Factors Governing the Individual Response of Humans to Ionising Radiation

The draft report of ICRP TG111

Consultation webinar
9 April 2026

Simon Bouffler,
TG111 chair

ICRP

Our presentations

- 12:00 – Welcome and introduction – Simon Bouffler
- 12:10 – Early/late developing normal tissue reactions following radiotherapy – Andrzej Wojcik/Catharine West
- 12:20 – Circulatory diseases – Preetha Rajaraman
- 12:30 – Cataract – Nobby Hamada
- 12:40 – Cognitive impairment – Claudia Rübe
- 12;50 – Human studies on cancer – Kyoji Furukawa
- 13:00 – Experimental animal studies on cancer – Tatsuhiko Imaoka
- 13:10 – Assessment of uncertainties and confidence in conclusions
- 13:20 – Report conclusions
- 13:30 – Open discussion
- 14:00 – Meeting close

Membership

Simon Bouffler (Chair)
Kyoji Furukawa
Michael Hauptmann
William McBride
Claudia E. Ruebe
Catharine West
Stephen Barnard (Mentee)
Weiwei Pei (Mentee)
Prabal Subedi (Mentee)

Michel Bourguignon
Nobuyuki Hamada
Tatsuhiko Imaoka
Preetha Rajaraman
Dan Stram
Andrzej Wojcik
Julie Leblanc (Mentee)
Andreas Breitbarth (Mentee)
Sasha Jande (Mentee)

Terms of reference

The TG will review the currently available information on individual [illegible]n responses with special focus on the following questions and issu[illegible]

- What is the impact of age, sex and other determinants [illegible] tissue reactions and incidence of cancers and other diseases follo[illegible]tion exposure?
- What is the contribution of genetics to indivi[illegible]al tissue responses with respect to adverse reactions to varying [illegible]n as given during radiotherapy?
- Would predictive tests contribut[illegible]r radiation protection of radiotherapy patients without compromi[illegible] cure rates?
- What is the contributi[illegible]tics and epigenetic factors to tissue radiation response with re[illegible]ancer induction at relevant doses and dose rates?
- What is th[illegible] that modifiable factors can affect individual risk of radiation-indu[illegible], tissue reactions and other non-cancer diseases?
- [illegible] the ways to quantify the potential impact of individual response to r[illegible]iation on the incidence of cancers, non-cancer diseases and normal tissue reactions?

Literature review – no consideration of the implications for RP

Scope

Health effects under consideration:

- Normal tissue reactions after radiotherapy
- Cancers
- Circulatory diseases
- Cataract
- Cognitive impairment

Types of evidence/study under consideration:

- Clinical studies
- Epidemiological studies
- Experimental animal studies
- Cellular assays

Importance of the topic

Currently the system of radiological protection aims to:

- **Avoid tissue injury (deterministic effects)**
- **Minimise risk of stochastic effects (cancer/hereditary)**
  - **justification, optimisation, dose limitation**
  - **limits derived from notional average that does not exist**

Potential contributors to variation in response

- Genetic factors
- Epigenetic modifications
- Lifestyle factors
- Co-exposures
- Underlying health conditions
- Stochasticity of responses
- .....

Consultation draft

- Approx 200 pages of text
- Numerous references – 56 pages worth!
- Posted for public consultation February 2026
- Consultation open until 1 May 2026
- Webinar today!

Contents

CONTENTS

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