ICRP and the Ethics of Radiological Protection

Jacques LOCHARD
ICRP Vice-Chair
Professor at Nagasaki University

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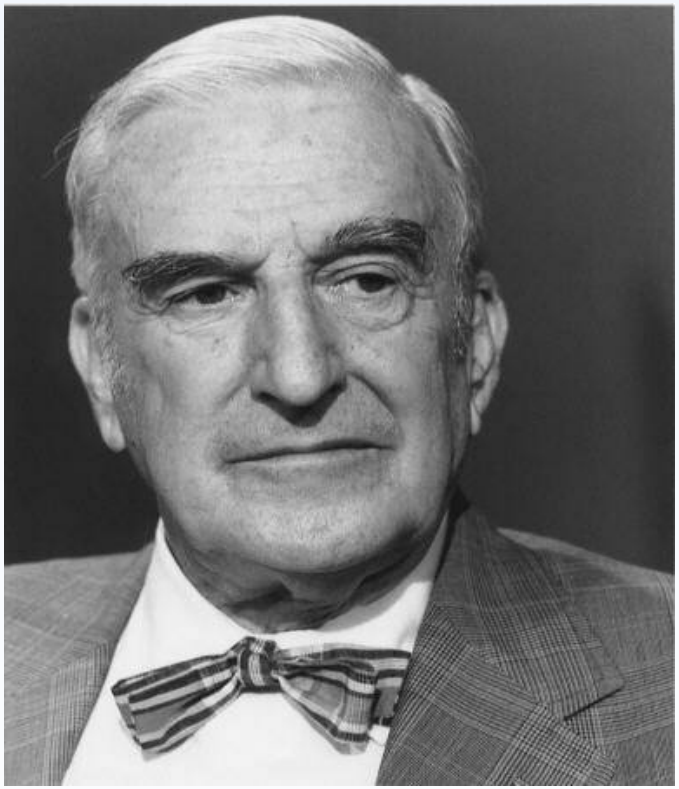
Introduction

- Despite a long recognition that radiological protection is not only a matter of science, but also of ethical judgements, ICRP publications in the past have rarely addressed explicitly the ethical foundations of the system of radiological protection
- However, there was a constant reflection conducted by the Commission's members on the ethical foundations of the system that can be traced in the past writings of several prominent members of the Commission
- The objective of the presentation is to highlight some of the main milestones of this reflection and to summarize the current work of the Commission on the ethics of radiological protection

Lauriston Taylor address in 1956



Lauriston S. Taylor (1902 – 2004)
President of NCRP from 1929 to 1977
Chair of ICRP from 1937 to 1962

"Radiation protection is not only a matter for **science**. It is a problem of **philosophy**, and **morality**, and the utmost **wisdom.**"

