

*3rd International Symposium on the System of Radiological Protection*  
Mayfield Hotel & Resort, Seoul, Korea

**ICRP 2015**

*October 20-22, 2015*

## **Activities of Committee 3 on Protection in Medicine**

***Eliseo Vaño (ICRP C3 Chair)***



INTERNATIONAL COMMISSION ON RADIOPHYSICAL PROTECTION

*Guiding Radiological Protection since 1928*

[www.icrp.org](http://www.icrp.org)

## STRATEGIC PLAN 2011-2017

### STRUCTURE

ICRP Main Commission

Scientific  
Secretariat

Committee 1  
Effects

Committee 2  
Doses

Committee 3  
Medicine

Committee 4  
Application

Committee 5  
Environment

Task Groups

- Committee 3, Protection in Medicine: develops recommendations and guidance on the protection of patients, staff, and the public against radiation exposure in medicine.



STRATEGIC OBJECTIVES, 2011 – 2017

**Patients, Staff, Public  
(radiation exposure  
in medicine)**

# ICRP C3 (Protection in Medicine)

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

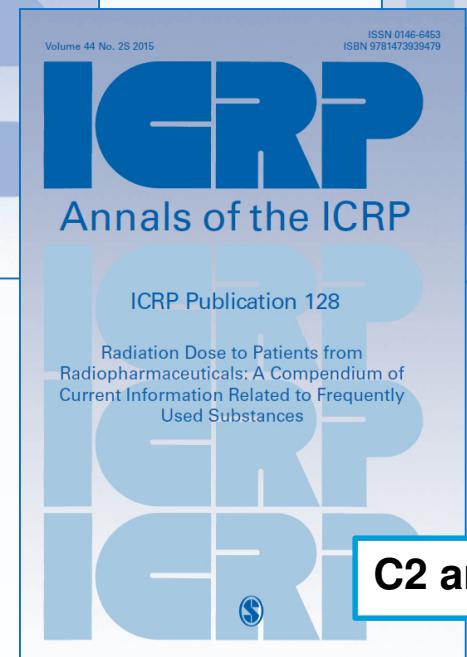
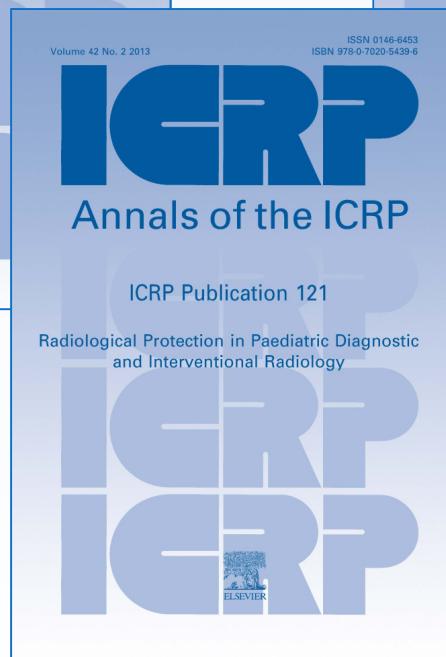
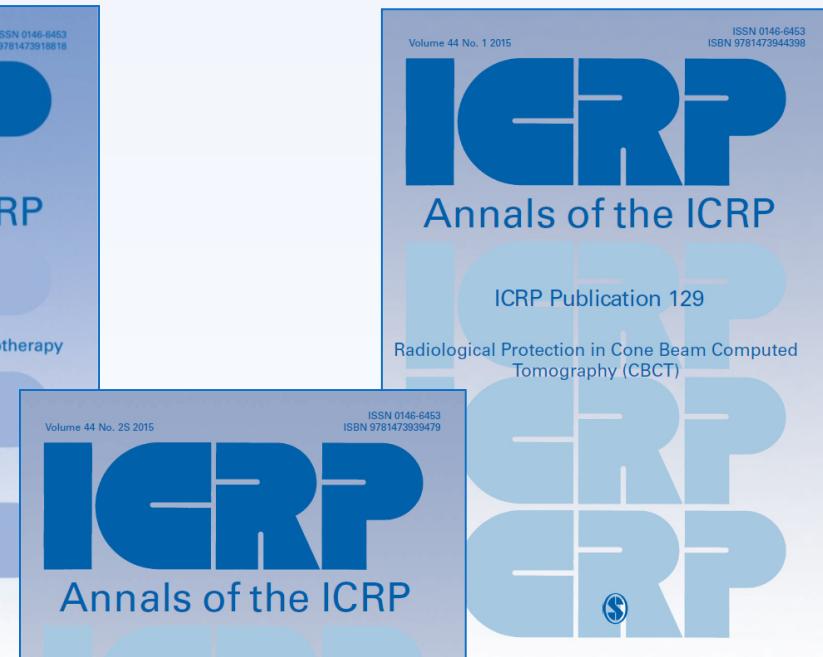
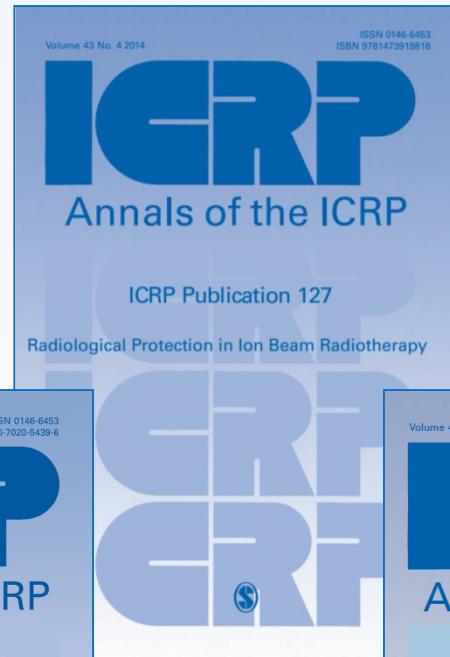
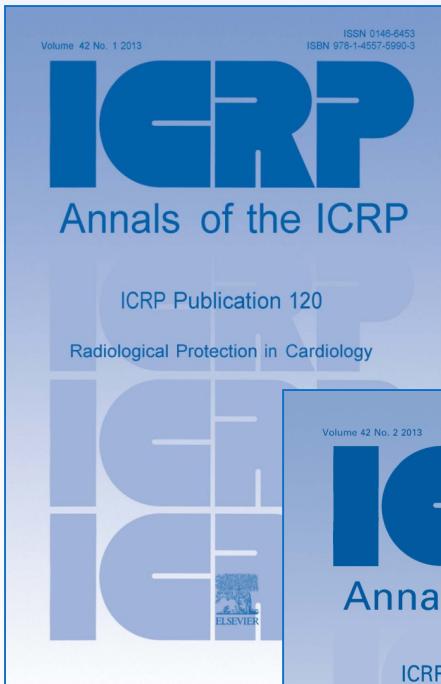
- **Applegate** Kimberly Prof RD (USA)
- **Bourguignon** Michel Prof NM (France)
- **Dauer** Lawrence Dr MP (USA)
- **Demeter** Sandor Dr NM (Canada)
- **Kang** Keon Prof NM (Korea)
- **Khong** Pek-Lan Prof RD (China)
- **Loose** Reinhard Prof RD (Germany)
- **Martin** Colin Dr MP (UK)
