

Some recent developments concerning the ethics of radiological protection

Miskiewicz

Friedo Zölzer
Institute of Radiology, Toxicology, and Civil Protection
Faculty of Health and Social Studies
University of South Bohemia
Czech Republic

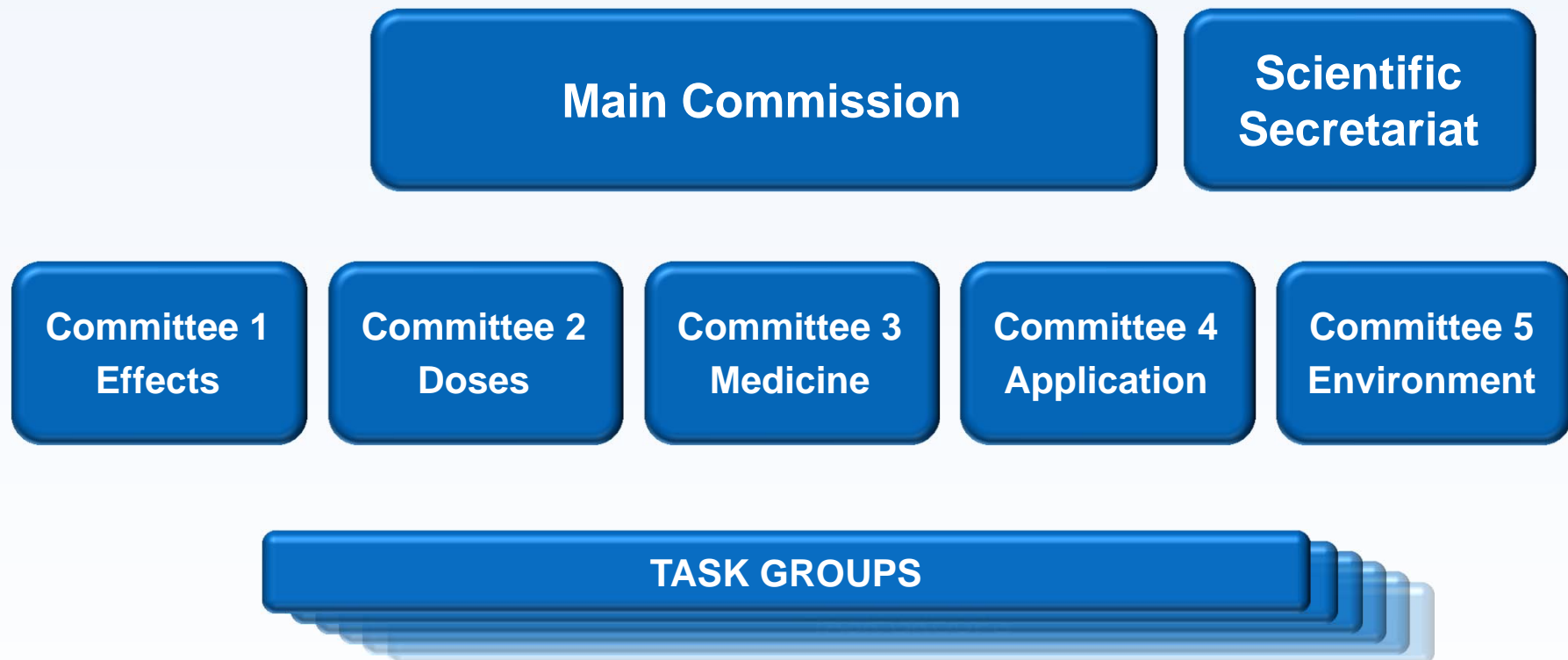
What is ICRP?

Since 1928, ICRP has developed the **System of Radiological Protection** as the basis for standards, legislation, guidance, programmes and practice worldwide.