The Philosophy Underlying Radiation Protection

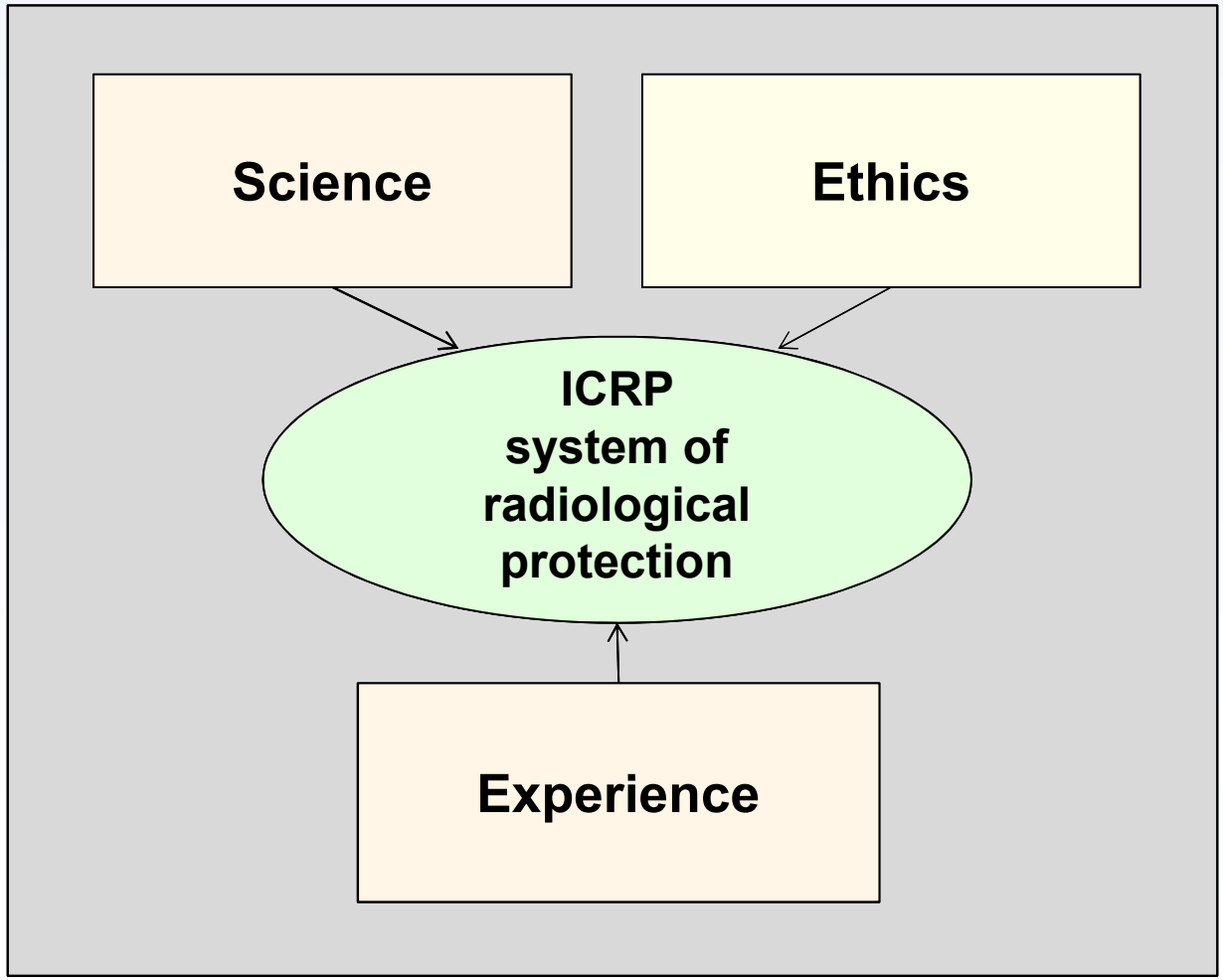
Address to the 9th Annual Conference on Electrical Techniques in Medicine and Biology in 1956

Am. J. Roent. Vol. 77, N° 5, 914-919, 1957

About wisdom

- As a **virtue**, wisdom is the disposition to behave and act with the **highest degree of adequacy under any given circumstances**
- In its popular sense, wisdom is attributed to a person who takes **reasonable** decisions and act accordingly
- A basic definition of wisdom is the quality of having **knowledge, experience,** and **good judgement**. (Oxford dictionary)

The three pillars of the ICRP system of radiological protection



Giovanni Silini's 1992 Sievert Lecture (1)

- Probably the first synthetic contribution addressing the ethical foundations of the radiological protection principles

- In his lecture Silini makes the distinction between what he names the *'first-order ethical principles'* like *'to improve health and living conditions and thus to minimize the suffering of human beings'* and the *'second-order ethical principles'* like '*the equality of right of all human beings, the need to reasonably balance the interests of any individual against those of all others, the requirement to protect our species by preserving the material conditions for its continuation, and, finally, the right for each person to try to achieve freedom from one common heritage of the human condition'*

Giovanni Silini's 1992 Sievert Lecture (2)

- After having reviewed the justification, optimisation and limitation principles Giovanni Silini concluded that the system of protection was *'founded on sound ethical grounds*' and that *'the methodologies to develop the basic principles into a set of recommendations were morally acceptable*'.

- He also underlined: *' … we should continue working, as we have done in the past, in order to develop the system rationally, while trying all the time to behave reasonably'.*

- Ref: Silini G. Sievert Lecture-ethical issues in radiation protection. Health Phys 63: 139-148; 1992

Giovanni Silini was ICRP MC member from 1985 to 1993

First considerations on the procedural aspects of the ethics of radiological protection

- Deborah Oughton published an article in Radiation Protection Dosimetry in 1996 discussing the incorporation of ethical values in radiological protection policy
- She concluded that all decisions concerning radiological protection should consider, in addition to the elements related to dose control, both the positive and negative ethical aspects. She also emphasized in her conclusion the need to involve the citizens affected by these decisions
- Ref: Oughton D. *Ethical Values in Radiological Protection*. Radiation Protection Dosimetry. Vol 28, N° 3/4, 203-208, 1996.

