

ICRP: Review of the System of RP & Vancouver Call for Action

Briefing to ISCORS

November 2023



Christopher Clement
ICRP Scientific Secretary
& CEO

PRESENTATION OVERVIEW

- **Review & Revision of the System of RP**
- ICRP 2023 Symposium

Fit for Purpose

**The System of Radiological Protection is
robust and has performed well**

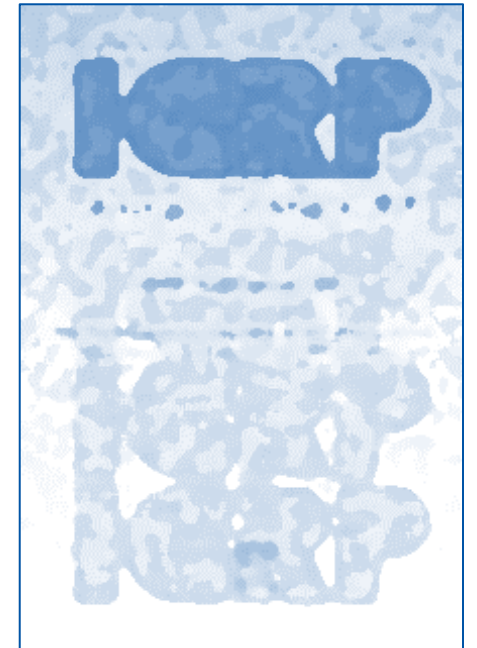
however

**it must adapt to address changes in science
and society to remain fit for purpose**

The Next Generation

ICRP initiated a **review and revision of the System of Radiological Protection**, laying the groundwork for new General Recommendations to supersede the 2007 Recommendations

- This will be the foundation of RP standards, regulations, guidance, and practice world-wide for **the next generation**
- Cooperation and collaboration is essential, across borders and generations; involvement of **the next generation** of RP professionals is crucial



Overarching Considerations

Updates must contribute to improved protection

The revised System of RP should be:

- easier to communicate
- easier to use

However, the underlying basis of the system must be **robust**, to handle **complex problems** and consider **complex scientific, ethical, and practical issues**

Guiding Principles

Solid science & ethical values

Inclusive, accessible & transparent process

ICRP Code of Ethics

Commitment to public benefit – Act to protect humans and the environment from the harmful effects of Radiation

Independence – Act independently of governments and organisations, including industry and other users of radiation

Impartiality – Act impartially in its development of recommendations and guidance

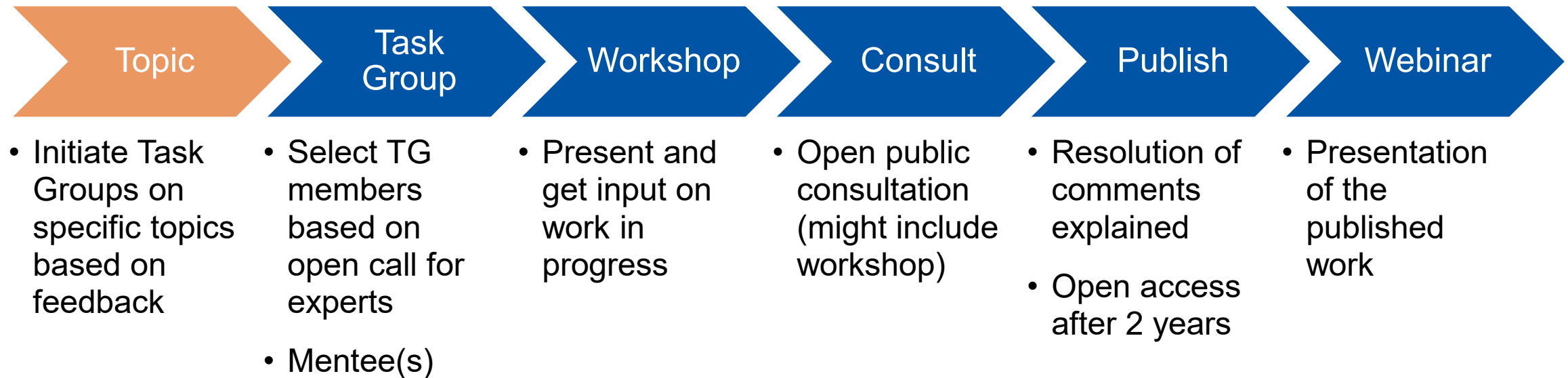
Transparency – Engage stakeholders and strive to be transparent in actions and judgements

Accountability – Be accountable to the framework that governs the activities of a charity

Guiding Principles → Open Process

Inclusive • Accessible • Transparent

- Ensure everyone who wants to contribute can do so
- Benefit from a wide variety of perspectives



ICRP Events

TG 95 WEBINAR

PRESENTING REPORT ON PRODUCTION OF DOSE COEFFICIENTS FOR THE ASSESSMENT OF INTERNAL EXPOSURE OF WORKERS & MEMBERS OF THE PUBLIC



6 DECEMBER 2023

Introducing ICRP
Publication 153

RADIOLOGICAL PROTECTION IN VETERINARY PRACTICE

11 SEPTEMBER 2023

WORLD NUCLEAR ASSOCIATION ICRP

WORKSHOP

27-28 SEPT 2023

Day 1: Optimization in the System of RP Based on the All-Hazards Approach

Day 2: Effective Communication and Stakeholder Engagement in the System of Radiological Protection