- A charity established to provide independent recommendations and guidance on radiological protection for the public benefit
- Independent, international community of experts in radiological protection
- More than 200 individual experts in radiological protection science, policy, and practice from over 30 countries

***all slides labelled “ICRP” are from a presentation by
Christopher Clement, INS Tel Aviv 2016***

ICRP Structure

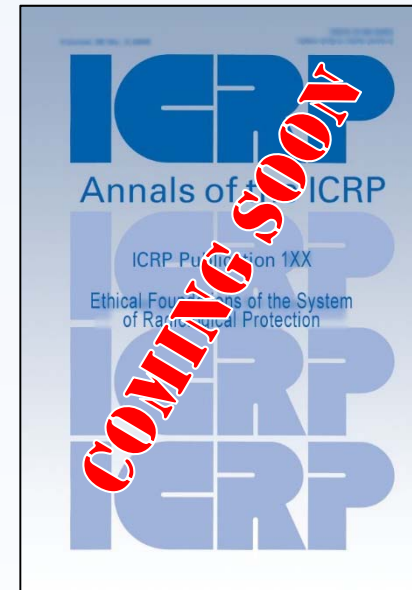


ICRP Task Group 94

Ethics of Radiological Protection

Established in October 2013 to present the ethical foundations of the system of radiological protection

- Consolidate basis of the recommendations
- Improve understanding of the system
- Provide a basis for communication on radiation risk and its perception



Kunwoo Cho (Chair)

Marie-Claire Cantone

Sven Ove Hansson

Chieko Kurihara-Saio

Nicole Martinez

Deborah Oughton

Thierry Schneider

Richard Toohey

Sidika Wambani

Friedo Zölzer

Renate Czarwinski

Bernard Le Guen

Emily Van Deventer

(Jacques Lochard)

(Christopher Clement)

Workshops on the Ethical Basis of the System of Radiological Protection

1st Asian Workshop
Daejeon, Korea
August 2013

1st European Workshop
Milano, Italy
December 2013

1st North American
Workshop
Baltimore, USA
July 2014

2nd Asian Workshop
Fukushima, Japan
May 2015

2nd European Workshop
Madrid, Spain
February 2015

2nd North American
Workshop
Cambridge, MA, USA
March 2015

*2nd International Symposium on Ethics
of Environmental Health*
Budweis, Czech Republic
June 2014

*3rd International Symposium on the System
of Radiological Protection*
Seoul, Korea
October 2015

>100 Workshop Participants

Alfred Hefner	Eduardo Gallego	Jim Malone	Michiaki Kai	Seong-Ho Na
Andrew Einstein	Edward Lazo	Jim Thurston	Michio Miyasaka	Seoung-Young Jeong
Antonio Almicar	Eliseo Vañó	John Takala	Mike Boyd	Sheila Jasanoff
Atsuchi Kumagai	Emilie van Deventer	Jong Kyung Kim	Min Baek	Sidika Wambani
Audrie Ismail	Enkhbat Norov	Kathleen Araujo	Mi-Sun Chung	Sohail Sabir
Aya Goto	Francesco Bonacci	Ken Kase	Mohamed Omar	Song-Jae Yoo
Behnam Taebi	François Bochud	Keon Kang	Moon-Hee Han	Stephen Gardiner
Bernard Le-Guen	François Rollinger	Kiriko Sakata	Mushakoji Kinhide	Sung Hwan Kim
Biagio Di Dino	Friedo Zölzer	Klazien Huitema	Nicole Martinez	Sungook Hong
Bjørn Morten Hofmann	Fumie Yamaguchi	Kunwoo Cho	Nobuyuki Hamada	Tazuko Arai
Brant Ulsh	Gaston Meskens	Kyo-Youn Kim	Ohtsura Niwa	Ted Lazo
Cécile Asanuma-Brice	Gina Palmer	Kyu-Hwan Jung	Patrick Smeesters	Thierry Schneider
Celso Osimani	Giovanni Boniolo	Laura Reed	Pedro Carboneras	Toshihide Tsuda
Cesare Gori	Glenn Sturchio	Lavrans Skuterud	Ralph Anderson	Toshimitsu Homma
Chan Hyeong Kim	Guido Pedrolì	Makoto Miyazaki	Raymond Johnson	Toshiso Kusako
Cheiko Kurihara-Saio	Harry Winsor	Man-Sung Yim	Renate Czarwinski	Toshitaka Nakamura
Christopher Clement	Hee-Seock Lee	Margherita Zito	Richard Toohey	Viet Phuong Nguyen
Dan Burnfield	Hideyuki Matsui	María Pérez	Richard Vetter	Volha Piotukh
Daniela De Bartolo	Hiroko Yoshida Ohuchi	Marie Barnes	Roger Coates	Wataru Iwata
Dariusz Kluszczynski	Hisako Sakiyama	Marie-Claire Cantone	Ronald Piquero	Woo-Yoon Park
Deborah Oughton	Hosin Choi	Marie-Charlotte Bouesseau	Ryoko Ando	Yasuhito Sasaki
Donald Cool	Il-Han Kim	Marie-Helène El Jammal	Sae Ochi	Yuki Fujimichi
Dong-Myung Lee	Jacques Lochard	Mariko Komatsu	Sang-Duk Sa	
Dorota Wroblewska	Jaiki Lee	Megumi Sugimoto	Sebastien Farin	
Edgar Bailey	Jean-François Lecomte	Michael Siemann	Senlin Liu	