Deborah Oughton is currently a member of ICRP Committee 4

The debate about the ethical theories underpinning the system of radiological protection

- In 1997 Lars Persson and Kristin Schrader-Frechette published a paper in Health Physics in which they reviewed the ICRP principles in the light of the major ethical theories
- Among other considerations the authors claimed that the basic principles of ICRP are mainly driven by utilitarian ethics
- This paper gave rise to several comments and articles by Main Commission members (Bo Lindell *inter alia*) and had a clear impact on the preparation of Publication 103 by putting more emphasize on the protection of individuals (deontological ethics)
- Ref: Schrader-Frechette K, Persson L. *Ethical Issues in Radiation Protection*. Health Phys 73:378-382; 1997. Lindell B. *Logic and Ethics in Radiation Protection*. J. Radiol. Prot. (2001) 377- 380.

The recent work of the Commission on the ethics of radiological protection (1)

- Stimulated by the debate initiated by Persson and Schrader-Frechette and its consequences on the 2007 Recommendations of the Commission, ICRP Committee 4 established a Working Party in 2009 to reflect further on the ethics of radiological protection

- The Working Party reviewed the ethical theories and concluded that the system of radiological protection is rooted in the 3 major theories of ethics: **deontological, consequentialism/utilitarian and virtue ethics**

- The Working Party also identified the importance for ICRP to confront the "Western" ethics to the moral judgements from the **other cultural backgrounds** in the world

The 3 major theories of ethics

- **Virtue ethics:** is moral what is perfecting human beings as virtuous agents

Emphasize on the personality traits driving behaviour

- **Deontological ethics**: is moral what is accomplished according duties and rules whatever the consequences

Emphasize on duties and rules

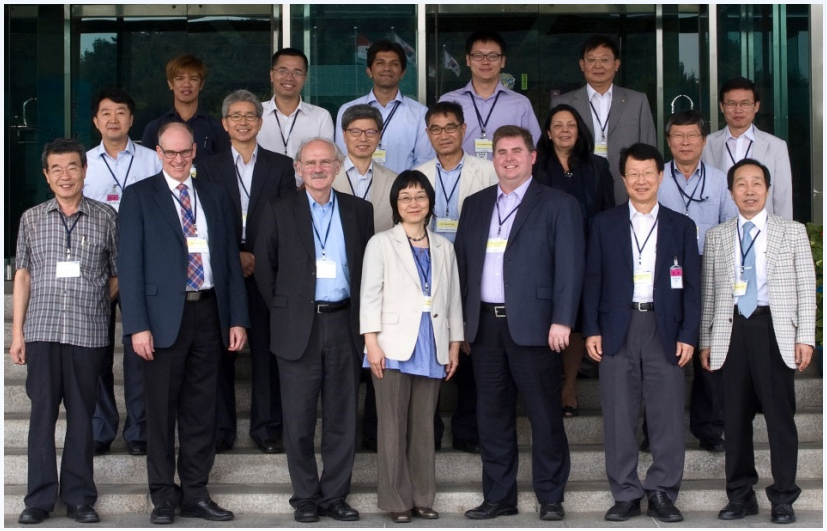
- **Teleological ethics** (also called **consequentialist ethics**), is moral what is promoting common good. What really matters are the consequences of human actions or action rules on the well being of people. **Utilitarianism** ethics is the most well known variant of consequentialism. Its generic principle states that is moral any action or rule which is leading to the largest increase of social welfare among several alternatives

Emphasize on the consequences of actions

The recent work of the Commission on the ethics of radiological protection (2)

- To continue the work of the Working Party the Main Commission approved the creation of a **Task Group (N°94)** on the ethics of radiological protection in 2013
- Given the nature of the work, the Commission also encouraged the Task Group to develop its work in close cooperation with specialists of ethics and radiological protection professionals from around the world
- With this in mind, a series of workshops was organised by ICRP in collaboration with IRPA and academic institutions to fully examine, discuss, and debate the ethical basis of the current system of radiological protection with radiation protection professionals and ethicists.

