

Prospects for a New Edition of the General Recommendations of ICRP

BVS-ABR General Assembly

Univeristaire Stichting – Fondation Universitaire Egmontstraat/Rue
d'Egmont 11

1000 Brussels, Belgium

December 8, 2023

ICRP: UK Registered Charity 1166304



INTERNATIONAL COMMISSION ON RADIOLOGICAL PROTECTION

Werner Rühm
ICRP Chair, BfS

The International Commission on Radiological Protection (ICRP)

- Founded in **1928**

- **Provides independent recommendations and guidance** on radiological protection for the public benefit

- **Does not formulate standards**, regulations, and codes of practice (this is the responsibility of other national and international organisations)

- Considers **scientific knowledge**, evolving **social values**, and **practical experience**

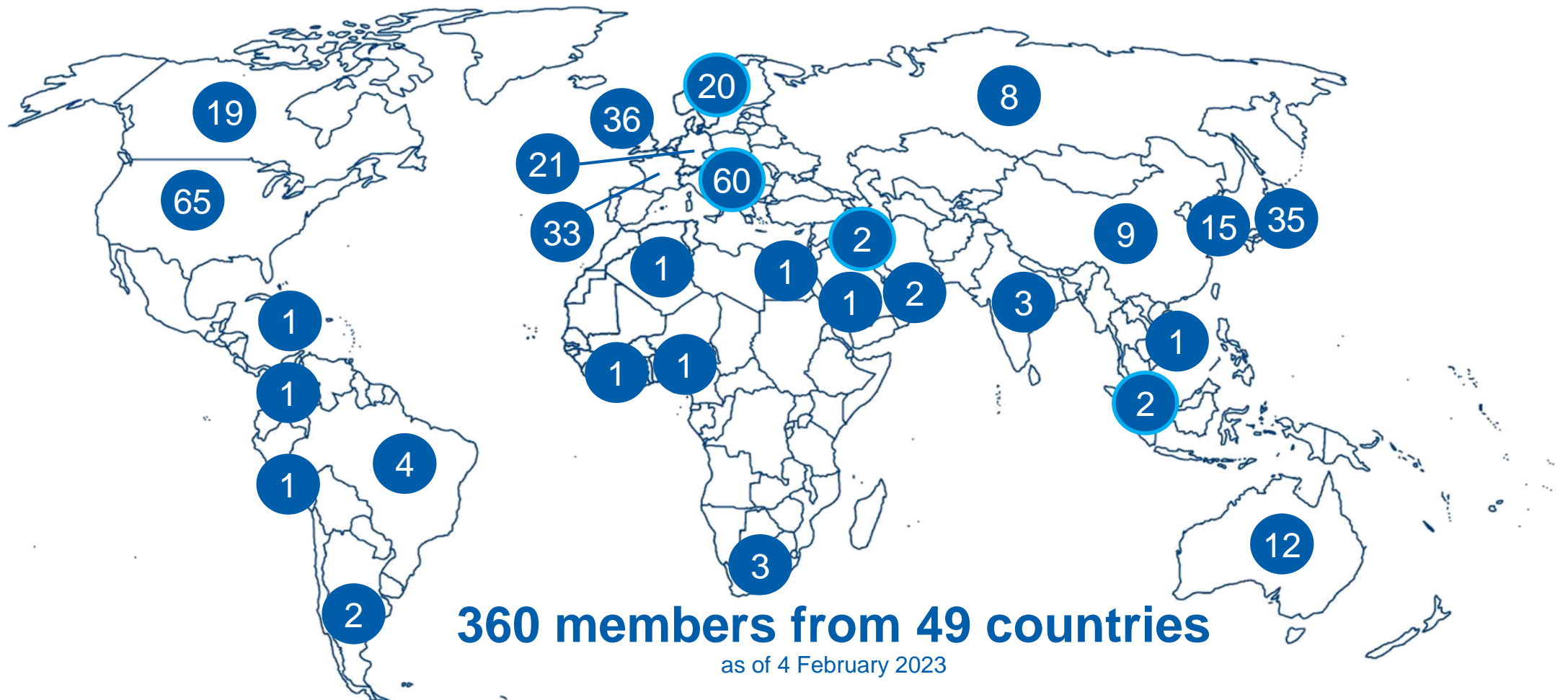
- **To contribute to an appropriate level of protection against the detrimental effects of ionising radiation exposure without unduly limiting the benefits associated with the use of radiation.**

Membership

- More than 350 volunteer members from almost 50 countries selected on the basis of recognized competence and experience, for four year terms.