SYSTEM OF RADIOLOGICAL PROTECTION

```
graph BT; S[SCIENCE] --> SRP[SYSTEM OF RADIOLOGICAL PROTECTION]; EV[ETHICAL VALUES] --> SRP; E[EXPERIENCE] --> SRP;
```

SCIENCE

**ETHICAL
VALUES**

EXPERIENCE

Tools and procedures for practical implementation

Fundamental protection principles

Justification

Optimisation

Dose Limitation

Core ethical values

Beneficence &
non-maleficence

Prudence

Justice

Dignity

Core Ethical Values

Beneficence / Non-maleficence

- Do good and avoid doing harm

Prudence

- Recognize and follow the most sensible course of action, especially in the face of uncertainty, avoiding unwarranted risk

Justice

- Fair sharing of benefits and risks

Dignity

- Treatment of individuals with unconditional respect, and having the capacity to deliberate, decide and act without constraint

Core Ethical Values

These are values:

- ✓ Already found in the system of radiological protection
- ✓ Similar to widely accepted principles of biomedical ethics
- ✓ Drawn from western and eastern schools of ethical thought, and the 'common morality' found across cultures

**Beneficence &
non-maleficence**

Prudence

Justice

Dignity

Beneficence & Non-Maleficence

Central to medical ethics, where implications of balancing beneficence and non-maleficence are well studied

Beneficence: Do good

Non-Maleficence: Do no harm

Not absolute:

- doing good may necessitate doing a lesser harm
- avoiding one harm may result in another greater harm

Beneficence &
non-maleficence

Prudence

Justice

Dignity

Beneficence & Non-Maleficence: Cross-Cultural Sources

“Do good and do no harm.” (Hippocrates)

“To save one life is tantamount to saving a whole world.” (Talmud)

“If a less substantial instance of harm and an outweighing benefit are in conflict, the harm is forgiven for the sake of the benefit.”
(Islamic Jurisprudence)

from a presentation by Friedo Zölzer, ICRP 2015 Seoul

**Beneficence &
non-maleficence**

Prudence

Justice

Dignity

Beneficence & Non-Maleficence in Radiological Protection

- Avoid unduly limiting beneficial uses of radiation
- Justification: positive net benefit
- Prevent harmful tissue reactions (equivalent dose limits)

Beneficence &
non-maleficence

Prudence

Justice

Dignity

Prudence

The wisdom to see what is virtuous

Ability to make informed and considered choices without the full knowledge of the scope and consequences of actions

Related to precaution: **reluctance to accept unnecessary risks**

the precautionary approach ... where there are threats of serious or irreversible damage, lack of full scientific certainty shall be not used as a reason for postponing cost-effective measures to prevent environmental degradation (Rio 1992)

Beneficence &
non-maleficence

Prudence

Justice

Dignity

Prudence: Cross-Cultural Sources

“The cautious seldom err.” (Confucius)

“Act like a person in fear before the cause of fear actually presents itself.”
(Krishna)

“Tie up your camel first, then put your trust in God.” (Muhammad)

from a presentation by Friedo Zölzer, ICRP 2015 Seoul

Beneficence &
non-maleficence

Prudence

Justice

Dignity

Prudence in Radiological Protection

- Assume there may be risks even at very low doses
- Reduce risks of stochastic effects to the extent reasonably achievable (optimisation)

Beneficence &
non-maleficence

Prudence

Justice

Dignity

Justice

The perpetual and constant will of rendering to each one his right

- Saint Thomas Aquinas (1225-1274)

Restorative Justice: *fairness* in compensation for losses

Procedural Justice: *fairness* in rules and procedures in the processes of decision making

Distributive Justice: *fairness* in the distribution of advantages and disadvantages among groups of people