- **Miller** Donald Prof RD (USA) **Vice-Chair**
- **Ortiz-Lopez** Pedro Dr MP (Spain)
- **Rehani** Madan M. Prof MP (India/USA) **Secretary**
- **Riklund** Katrine-Åhlström Prof DR, NM (Sweden)
- **Scalliet** Pierre Prof RO (Belgium)
- **Vano** Eliseo Prof MP (Spain) **Chair**
- **Yonekura** Yoshiharu Prof NM, RO (Japan)
- **Yue** Baorong Prof MP (China)

Members of 12  
different Countries

# ICRP C3 Protection in Medicine from 2000

- The ICRP reports (20) on radiological protection (RP) in medicine from 2000, cover topics on:
  - *Pregnancy (P84) and Radiological Prot. in Medicine (P105);*
  - *Release of patients after therapy with unsealed radionuclides (P94);*
  - *Preventing accidental exp. in rad. therapy (P86, P97, P112);*
  - *Radiation safety aspects of brachytherapy (P98) and ion beam radiotherapy (P127);*
  - *Doses to patients from radiopharmaceuticals (P116, P128 and others); Education and training in RP (113);*
  - *Managing rad. dose in Interv. Rad. (P85), Digital Rad. (P93), CT (P87, P102), paediatrics (P121), cardiology (P120), CBCT (P129), and other medical specialties (P117).*

# ICRP Committee 3: The most recent documents



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. Radiation Dose to Patients from **Radiopharmaceuticals**: A Compendium of Current Information Related to Frequently Used Substances. Ann. ICRP 44(2S), 2015 (with Committee 2).
- P129. Radiological Protection in **Cone Beam Computed Tomography (CBCT)**. Ann. ICRP 44(1), 2015.