ICRP is a Charity registered with the Charity Commission of England and Wales
ICRP is an independent Non-Governmental Organisation (NGO)

The International Commission on Radiological Protection (ICRP)



International Relationship: 35 Organisations in Formal Relations with ICRP (SLOs)

- Conference of Radiation Control Program Directors (CRCPD)
- European ALARA Network (EAN)
- European Alliance for Medical RP Research (EURAMED)
- European Association of National Metrology Institutes (EURAMET)
- European Association of Nuclear Medicine (EANM)
- European Commission (EC)
- European Federation of Organisations for Medical Physics (EFOMP)
- European Nuclear Installations Safety Standards Initiative (ENISS)
- Europ. Platform on Preparedness for Nucl. & Radiol. Emergency Response & Recovery (NERIS)
- 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 Agency for Research on Cancer (IARC)
- International Atomic Energy Agency (IAEA)
- International Commission on Non-Ionizing Radiation Protection (ICNIRP)
- 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)
- Social Sciences and Humanities in Ionising Radiation Research (SHARE)
- United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR)
- World Health Organisation (WHO)
- World Nuclear Association (WNA)

Review & Revision of the System of RP

Identify topics ('building blocks') for review

**Develop building blocks through
ICRP Task Groups**

**Prepare the next General
Recommendations using
the building blocks**

about a decade



Initial Key Milestones (open access papers)

1. Keeping the ICRP recommendations fit for purpose

Clement et al 2021 JRP, www.doi.org/10.1088/1361-6498/ac1611

2. Areas of research to support the system of radiological protection

Laurier et al 2021 REB, www.doi.org/10.1007/s00411-021-00947-1

3. Summary of the 2021 ICRP workshop on the future of radiological protection

Rühm et al 2022 JRP, www.doi.org/10.1088/1361-6498/ac670e

4. ... A focus on research priorities - feedback from the international community

Rühm et al 2023 JRP, www.doi.org/10.1088/1361-6498/acf6ca

Thoughts
from ICRP &
invitation to
contribute

Summarises
feedback
from the
community



SLO Meeting, September 2023, Bristol, UK



2023 meeting with international organisations with special relationship to ICRP (SLOs)

In conjunction with ICRP-WNA workshop on

- Optimization in the system of radiological protection based on the all-hazards approach
- Effective communication and stakeholder engagement in the system of radiological protection

SLO-meeting organised by ICRP every year to discuss important questions

14 SLOs were present at the Bristol meeting

- CRCPD, EURADOS, EURAMET, EFOMP, ENISS, HERCA, ICNIRP, IEC, ILO, ISOE, NCRP, SHARE, WHO, WNA
- 15 representatives of SLO in-person and 4 ICRP members
- In addition, reports received from: EANM, EUTERP, IAEA, IOMP

Agenda

- ICRP events and engagement
- **Review and revision of the System of RP:** Progress and Outlook
- Vancouver Call for Action to Strengthen Expertise in RP Worldwide
- Fostering Communication in RP

SLOs: Review and revision of the System of RP: Progress and Outlook



Feedback

- Very positive feedback on the openness of ICRP
- Call for All-Hazard Approach
- Explore the WHO “One Health” program
- Importance of addressing uncertainties
- Key role of the ALARA approach and Stakeholder Involvement for the application of the System
- Graded Approach to deal with low doses
- Further integrate social sciences and humanities

- Simplification (while there are complexities: e.g., cardiovascular diseases, radiation detriment)
- RP as part of bigger considerations
- Practicability and feasibility will be important
- Stability of legal system is important

Major Take Home Messages

- Role of SLOs crucial for impact assessment
- The current System works. Changes should improve RP of people and the environment
- Pre-consultation with SLOs appreciated
- **Building blocks include most relevant issues**

