Keeping the ICRP Recommendations Fit for Purpose

Virtual Technical Meeting on the Assessment and Evaluation of the Occupational Radiation Protection Appraisal Service (ORPAS)

IAEA

September 17 2021
Publication of General Recommendations

- 1928 (ICR, 1929)
- 1931 (ICR, 1931)
- 1934 (IXRPC, 1934)
- 1937 (IXRPC, 1938)
- 1950 (ICRP 1951)
- 1954 (ICRP, 1955)
- 1956 (ICRP, 1958)
- 1959 (ICRP Publication 1)
- 1964 (ICRP Publication 6)
- 1966 (ICRP Publication 9)
- 1977 (ICRP Publication 26)
- 1991 (ICRP Publication 60)
- 2007 (ICRP Publication 103)
Some Developments since *Publication 103*

- 45 new ICRP publications since *Publication 103*
  - Integration of protection of the **environment**
  - New clarity on the **ethical** foundation
  - Improved understanding of radiation **effects** (e.g., lens of eye, radon)
  - More focus on protection against **tissue reactions**
  - Experience with **exposure situations**

- Increasing **engagement** with stakeholders

- New **domains** of RP (e.g., human spaceflight, veterinary patients)
System Review: The Next Decade

- Recognise gaps
- Consider needed updates
- Identify **building blocks**: essential work required for the next general recommendations
Some Complete & Underway Building Blocks

- **Effect & Risk**
  *Publication 148 $w_R$ for Ref Animals & Plants*
  *Publication 118 Tissue Reactions*
  TG 64 Cancer Risk from Alpha Emitters
  TG 91 Low-dose and Low-dose Rate Risk
  TG 102 Detriment Calculation Methodology
  TG 111 Individual Response to Radiation
  TG 119 Diseases of the Circulatory System

- **Dose**
  *Publication 147 Dose Quantities in RP*
  *Dose Coefficients Publications*
  TG 99 Reference Animals and Plants Monographs
  TG 103 Mesh-type Reference Phantoms
  TG 118 RBE, Q, and $w_R$

- **Concepts / Scope / Structure / Application**
  *Publication 126 Radon*
  *Publication 124 Environment*
  TG 105 Environment
  TG 110 Veterinary Practice
  TG 115 Astronauts
Review & Refinement of the System of Radiological Protection

Identify areas that need attention

Develop specific areas through wide and deep engagement

Draft and consult on new general recommendations

about a decade
International Collaboration Important for the Process

Organisations in Formal Relations with ICRP

- Conference of Radiation Control Program Directors (CRCPD)
- European ALARA Network (EAN)
- European Alliance for Medical RP Research (EURAMED)
- European Association of Nuclear Medicine (EANM)
- European Commission (EC)
- European Nuclear Installations Safety Standards Initiative (ENISS)
- European Radiation Dosimetry Group (EURADOS)
- European Radioecology Alliance (ALLIANCE)
- European Society of Radiology (ESR)
- European Training and Education in RP Foundation (EUTERP)
- Heads of the European RP Competent Authorities (HERCA)
- Ibero American Forum of Radiological and Nuclear Regulatory Organisations (FORO)
- IEC Electrical Equipment in Medical Practice (IEC/TC62)
- IEC Nuclear Instrumentation (IEC/TC45)
- IndustriAll Global Union’s International Network (INWUN)
- Information System on Occupational Exposure (ISOE)
- **International Atomic Energy Agency (IAEA)**
- International Commission on Radiation Units and Measurements (ICRU)
- International Labour Organisation (ILO)
- International Organization for Medical Physics (IOMP)
- International Radiation Protection Association (IRPA)
- International Society of Radiographers and Radiological Technologists (ISRRT)
- International Society of Radiology (ISR)
- Multidisciplinary European Low Dose Initiative (MELODI)
- National Council on Radiation Protection and Measurements (NCRP)
- OECD Nuclear Energy Agency (NEA)
- United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR)
- World Health Organisation (WHO)
- World Nuclear Association (WNA)
Are there any areas that would require review?

- Background and Purpose
- Objectives and Principles of the System
- Overarching Considerations
- Dose
- Effects and Risk
- Conclusions
Highlights Identified for Potential Review

- Classification of effects, with focus on tissue reactions
- Reformulation of detriment, potentially including non-cancer diseases
- Relationship between detriment and effective dose
- Individual variation in response to radiation exposure
- Heritable effects
- Effects and risks in non-human biota and ecosystems
- Integrating protection of people and the environment
- Fundamental principles of justification and optimisation
- Broader approach to protection of individuals
- Clarification of exposure situations
- Explicit incorporation of the ethical basis of the System
- Communications and stakeholder involvement
- Education and training
Areas of Research to Support the System of RP

• Introduction
• Research to support radiation risk assessment
• Research to support dosimetry
• Research to support the application/implementation of the System of Radiological Protection

> Under review
General Strategy

Improve **clarity** and consistency

**Simplify** where possible, recognising that the System of Radiological Protection needs to handle complex situations
Invitation to Collaborate: Future of RP Workshop

NOW ACCEPTING ABSTRACTS

The Future of Radiological Protection
19 - 20 October 2021

- 2 days of livestream presentations & 3 weeks of on-demand presentations
- Seeking wide and diverse participation – flexible registration including no fee option
- Presentations & papers responding to the “Keeping ICRP Recommendations Fit for Purpose” paper, or any topic related to the review of the System of RP (abstracts due 30 Sept 2021)
ICRP 2021+¹
Radiological Protection: The Next Generation

ICRP 2021 POSTPONED
SAVE THE DATE
7–10 NOVEMBER 2022

Read the FAQs