The workshops on the ethical dimensions of the radiological protection system (1)



Daejeon, Korea, August 2013

Milan, Italy, December 2013

London, UK, June 2014

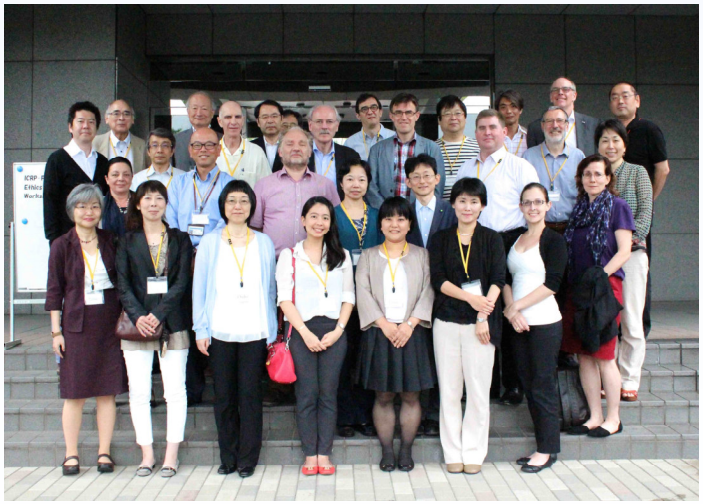
Baltimore, USA, July 2014

The workshops on the ethical dimensions of the radiological protection system (2)

Budweiz, Czech Republic, June 2014

Madrid, Spain, February 2015

Cambridge, USA, March 2015



Fukushima, Japan, June 2015

The recent work of the Commission on the ethics of radiological protection (3)

- Through a detailed review of the Commission's publications and with the help of professionals of ethics, the Task Group members finally identified 4 core ethical values underpinning the radiological protection system: **beneficence/non-maleficence, prudence, justice and dignity**
- It also underlined 3 requirements of the Commission for the practical implementation of the recommendations having strong ethical aspects: **accountability, transparency and inclusiveness (stakeholder participation)**

About beneficence/non maleficence

- Beneficence means **promoting or doing good**, and non-maleficence means **avoiding causation of harm**
- These two related ethical values have a long history in moral philosophy, dating back to the **Hippocratic Oath**, which demands that a physician do good and/or not harm
- Beneficence and non-maleficence concerns **human welfare** with the objective to reduce the harms and optimise the benefit of social practices
- A key challenge for beneficence and non-maleficence is how to measure the benefits, harms and risks.
- In radiological protection, this involves consideration of the direct health impacts of radiation exposure in addition to economic costs and benefits

About prudence

- Prudence is the ability to make reasonable choices without the full knowledge of the scope and consequences of actions
- Prudence is the virtue of **deliberation and judgement**. It is the disposition to choose and act on what is in our power to do and not to do
- Prudence has a long history in ethics. It is considered to be one of the main virtues rooted in the Western tradition developed by Plato and Aristotle, the teaching of Confucius, the Hindu and Buddhist philosophies, and the ancient traditions of the peoples of Eurasia, Oceania and America
- Prudence **allows taking into account uncertainties concerning all of the risks associated with effects of radiation**
- In practical terms prudence calls for vigilance and seeking to reduce uncertainties in the understanding of radiation risk

Uncertainties and prudence in ICRP 103

- "It is **prudent** to take **uncertainties** in the current estimates of thresholds **for deterministic effects** into account… Consequently, annual doses rising towards 100 mSv will almost always justify the introduction of protective actions." ICRP 103, § 35
- "At radiation doses below around 100 mSv in a year, the increase in the incidence of **stochastic effects** is **assumed** by the Commission to occur with a small probability and in proportion to the increase in radiation dose… The Commission considers that the LNT model remains **a prudent** basis for radiological protection at low doses and low dose rate." ICRP 103, § 36
- "There continues to be **no direct evidence** that exposure of parents to radiation leads to excess **heritable disease** in offspring. However, the Commission judges that there is compelling evidence that radiation causes heritable effects in experimental animals. Therefore, the Commission **prudently** continues to include the risk of heritable effects in its system of radiological protection." ICRP 103, § 74

Prudence was already part of the system in the early 50s

" Before the Eighth International Congress of Radiology held in Mexico City in 1956, the ICRP had a meeting in Geneva in April and a number of amendments to the 1955 recommendations were decided on… For large population groups it was emphasized that, **until general agreement was reached concerning the risks** of genetic injury, it was **prudent** to limit the dose of radiation received by gametes from all sources additional to the natural background to an amount in the order of the natural background in the region of the earth at present inhabited."