Review & Revision of the System of RP

Identify topics ('building blocks') for review ✓

→ Develop building blocks through ICRP Task Groups

Prepare the next General Recommendations using the building blocks

about a decade

30 Active ICRP Task Groups

- | | |
|---|--|
| TG36 Radiopharmaceutical Doses | TG114 Reasonableness and Tolerability |
| TG91 Low-dose and Low-dose Rate Exposure | TG115 Risk and Dose for Astronauts |
| TG95 Internal Dose Coefficients | TG116 Imaging for Radiotherapy |
| TG96 Computational Phantoms and Radiation Transport | TG117 PET and PET/CT |
| TG97 Surface and Near Surface Disposal | TG118 RBE, Q, and w_R |
| TG98 Contaminated Sites | TG119 Diseases of the Circulatory System |
| TG99 Reference Animals and Plants Monographs | TG120 Radiation Emergencies and Malicious Events |
| TG103 Mesh-type Computational Phantoms | TG121 Offspring and Next Generations |
| TG105 The Environment in the System of RP | TG122 Detriment Calculation for Cancer |
| TG106 Mobile High Activity Sources | TG123 Classification Radiation-induced Effects |
| TG108 Optimisation in Medical Imaging | TG124 The Principle of Justification |
| TG109 Ethics in RP in Medicine | TG125 Ecosystem Services |
| TG111 Individual Response to Radiation | TG126 Human Biomedical Research |
| TG112 Emergency Dosimetry | TG127 Exposure Situations and Categories |
| TG113 Dose Coefficients for X-ray Imaging | TG128 Individualisation & Stratification |

~18 Additional topics identified

May initiate this term (ca 2024)

- Dose limits / protection of the individual
- Non-cancer effects beyond cardiovascular
- Sources and impacts of uncertainties
- RP in space

May initiate early next term (ca 2025)

- Primary aim, human & environment
- The principle of optimization
- Protection of microbiota
- Integ. of RP in the environment
- Practical applications of ethics in RP
- Revised detriment & its application

- Dosimetry system consolidation
- Justification in medicine
- Justification and optimization of medical exposures, premature infants

May initiate next term (ca 2027/28)

- Medicine (new P105)
- Education and training
- Communication
- Compendium of dose coefficients
- Dose/risk coefficients for molecular radiotherapy

Approximate & subject to change

ICRP Symposium ICRP2023

ICRP2023, Japan 6-7 November 2023



Conference Programme

Tuesday 7 Nov	Wednesday 8 Nov			Thursday 9 Nov
Welcome & Lindell Lecture	Atomic bombing, Suffering and Science			Clinical Potential and Prospects for Carbon Ion Radiotherapy from Physical and Biological Properties
Going Beyond Dose: Wellbeing in RP	The Next Generation of Scientists & Professionals			RP in Ion Beam and Targeted Alpha Therapy
Dosimetry for the Next General Recommendations	Stratification & Individualisation TG128	Sustainable Development & Protection of the Environment TG125	Classification of Effects TG123	Radiation Detriment, Other Risk Metrics, and their Application
Communication	Exposure Categories & Situations TG127	Tolerability & Reasonableness TG114	Offspring & Next Generations TG121	Effects & Dose Response: Cancer, Circulatory Disease, & Beyond
JRRS Poster Viewing	ICRP 2023 Poster Viewing			JHPS Poster Viewing
How Experience of the Fukushima Daiichi Accident is Improving RP	Radiation Emergencies TG120	Imaging in Radiotherapy TG116	Justification TG124	Strengthening Expertise & Raising Public Awareness

Conference Statistics and Information

Registrations

- 626 on-site registrations
- 80 online registrations

> More than 700 from 59 countries!

Presentations, posters

- 105 live presentations
- 25 posters
- Including 53 pre-recorded videos

Participants by country

- Japan: 258
- Republic of Korea: 89
- United States: 47
- Canada: 35
- United Kingdom: 26
- France: 24
- Germany: 20 ...

Majority from Asia

- Symposia on all continents increases ICRP visibility
- Allows „local“ participation

Proceedings will include

- Summary of the Symposium
- Sessions summary (from rapporteurs)
- A few key papers (Bo Lindell lecture, Cousins award paper)
- All abstracts
- Additional papers (as electronic annex)

In terms of on-site participation biggest ICRP event ever!

Revised General Recommendations

Role of ICRP Symposia

2021⁺¹ First ICRP symposium after launch of review & revision

2023 **Specifically designed to directly address key fundamental topics**

2025 Structure likely similar to ICRP 2023

2027 Possible very early consideration of General Recommendations ?

2029 Possibly link to consultation on draft General Recommendations ?



VERY PRELIMINARY!

Next Symposium ICRP2025



ICRP

THANK YOU!

www.icrp.org