THE ROLE OF ICRP AND STAKEHOLDERS IN THE FUTURE OF RADIOLOGICAL PROTECTION

13 JUNE 2023

ICRP

Strålsäkerhetsmyndigheten
Swedish Radiation Safety Authority

TG 117 WORKSHOP


RADIOLOGICAL PROTECTION IN PET AND PET/CT



18 SEPTEMBER 2023

TG 109 WORKSHOP

ETHICS IN RADIOLOGICAL PROTECTION FOR MEDICAL DIAGNOSIS AND TREATMENT



2 JUNE 2023

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)

Keeping the ICRP recommendations fit for purpose

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

Areas of research to support the system of radiological protection

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

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

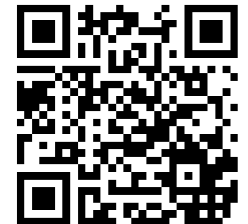
... A focus on research priorities - feedback from the international community

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

Thoughts from ICRP & invitation to contribute



Summarises feedback from the community



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

The System of Radiological Protection for the Next Generation

While the System of Radiological Protection is robust and has performed well, it must adapt to address changes in science and society to remain fit for purpose for the next generation.

ICRP is in the process of review and revision of the System that will update the 2007 General Recommendations for the Protection of People against Ionising Radiation (ICRP Publication 103). This will take several years, involving open and transparent engagement with organisations and individuals world-wide.

The next generation refers to the future revised General Recommendations, and the importance of the involvement of the younger professionals and scientists who will continue to use and maintain the System in years to come. ICRP's [mentorship programme](#) is a key activity supporting this.

The work is loosely organised into three phases: identifying topics ('building blocks') to be reviewed, developing these topics primarily through ICRP Task Groups, and finally consolidating the results into a publication that will supersede ICRP Publication 103.

NEW ON ICRP.org

Identify topics ('building blocks') for review

Develop building blocks through ICRP Task Groups

Prepare the next General



30 Active ICRP Task Groups

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

~19 Additional topics identified

Approximate & subject to change

May initiate sooner

- Primary aim, human & environment objectives
- The principle of optimisation of protection
- Protection of other non-human biota
- Practical implications of ethics in RP
- RP in space
- Justification in medicine
- Justification & optimisation for fetus & neonate
- Integration of RP of the environment

May initiate later

- Dose limits / protection of the individual
- Non-cancer effects beyond cardiovascular
- Dose/risk coeffs for molecular radiotherapy
- Revised detriment & its application
- Dosimetry system consolidation
- RP in medicine (new P105)
- Compendium of dose coefficients

Cross-Cutting Topics:

- Sources and impacts of uncertainties
- Sustainable development
- Education and training
- Communication

Role of ICRP Symposia in the Review & Revision of the System

- 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!

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	Sustainable Development & Protection of the Environment	Classification of Effects	Radiation Detriment, Other Risk Metrics, and their Application
Communication	Exposure Categories & Situations	Tolerability & Reasonableness	Offspring & Next Generations	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	Imaging in Radiotherapy	Justification	Strengthening Expertise & Raising Public Awareness

ICRP 2023 Tokyo: Outcome

Sharing and feedback on many topics now under consideration

Excellent participation of younger scientists and professionals

> 600 in-person attendees, participants from >50 countries

18 Topical sessions, each summarised by a rapporteur

~ 300 presentations (~100 live in-person + >200 posters & recorded videos)

Proceedings in Annals of the ICRP in 2024 (including overall summary of main points and summaries of each session)

Video recordings now available to registered participants – will be openly released in early 2024

ICRP 2025
8TH INTERNATIONAL SYMPOSIUM ON THE SYSTEM OF RADIOLOGICAL PROTECTION
NOVEMBER 2025 • ABU DHABI, UAE



Welcome to ICRP 2025 Abu Dhabi

PRESENTATION OVERVIEW

- Review & Revision of the System of RP
- **Vancouver Call for Action**

VANCOUVER CALL FOR ACTION

To Strengthen Expertise
in RP Worldwide



ICRP has called for action worldwide to strengthen expertise in radiological protection over concerns that a shortage of investment in training, education, research, and infrastructure will compromise society's ability to manage radiation risks.

This could lead to unjustified exposure to or unwarranted fear of radiation, impacting physical, mental, and social well-being. It could also unduly limit the potential for research and development in new radiation technologies (for example, in healthcare, energy, and the environment) for beneficial purposes.

Vancouver Call for Action

ICRP calls for action to strengthen expertise in RP worldwide through:

1. National governments and funding agencies strengthening **resources for radiological protection research** allocated by governments and international organisations.
2. National research laboratories and other institutions **launching and sustaining long-term research programmes**.
3. Universities developing undergraduate and graduate **university programmes and making students aware of job opportunities** in radiation-related fields.
4. Using **plain language** when interacting with the public and decision makers about radiological protection.
5. Fostering **general awareness of proper uses of radiation and radiological protection** through education and training of information multipliers.

Vancouver Call for Action

Open access paper

Vancouver call for action to strengthen expertise in radiological protection worldwide

Rühm et al, Radiation and Environmental Biophysics, April 2023

<https://link.springer.com/article/10.1007/s00411-023-01024-5>



The logo for the International Commission on Radiological Protection (ICRP) is displayed in a bold, blue, sans-serif font. The letters are 'I', 'C', 'R', and 'P'. The 'C' and 'R' are connected to the 'I' and 'P' respectively, with a thin white line separating the 'C' and 'R'. The background is white, with a blue diagonal bar on the right side and a light blue bar at the bottom.

www.icrp.org