Perspectives of international organisations: International Commission on Radiological Protection

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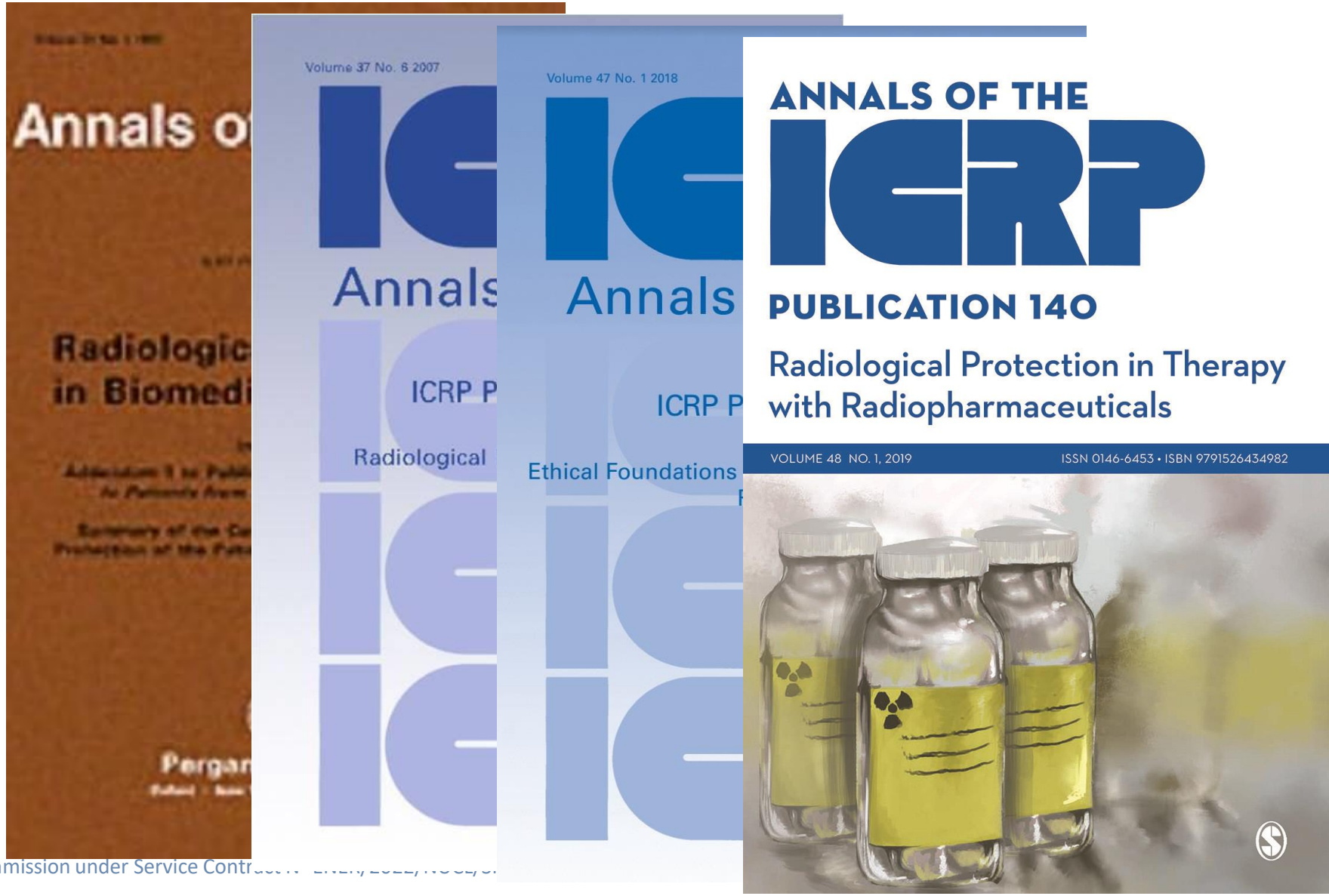
Relevant documents from ICRP

Publication 62

Publication 105

Publication 138

Publication 140



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Relevance of patient dosimetry ➔ Proposed actions 7.1 – 7.3

New radiopharmaceuticals for therapy. (…) effects may also occur in tissues surrounding the target tissue or organ. Experiments in animals must be checked against human data obtained from volunteers, collected at low administered activity (i.e. in the diagnostic range). Only then can doses to the target tissue and other organs at therapeutical activities be estimated with reasonable confidence. The probability of deterministic and stochastic (if relevant) damage can then be assessed. Publication 62, § (42)

The goal of all radiation therapy is to optimise the relationship between the probability of tumour control and normal tissue complications (…) to use the appropriate dose to obtain the desired therapy. Publication 105, §§ (46-47)

The protection of tissues outside the target volume is an integral part of dose planning, which can be regarded as including the same aims as the optimisation of protection. Publication 105, § (75)

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Relevance of patient dosimetry ➔ Proposed actions 7.1 – 7.3

The obvious benefit of complete cure and the need to minimise the potential for secondary malignancies show the importance of dosimetry for each treatment. This is particularly relevant for children and young people, and for high-risk patients. Publication 140, §(41)

Treatment of differentiated thyroid cancer with ^{131}I-iodide

The absorbed doses delivered to the whole body, critical organs, and tumours have been reported to vary by an order of magnitude, indicating the important role of personalised dosimetry. Publication 140, §(67)

The probability of inducing acute myelotoxicity, the potential for longer-term secondary neoplasms, and the need to justify administrations of high activity to children and young people emphasise the need for personalized dosimetric planning and verification for all. Publication 140, §(69)

Treatment of neuroblastoma with ^{131}I-mIBG

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Relevance of patient dosimetry ➔ Proposed actions 7.1 – 7.3

Data show evidence for acute toxicity primarily to the kidneys and bone marrow. The variation in absorbed doses delivered to tumours and the potential for acute-radiation-induced nephrotoxicity and myelosuppression mean that prospective patient-specific organ and tissue dosimetry should be performed for all patients. The prospect of personalised treatments based on carefully designed dosimetric protocols is quite feasible. Publication 140, §(79)

Treatment with radiolabelled peptide receptors

Individual absorbed dose estimates must be performed for treatment planning and postadministration verification of dosimetry on an individualised basis. Publication 140, §(89)

Radioimmunotherapy

The potential to induce severe toxicity or even to cause death, combined with the probability of undertreating many patients, necessitates the use of personalized dosimetry for treatment planning. (…) the possibility of administering the therapy to a different location from that used for the tracer study, renders post-treatment verification essential if the effect of treatment is to be understood. Publication 140, §(102)

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Thank you!

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Opening & Setting the Scene

Discussion: 14:00-14:15
15 minutes

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