## **Committee 3 is working together with other Organizations**

- ICRP maintains formal relations with other organisations with an interest in radiological protection through specific agreements, or by granting Special Liaison status to organizations whose work is relevant to ICRP's mandate.
- Representatives from several organizations and especially from the World Health Organization and from the International Atomic Energy Agency cooperate closely with Committee 3.

# Current Work Plan (a) of Committee 3

- TG 89: Occupational Radiological Protection in Brachytherapy (L. Dauer).
- TG 36 (with C2): Radiation dose to patients from radiopharmaceuticals (D. Nosske and S. Mattsson).
- WP on Diagnostic reference levels (DRLs) in Medical Imaging. *Final draft completed and submitted to the Main Commission* (E. Vano).
- WP on Occupational protection issues in intervent. fluoroscopically-guided and CT-guided procedures. *Final draft to be approved by C3* (P. Ortiz).

# **Diagnostic reference levels in Medical Imaging**

- Document expected to be posted at the ICRP web site for public consultation by the end of 2015.
- Previous recommendations have been taken into account and appropriate contact with other organizations preparing documents on DRLs has been maintained to avoid discrepancies.
- The document contains chapters on methods for surveys to establish DRLs; radiography and diagnostic fluoroscopy; interventional procedures; digital radiography, CT, nuclear medicine, and hybrid (multimodality) imaging procedures; paediatrics; and application of DRLs in clinical practice.
- The document contains short Main Points at the beginning of each chapter and concludes with a summary of the Commission's recommendations.

# **Occupational protection in interventional fluoroscopically-guided and CT-guided procedures**

- The document includes chapters on trends in the use of interventional procedures, an overview of exposures and reported deterministic effects.
- Application of the principles of radiological protection to occupational exposures in interventions.
- Staff protection, dose constraints and investigation levels for occupational protection (body, eye and hands) and protection of pregnant workers.
- Exposure monitoring, protective methods and devices, and hospital radiation protection programmes.
- A completed draft will be analysed during the 2015 annual meeting of Committee 3 in Seoul.

# Current Work Plan (b) of Committee 3

- WP on Justification (K. Åhlström-Riklund).
- WP on Radiological Protection in Therapy with Radiopharmaceuticals (Y. Yonekura and S. Mattsson).
- WP (with C1) on Radiological Protection in Medicine Related to Individual Radiosusceptibility (M. Bourguignon).
- WP on Radiation and Patient Protection (educational document). *To be presented in this symposium* (S. Demeter).

# Topics under consideration C3

- Topics to be considered by C3 in the future (but the work made or planned by other organizations will be taken into account and open for new suggestions):
  - *Occupational protection issues in PET/CT and cyclotron use. PET guided interventional could also be considered.*
  - *Framework for optimization of individual patients. Patient exposures and tracking.*
  - *Dose quantities for display in imaging equipment. Cooperation with IEC.*
  - *Communication of benefits and radiation risks to medical professionals and public.*

# Suggestions on research priorities C3

1. Approaches to improve protection methods and **occupational dose assessment** in interventional fluoroscopy and nuclear medicine procedures.
2. **Patient dosimetry and protection in high dose procedures** (interventional and CT).
3. **Dosimetric data to help in the assessment of cardiovascular, pulmonary fibrosis, and cerebrovascular effects** in radiotherapy and high dose imaging procedures.
4. Development and validation of **newer methods to improve image quality while reducing patient doses**, including criteria for acceptable levels of image quality for clinical CT and digital imaging.
5. Patient risk assessment and risk communication.
6. X-ray energy at 30 kV versus 120 kV for mammography versus CT (suggested to Committee 1).

# Thank you

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