Rolf Sievert: *The work of the international Commission on Radiologial Protection,* United Nations International Conference on The Peaceful Uses of Atomic Energy, Geneva, September 1958

About Justice

- Justice is the **fairness in the distribution of advantages and disadvantages among groups of people**. Justice also includes fairness in the rules and procedures in the processes of decision making (**procedural justice**)
- Radiological protection criteria aim **to reduce inequities in the distribution of individual exposures** in situations where some individuals could be subject to much greater exposures than the average. This is done through the use of dose constraints and reference levels and derived consideration reference levels
- Protection criteria also aim **to ensure that exposures do not exceed the values beyond which the associated risk is considered as not tolerable** given a particular context. This is ensured through the application of dose limits

About dignity

- Dignity is an **attribute of the human condition**: the idea that something is due to a person because she/he is human
- Dignity means that every individual deserves **unconditional respect**, whatever age, sex, health, social condition, ethnic origin and religion
- **Personal autonomy** is a corollary of human dignity
- Dignity has a prominent place in the Universal Declaration of Human Rights, which states that "All human beings are born free and equal in dignity and rights." (United Nations, 1948)
- Respect for human dignity was first introduced in radiological protection with the concepts of "**informed consent**" in biomedical research, and "**right to know**" in relation to pregnancy and medical radiation.
- More recently the Commission has also emphasised the promotion of autonomy through **stakeholder participation** and **empowerment of individuals** to make informed decisions

About stakeholder participation (1)

- The vision of a pioneer-

"Aside from our experienced scientists, trained in radiation protection, where do we look further for our supply of **wisdom**? Personally, I feel strongly that we must turn to the much larger group of citizens generally, most of whom have to be regarded **as well-meaning and sincere**, but rarely well-informed about the radiation problems that they have to deal with. **Nevertheless, collectively or as individuals, they can be of great value … in developing our total radiation protection philosophy**."

***Lauriston Taylor**, Sievert Lecture, IRPA 5 Congress, Jerusalem, 1980*

About stakeholder participation (2)
- The development of the concept in ICRP Publications -

- Stakeholder participation in radiation protection emerged in the **late 80s and early 90s** in the context of the management of exposures in contaminated areas by the **Chernobyl accident** and contaminated sites by **past activities** in the US
- **Publication 82** (1999) on the protection of the public in situations of prolonged radiation exposure is the first ICRP Publication mentioning explicitly stakeholder participation
- Then **Publications 91** (2003) on the protection of non-human species and **Publication 101** (2006) on the optimisation of protection have developed the concept
- Finally, stakeholder participation was formally introduced in the **2007 general Recommendation (Publication 103)** has a requirement in relation with the implementation of the optimisation principle

In summary (1)

- The system of radiological protection is based on three pillars: **science, ethics and experience**

- As far as ethics is concerned, the system is relying on four core ethical values: **beneficence/non-maleficence, prudence, justice and dignity**

- These core values allow radiation protection professionals to act **wisely** i.e. with the desire to:
    - **do more good than harm**
    - **do the best to reduce risk**
    - **seek for fair distribution of exposures**
    - **treat people with respect**

In summary (2)

- Studies of **oral and written traditions** that guided population of different cultures through ages show that theses core values are also **largely shared worldwide**

- The system of radiological protection is also integrating procedural values particularly **accountability, transparency and inclusiveness,** reflecting the importance of allocating responsibilities to those involved in the radiological protection process, **to properly inform**, and also **to preserve the autonomy and dignity of the individuals** potentially or actually exposed to radiation

What next?

- The Draft report of Task Group 94 is about to be adopted by the Main Commission for pubic consultation
- The revised report after consultation is expected to be published by the end of 2017 or at the latest by the beginning of 2018
- Finally, the Commission sees this future publication as a founding document to be elaborated further in different situations and circumstances

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