

1997 Annual Report
of the
International Commission
on Radiological Protection



ICRP Annual Report 1997
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Our Mission Statement

**The International Commission on Radiological Protection, ICRP,
is an independent Registered Charity,
established to advance for the public benefit
the science of radiological protection,
in particular by providing recommendations and guidance
on all aspects of protection against ionising radiation.**

Progress in 1997 in a Nutshell

A brief description of ICRP and its procedures serves as a platform providing a logical structure for the present report.

A Main Commission Task Group reviewed and restated ICRP policy on radioactive waste disposal. Their final report is now in press.

A Committee 1 Task Group has reported to the Main Commission on Genetic susceptibility to cancer. The report of this Task Group was adopted and will be published in 1998. Another Task Group on Radiation effects on multifactorial hereditary diseases has progressed significantly, and is expected to report to the Main Commission in 1998.

An joint Task Group of ICRP, primarily Committee 2, and ICRU (the International Commission on Radiation Units and Measurements) has produced a report on Conversion coefficients for external radiation which was adopted by the two Commissions in 1996 and published in 1997. A Committee 2 Working Party Report on Individual monitoring for internal exposure is currently in press. Further Task Groups have progressed significantly on projects concerning: Dose coefficients for workers and members of the public on CD ROM; Embryo/foetus doses after intakes of radionuclides by the mother; Application of the respiratory tract model; Reliability of dose coefficients; and the Human alimentary tract.

A Committee 3 Task Group report on Doses to patients from radiopharmaceuticals was adopted by the Main Commission, and will be published in 1998.

Committee 4 Task Group reports on Protection of workers and on Potential exposure were published in 1997. Task Groups are working on reports on Chronic exposure situations and on Disposal of long-lived radioactive waste.

In 1997, on proposals from the Committees, several new Task Groups and Working Parties were established. These are expected to produce reports over the next three to four years.

The International Commission on Radiological Protection

ICRP consists of the Main Commission, Committee 1 on Radiation Effects, Committee 2 on Secondary Limits, Committee 3 on Protection in Medicine, Committee 4 on Application of ICRP Recommendations, a number of *ad hoc* Task Groups and Working Parties, and the Scientific Secretariat.

The Main Commission consists of twelve members and a Chairman, while the Committees typically contain between 15 and 20 members each. The Commission and its Committees run for four-year periods, from 1 July. On each occasion of a new period, at least three, and not more than five, members of the Commission must be changed. A similar rate of renewal is sought for the Committees. Such a new period began 1 July 1997.

The Commission meets once or twice a year. Each one of the Committees meets once a year. On years 1 and 3 of each four-year period, the annual meeting of the Committees is conducted jointly and together with the Commission. These meetings are funded as necessary from monies available to ICRP.

The Commission uses Task Groups and Working Parties to deal with specific areas. Task Groups are formally appointed by the Commission to perform a defined task, usually the preparation of a draft report. A Task Group usually contains a majority of specialists from outside the Commission's structure. It is funded as necessary from monies available to ICRP.

Working Parties are set up by Committees, with the approval of the Chairman of the relevant Committee, to develop ideas, sometimes leading to the establishment of a Task Group. The membership of a Working Party is usually limited to Committee members. Working Parties receive no funding of their own, *i.e.* they operate primarily by correspondence and by meetings in direct conjunction with meetings of the Committee concerned.

These diverse activities are co-ordinated with a minimum of bureaucracy by a Scientific Secretary, ensuring that the recommendations of ICRP are promulgated.

Some salient features of the structure described are that:

- ICRP is an independent international network of specialists in various fields of radiological protection;
- At any one time, about one hundred eminent scientists are actively involved in the work of ICRP;
- The four-tier structure described provides a rigorous and time-proven Quality Management system of scrupulous peer review for the production of ICRP Publications.

In preparing its recommendations, the Commission considers the fundamental principles and quantitative bases on which appropriate radiation protection measures can be established, while leaving to the various national

protection bodies the responsibility of formulating the specific advice, codes of practice, or regulations that are best suited to the needs of their individual countries. The aim of the recommendations of ICRP is to

- *provide an appropriate standard of protection for mankind from sources of ionising radiation, without unduly limiting beneficial practices that give rise to exposure to radiation.*

The Main Commission:

Waste Disposal; History & Policy; New Tasks

A report (now in press) has been produced which reviews and restates ICRP policy on radioactive waste disposal. The report reaffirms current ICRP policy, and clarifies how collective dose calculations should be presented and can be used.