In Radiological Protection: fair sharing of benefits and detriments

Beneficence &
non-maleficence

Prudence

Justice

Dignity

Justice: Cross-Cultural Sources

“Hurt not others in ways that you yourself would find hurtful.”
(Buddha)

“Never impose on others what you would not choose for yourself.”
(Confucius)

“Therefore whatever you want people to do for you, do the same for them.”
(Jesus Christ)

from a presentation by Friedo Zölzer, ICRP 2015 Seoul

Beneficence &
non-maleficence

Prudence

Justice

Dignity

Justice in Radiological Protection

- Ensure no individual carries an unfair share of risk (effective dose limits)
- Reduce inequities in dose distribution (optimisation with constraints and reference levels)
- Protection of future generations

Beneficence &
non-maleficence

Prudence

Justice

Dignity

Dignity

All human beings are born free and equal in dignity and rights

Article 1 of The universal declaration of human rights adopted by the UN General Assembly on 10 December 1948

Every individual deserves unconditional respect regardless of age, sex, health, social condition, ethnicity, religion, etc. Dignity requires that individuals are treated as subjects, not objects.

Autonomy, the capacity to make uncoerced and informed decisions, is a corollary of dignity

Beneficence &
non-maleficence

Prudence

Justice

Dignity

Dignity: Cross-Cultural Sources

“I am the same to all beings. In a Brahma or an outcast,
the wise see the same thing.” (Krishna)

“Do we not have one father? Has not one God created us?”
(Malachi)

“Ye are all the leaves of one tree and the drops of one ocean.” (Bahá‘u‘lláh)

from a presentation by Friedo Zölzer, ICRP 2015 Seoul

Beneficence &
non-maleficence

Prudence

Justice

Dignity

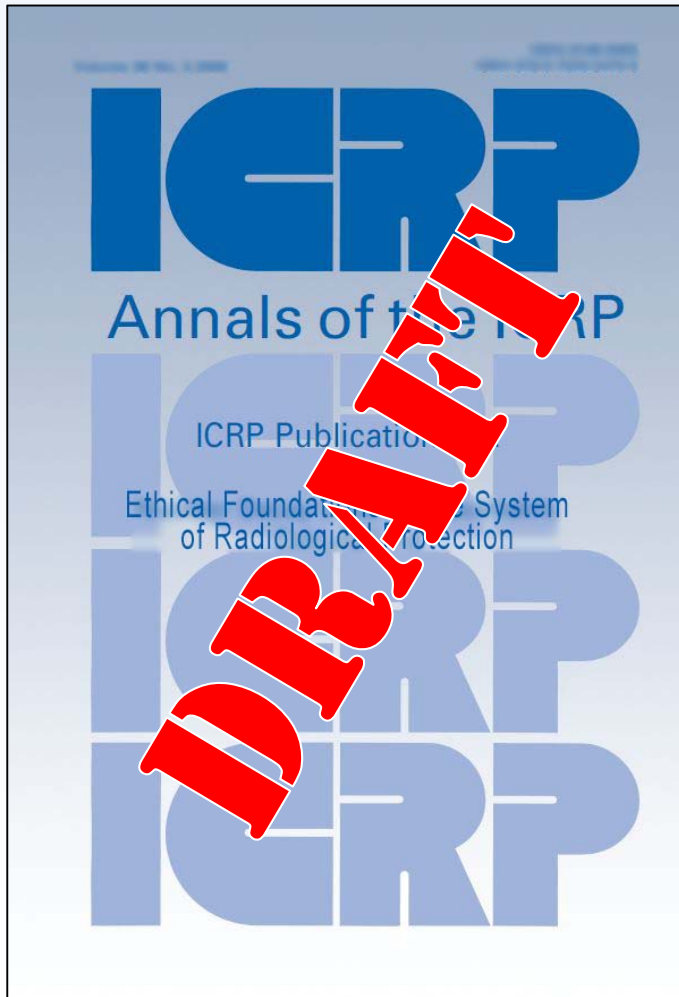
Dignity in Radiological Protection

- Right to know
- Stakeholder involvement
- Self-help protection

Ethics in the Implementation of Radiological Protection

- ❖ Accountability
- ❖ Transparency
- ❖ Stakeholder Involvement

Ethical Foundations of the System of Radiological Protection



**DRAFT report presented at
IRPA 14 session on ethics**

Special targeted consultation
underway until June 30, 2016

- IRPA Associate Societies
- Workshop Participants

Full public consultation later



OPEN PROJECT FOR EUROPEAN RADIATION RESEARCH AREA

2nd International Symposium on Ethics of Environmental Health
in conjunction with the OPERRA Workshop on Ethics of Radiation Protection
15 – 19 June 2014 in Budweis, Czech Republic



