



ICRP

**4TH INTERNATIONAL SYMPOSIUM ON THE
SYSTEM OF RADIOLOGICAL PROTECTION**

October 10-12 2017, Paris, France

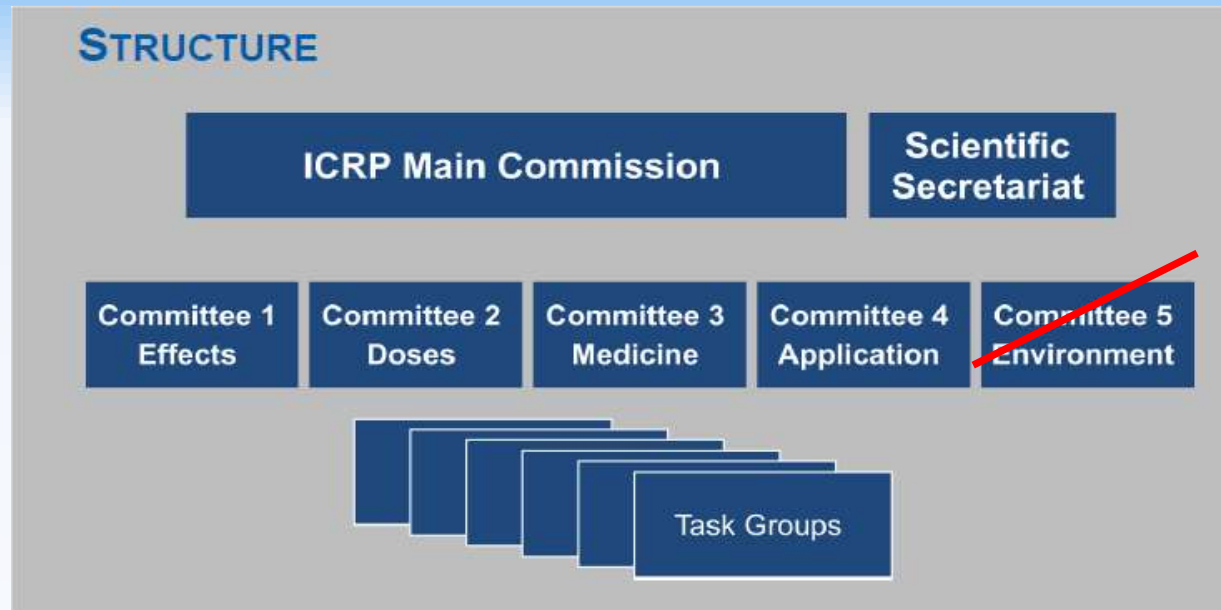
ERPW

**2ND EUROPEAN RADIOLOGICAL
PROTECTION RESEARCH WEEK**

The Mandate and Work of ICRP Committee 3 on Radiological Protection in Medicine

Colin J Martin, PhD (ICRP C3 Vice-Chair)

STRUCTURE



Committee 3 (Protection in Medicine) is concerned with the protection of persons and unborn children when ionising radiation is used in medical diagnosis, therapy, and biomedical research, as well as protection in veterinary medicine.

Patients, Staff, Public, Animals

- Evaluate RP needs related to emerging technologies.
- Produce recommendations and user-friendly guidance on RP.

Committee 3 and Other Organizations

- ICRP maintains formal relations with other organisations with an interest in radiological protection through specific agreements, or by granting Special Liaison status.
- Representatives from the **World Health Organization**, the **International Atomic Energy Agency** cooperate closely with Committee 3.

ICRP Committee 3 2013 - 30 June 2017



Left to right, **Front row:** Donald Miller, Eliseo Vano, Madan Rehani, Pedro Ortiz Lopez
Middle row: Colin Martin, Sandor Pallet, Pek Lan Khong, Katrine Riklund Åhlström, Michel Bourguignon (in insert);
Back row: Baorong Yue (insert), Reinhard Loose, Ola Holberg (representative, IAEA), Pierre Scalliet, Yoshiharu Yonekura, Keon Kang, Kimberly Applegate (insert) and Lawrence Dauer (insert).

