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Resolution of Public Consultation Comments for

# *ICRP Publication 154 Optimisation of Radiological Protection in Digital Radiology Techniques for Medical Imaging*

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## Background

ICRP is grateful for the time and effort taken to review and comment on the draft report during the public consultation period. Such consultations are a valuable part of developing high-quality publications.

## Public Consultation

This draft report was available for public consultation for five months, ending on 28th October 2022. Responses were received on behalf of ten organisations and two individuals.

The revised report was approved for publication by the Main Commission in March 2023, with agreement on some final revisions.

## Resolution of Comments

The many constructive comments received during public consultation are gratefully acknowledged and have helped the authors improve the report which has been revised throughout taking the various views.

Comments overall were supportive of the approach to optimisation taken in the report. Many of the comments related to clarification of particular aspects and offered useful suggestions that have been incorporated in the revision, as well as additional references. There were suggestions to include a number of additional points, as well as one to reduce the document substantially. The Task Group have tried to follow a balanced approach reducing some sections, while including some suggestions from reviewers, and this has left the length of the report substantially unchanged.

The stress put on the need for appropriate education and training in optimisation was considered to be important and welcomed by a number of societies. Comments were made that less attention had been paid to exposure and protection of staff performing interventional procedures. The Task Group (TG) have tried to bring out the link between patient and staff exposure, but since this is the subject of ICRP Publication 139, we have not dealt with the topic in any depth.

There have been comments from several organisations about staff terminology, especially relating to clinicians other than radiologists who perform interventional procedures, with a number of different terms suggested. To resolve this the TG have adopted the term *radiological medical practitioner* as used in the IAEA Basic Safety Standard. This is a health professional with specialist education and training in the medical uses of radiation, who is competent to perform independently or to oversee radiological procedures in a given

specialty. This includes radiologists, as well as cardiologists, orthopaedic surgeons and other clinicians, who have undertaken appropriate training for this role. However, since the predominant group of clinicians to whom this applies are radiologists, we have used throughout the document “radiologists and other radiological medical practitioners”. Although this is rather long-winded, we feel that this is correct and so should be acceptable to all.

The introductory section has been restructured and shortened in an attempt to provide a more logical development of ideas. The section stating more emphatically the purpose of the report has been moved to the start of the introduction and an attempt has been made to remove much of the repetition to make the message clearer. Multiple references to previous ICRP publications on Optimisation have been coalesced into one section.

Most comments were supportive of the establishment of different levels from D to A for the achievement of optimisation, which have been introduced to assist hospitals in identifying the systems they already have in place and what may still be achieved. An issue, linked to differences in practice, is that many countries have few if any medical physicists practising in diagnostic radiology at the present time. The TG members believe that this scientific expertise is crucial for full implementation of optimisation in digital radiology, especially for more complex x-ray equipment. We therefore, regard centres that do not have medical physicists as still being at a preliminary stage in the process of optimisation. It is recognised that centres may start along the road using the expertise of radiographers, but the more limited scientific expertise will inhibit the optimisation process.

There were a number of comments related to the need to address issues for different x-ray modalities separately, such as in relation to the use of contact shielding. We have now tried to make clear that these are being dealt with in a companion publication which will be published in the near future.

It is acknowledged that the field of AI is rapidly developing and extending in scope, covering various applications and parts of medical imaging administration, integration, processes and workflow, including AI methods supporting radiological optimisation. How extensive this development will be during the lifespan of the TG document cannot be accurately predicted. However, the main points of this development have been indicated in the document as regards to optimisation.

Several comments related to the use of DRLs, but the TG did not consider any extension to be appropriate, as more complete explanations are given in ICRP Publication 135.

**Annex: Consultation respondents**

Responses were received from a range of international and national professional organisations representing radiographers, radiologists and medical physicists. These included the International Society of Radiographers and Radiological Technologists, International Society of Radiology, Dutch Society for Clinical Physics, Image Gently Alliance, Dutch National Institute for Public Health and the Environment, Italian Association of Medical Physics, UK Society for Radiological Protection, UK Society of Radiographers, Korean Association for Radiation Protection, European Federation of Organisations for Medical Physics and the following individuals: Andrea Magistrelli and Sue Edyvean.