Deliverables:

D4.1.4 Recommendations for future research on risk communication, risk perception, and ethics of radiation protection and integration of these issues in training and education (month 40)

Progress:

Document „Topics for future research on ethics of Radiation Protection“ based on discussions at the OPERRA Workshop on Ethics of Radiation Protection (submitted 8 July 2014)



Ethics of radiation research

The basics of what is “good scientific conduct” are the same for radiation research as for other areas of scientific inquiry and do not need to be revisited.

Special challenges may nevertheless exist for studies on populations in emergency and existing exposure situations (e.g. how to implement basic principles such as dignity, empathy, and participation in such studies).

It may be worth while to analyse possible conflicts of interest in radiation research (studies paid by manufacturers of medical equipment, by operators of nuclear power plants, by governments pursuing particular political goals).

There is a need to critically re-evaluate ethical questions of radiological protection in general biomedical research (which is the theme of ICRP Publication 62, 1992).



The ethical dimension of the system of radiological protection

Some critics have raised objections – from an ethical point of view – against the current system of radiation protection. The alternative approaches suggested should be analysed as to their consistency, practicability, acceptability etc.

In the historical process leading towards the current system of radiological protection, pragmatism has played a considerable role (there has been a certain reluctance on the part of ICRP to introduce innovations). The ethical defendability of such pragmatism needs to be reviewed.

Justification: This principle has so far been applied only within the context of radiation protection itself. There is little discussion about its broadening to include societal justification of whole technologies (the Nuclear Energy Agency of OECD has started considering this point).



The ethical dimension of the system of radiological protection (cont.)

Optimization: “Reasonableness” (e.g. in ALARA) was for a long time understood as being based on cost-benefit analysis. This approach has been largely abandoned without alternatives becoming clear.

Limitation: The rationale for the setting of dose limits – comparing professional risks of radiation exposed workers to risks of other workers – has been lost from the documents of ICRP without being replaced.

The ethical implications of the fact that individuals may vary in their radiation sensitivity (particularly, but not exclusively the fact that radiation sensitive subpopulations may exist) should receive more attention.



Stakeholder involvement, risk communication, participatory decision making

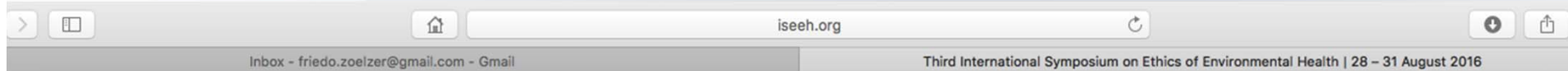
Stakeholder involvement may mean completely different things for patients, workers, public, operators, and regulators. Similarities and differences are to be analysed and their ethical dimensions elaborated.

If honesty is a basic value in risk communication, its implications for the handling of uncertainties on the one hand, and of value pluralism on the other need to be explored.

There is growing awareness (or societal agreement) that questions pertinent to radiation protection cannot be decided by specialist alone, but require a deliberative process including a vast range of stakeholders. It is not clear, however, which ethical principles should guide this process.



OPEN PROJECT FOR EUROPEAN RADIATION RESEARCH AREA



ISEEH2016

[Home](#) [Conference](#) [Registration](#) [Practicalities](#) [Contact](#) [Search](#)



28 - 31 AUGUST 2016
IN BUDWEIS, CZECH REPUBLIC

Third International Symposium on Ethics of Environmental Health

in conjunction with the OPERRA workshop on
Ethics of Radiation Protection

For the third time after two very successful international symposia on Ethics of Environmental Health in 2011 and 2014, scientists, regulators and practitioners from all over the world will come together to discuss ethical issues related to radiation and chemical protection, epidemiology, biomonitoring, risk management, emergency preparedness and related areas.



PROGRAMME

[Read more programme details](#)



TIMELINE

[Go to Timeline](#)



VENUE & FEES

[Read more about Venue and Fees](#)