ICRP C3 (Protection in Medicine) 2017-2021

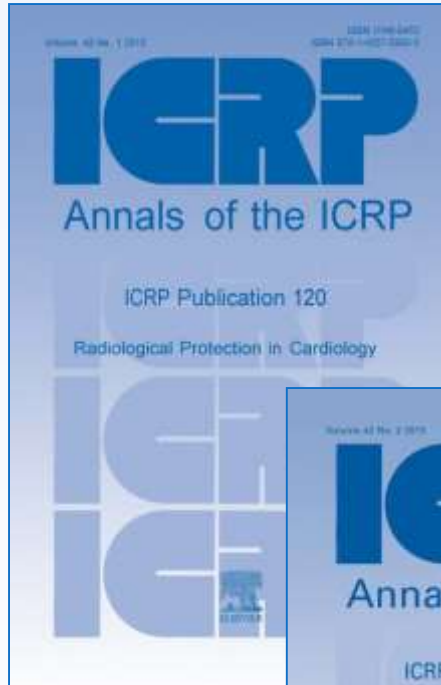
15 members (MP=Med. Phys. NM=Nucl. Med. RD=Radiology; RO=Radiat. Oncol.)

8 new members for 2017

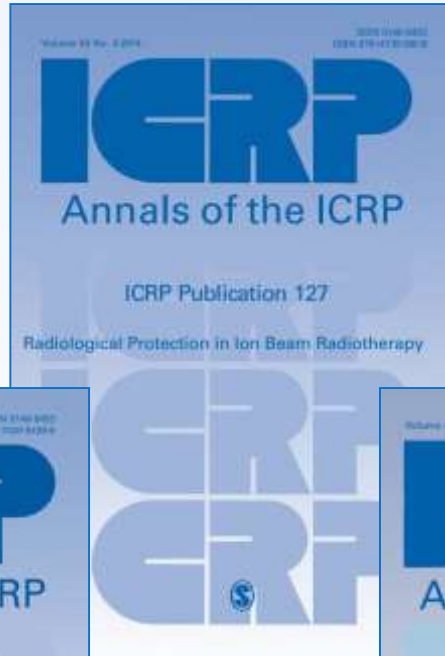
- **Alsuwaidi** Jamila Dr MP (UAE)
- **Applegate** Kimberly Prof RD (USA)
- **Bourguignon** Michel Prof NM (France)
- **Cantone** Marie-Claire Prof MP (Italy)
- **Demeter** Sandor Prof NM (Canada)
- **Hosono** Makoto Prof NM (Japan)
- **Kang** Keon Prof NM (Korea)
- **Loose** Reinhard Prof RD (Germany)
- **Martí-Climent** Josep Prof MP (Spain)
- **Martin** Colin Dr MP (UK) **Vice-Chair**
- **Niu** Yantao Dr RD (China)
- **Rehani** Madan Prof MP (India/USA) **Secretary**
- **Small** William Prof RO (USA)
- **Sutton** David Dr MP (UK)
- **Van Bladel** Lodewijk Dr SURG (Belgium)

C3 members are from 12 countries

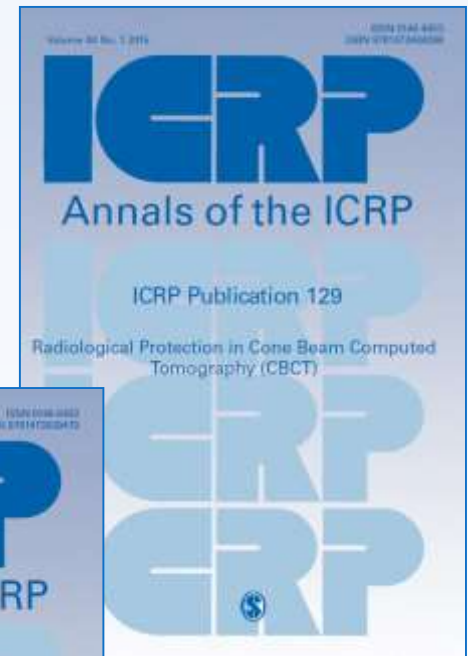
ICRP Committee 3: Most Recent Publications



