robust method that has proven its clinical utility, is described. Following on is an elaboration of non-uniform distri-butions of radioactivity and of varying dose rates. Lastly, the Report deals with techniques and procedures for measuring time variant activity distributions, image fusion, patient specific dose computations, small-scale dosimetry, and the comparison of calculated and measured doses.