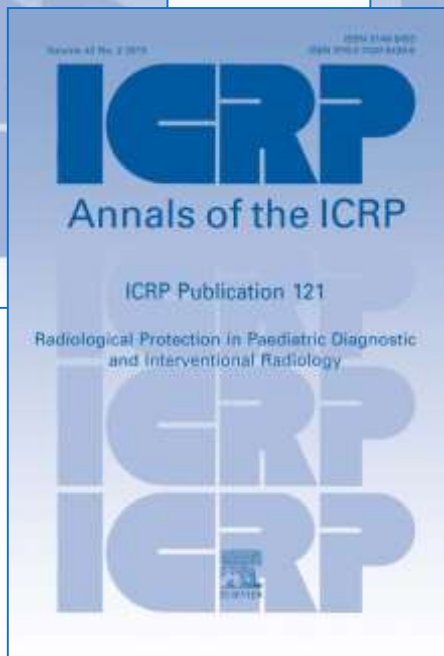
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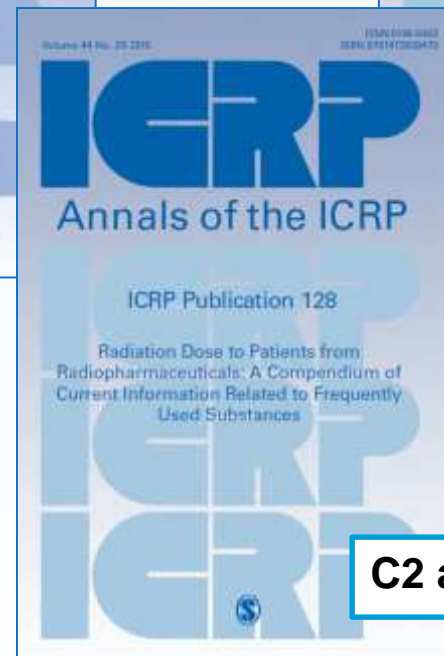
127



129



121



128

C2 and C3

ICRP C3: Most Recent Publications

- P120. Radiological Protection in **Cardiology**. Ann. ICRP 42(1), 2013.
- P121. Radiological Protection in **Paediatric Diagnostic and Interventional Radiology**. Ann. ICRP 42(2), 2013.
- P127. Radiological Protection in **Ion Beam Radiotherapy**. Ann. ICRP 43(4), 2014.
- P128 (with Committee 2). Radiation Dose to Patients from **Radiopharmaceuticals**: A Compendium of Current Information Related to Frequently Used Substances. Ann. ICRP 44(2S), 2015.
- P129. Radiological Protection in **Cone Beam Computed Tomography (CBCT)**. Ann. ICRP 44(1), 2015.

ICRP C3 Publication 135 Diagnostic Reference Levels



DRAFT REPORT FOR MC APPROVAL FOR PUBLICATION

ICRP Ref 4852-6617-6576

27 March 2017

MC Critical Reviewers: C. Cousins, J. Boice

Annals of the ICRP

ICRP PUBLICATION 1XX

Diagnostic Reference Levels in Medical Imaging

Editor-in-Chief
C.H. CLEMENT

Associate Editor
H. OGINO

Authors on behalf of ICRP

E. Vano, D.L. Miller, C. J. Martin, M.M. Rehani, K. Kang,
M. Rosenstein, P. Ortiz, S. Mattsson, R. Padovani, A. Rogers

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by

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Please cite this issue as 'ICRP, 201x. Diagnostic reference levels in medical imaging.
ICRP Publication 1XX. Ann. ICRP 4X(X-X)'

**Publication 135;
Final proofs checked:
Publication Autumn
2017**

P135 - DRLs in Medical Imaging

- **Issue and principles for use of DRLs**
- **Considerations in conducting surveys to establish DRLs**
- **Electronic collection to increase amount of data**
- **Specific modalities:**
 - Radiography, digital radiography, fluoroscopy, interventional procedures, CT, nuclear medicine, multimodality imaging procedures
- **Paediatrics: Dealing with range of sizes**
- **Use of the DRL process in clinical practice**

DRLs Selection of Main Points (1)

1. Quantities used for DRLs should assess the amount of ionising radiation to perform a medical imaging task, and should be **easily measured or determined**.
2. DRL values should be based on surveys of the DRL quantities for **procedures performed on appropriate samples of patients**. Not phantoms.
3. National and regional DRL values should **be revised at regular intervals (3-5 years)**.
4. DRL values are **dependent on the state of practice and the available technology** at a point in time.

DRLs Selection of Main Points (2)

5. DRL values shall **not be used for individual patients or individual examinations.**
6. For **interventional procedures, complexity of the procedure may be considered in setting DRLs.**
7. A DRL value is considered to be **consistently exceeded** when the local median for a representative sample of patients is greater than the DRL value. **Consistently means 'in a majority of cases'.**
8. **Comparison of local practices to DRL values is not sufficient.** If a local or national DRL value is exceeded, **investigate and take corrective action immediately.** That is optimization!

ICRP C3 Occupational RP in Interventional Procedures



DRAFT REPORT FOR CONSULTATION: DO NOT REFERENCE

ICRP ref 4850-2328-1208

2017 March 20

MC Critical reviewers: D. Cool, C. Cousins

Annals of the ICRP

ICRP PUBLICATION 1XX

Occupational Radiological Protection in
Interventional Procedures

Editor-in-Chief
C.H. CLEMENT

Associate Editor
H. OGINO

Authors on behalf of ICRP

P. Ortiz López, L.T. Dauer, R. Loose, C. J. Martin, D.L. Miller,
E. Vañó, M. Doruff, R. Padovani, G. Massera C. Yoder

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interventional procedures. ICRP Publication 1XX. Ann. ICRP XX(X).'

An increasing number of
**medical specialties use
fluoroscopy** outside of
imaging departments.

These staff groups are likely to
receive high doses to the eyes.
This publication addresses their
protection and dose monitoring.

**Public consultation
closed 23 June 2017.
Amendments completed for
review by MC**

Occupational RP in Interventional Procedures

- Occupational exposures and reported radiation injuries to staff in x-ray guided interventions
- Issues in monitoring staff exposure and dose assessment
- Methods for protecting body, eyes and head, thyroid and extremities
- Main characteristics of protection devices
- Quality control tests for protective devices
- Education and training

ICRP C3 Publications in Process in 2017

**Task Group 101
Radiological Protection
in Therapy with
Radiopharmaceuticals**

**C3 with input from C2:
Revisions following
critical review by C3**

Draft 2.2 May 2017

Annals of the ICRP

ICRP PUBLICATION XXX

Radiological Protection in Therapy with
Radiopharmaceuticals

Editor-in-Chief
C.H. CLEMENT

Associate Editor

Authors on behalf of ICRP

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Please cite this issue as 'ICRP, 20YY. Title of the annals. ICRP Publication XXX,
Ann. ICRP 00 (0).'

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**For public
consultation
2017**

RP in Therapy with Radiopharmaceuticals

- Justification and optimization of treatment methods, by indication for treatment
- Methods for collection of biokinetic data
- Methods for absorbed dose calculations
- Radiological protection issues specific to therapy with radiopharmaceuticals

Free Educational Slides on Publications

- Available at www.icrp.org for many Committee 3 publications; some are also available in Spanish
- P84, P85, P86, P87, P93, P112, P113, P117, P120, P121, P127, P129

Of particular interest:

- P86 – Accidents in Radiotherapy
- P112 – Preventing Accident Exposures from New External Beam Radiotherapy Technologies
- P127 – Radiological Protection in Ion Beam Radiotherapy
- P135 DRLs -preparation

Committee 3 - Current Work Plan

- **TG 36 (with C2): Radiation dose to patients from radiopharmaceuticals Update to P128.**
- **TG 79: (with C1, 2 & 3) Use of Effective Dose as a Risk-Related Radiological Protection Quantity.**
- **TG 89: Occupational Radiological Protection in Brachytherapy.**
- **WP (with C1) Radiological Protection in Medicine in Relation to Individual Responses to Ionising Radiation**
- **WP for “Internet Resource on Radiation Protection for Health Care Providers” Incorporate in “ICRPaedia”?**

Possible Future Topics for Further Consideration include the following

- **Framework for optimization in medical imaging**
- **Radiological protection aspects of daily imaging in radiotherapy.**
- **Protection of the eye lens and cardiovascular system.**
- **Overexposures and unintended exposures in diagnostic and interventional procedures.** Collaboration with IAEA.
- **Use of ionising radiation for assessment of body composition linked to sports performance**
- **Improving patient dosimetry and protection in high dose imaging procedures (interventional, CT).**
- **Radiation protection in veterinary medicine**

ICRP Committee 3

- ICRP Committee 3 is ready to work on the topics demanded by the medical and other scientific societies
- Collaborate with other international or national organizations in the development of guidance
- Welcome any suggestions of other areas in which there is a perceived need for more guidance

Thank you



www.ICRP.org