A document on the History, policies, and procedures of ICRP has been written in 1997 and will be issued in 1998.

The most recent fundamental recommendations of ICRP, *Publication 60*, date from 1990 (published in 1991). Initial work to Consolidate/Recapitulate these ICRP recommendations, aiming at publishing an updated set of recommendations around the year 2005, was also undertaken.

Committee 1 (Radiation Effects):

Genetic Susceptibility; Multifactorial Disease; New Tasks

Committee 1 assesses the risk and severity of deterministic effects that involve unacceptable loss of tissue and organ function, and the risk of stochastic effects, that is, of cancer and severe hereditary effects.

A Committee 1 report on Genetic susceptibility to cancer was finally adopted by the Main Commission in 1997 (part of it had been adopted in 1996). It concludes that this phenomenon will not distort current estimates of population risk, and that radiation risks at low doses in susceptible individuals remain small compared with background rates, but that such individual risks will be important after high doses (as in radiotherapy).

A Task Group has studied Radiation effects on multifactorial hereditary diseases, and their final report is expected in 1998. The current draft report finds that radiation-induced mutations at low doses are not likely to significantly influence the incidence of multifactorial diseases.

In 1997, the Main Commission also decided on new tasks for Committee 1. These include Radiation effects on embryo/foetus; Cancer risks at low doses; and (probably) Quality factors and Relative Biological Efficiency. Other areas of radiobiology are monitored for possible future inclusion in the work programme.

Committee 2 (Secondary Limits):

ICRP-ICRU Quantities; Doses on CD ROM; Intake Monitoring; Basic Anatomy/Physiology Data; New Tasks

Committee 2 is concerned with the derivation of limits for intakes of radionuclides that lead to internal irradiation of tissues and organs, and the derivation of maximum fluences for external irradiation in accordance with recommended basic dose limits.

A joint report of ICRP (primarily Committee 2) and ICRU, the International Commission on Radiation Units and Measurements, on Conversion coefficients for external radiation was published in 1997. The report discusses differences between ICRP dosimetric 'protection quantities' such as effective dose and ICRU measurable 'operational quantities' such as personal dose equivalent, and concludes that the operational quantities continue to achieve their objective to represent adequately the protection quantities.

Two reports on Age-dependent doses to members of the public were published in 1996. One of these, on inhalation dose coefficients, supersedes and extends older data by taking the most recent, age-specific dosimetric model of the respiratory tract into account. The other one compiles and amends ingestion and inhalation dose coefficients for workers and members of the public from various previous publications.

Some of this information is now also being made available, in an extended format, on a CD ROM to be distributed in 1998. Further work is in progress on embryo/foetus doses after intakes of radionuclides by the mother; reliability of dose coefficients; and age-dependent doses from external exposure of members of the public from radionuclides in the environment. For the latter item, a new Task Group on Dose coefficients for external irradiation from radionuclides in the environment was set up in 1997.

A report on Individual monitoring for internal exposure is in press. It updates an earlier publication on the same topic by taking more recent biokinetic models and data into account.

Task Groups are also working on Anatomy and physiology, and on the Human alimentary tract. The reports to be produced will provide basic data for radiological protection.

Committee 3 (Protection in Medicine):

Radiopharmaceuticals; New Tasks

Committee 3 is concerned with protection of the patient where ionising radiation is used for diagnosis and therapy, including nuclear medicine, and with aspects of occupational radiation protection specific to medical staff.

A joint Committee 2 – Committee 3 report on Doses to patients from radiopharmaceuticals was adopted by the Main Commission in 1997, and is expected to be published in 1998. The report extends a continuing series of reports on doses from new drugs being introduced into nuclear medicine practice, and further similar reports will be published as new radiopharmaceuticals are introduced.

Further Task Groups were set up in 1997 to deal with Pregnancy and medical radiation; Accident prevention and safety in radiotherapy; and Prevention of radiation injuries in interventional procedures.

***Committee 4 (Application of the Commission's Recommendations):
Protection of Workers; Potential Exposure; Chronic Exposure
Situations; Solid Radioactive Waste; New Tasks***

Committee 4 provides advice on the practical applications of the recommended system of protection, for occupational and for public exposure.

A Committee 4 report on Protection of workers was published in 1997. It updates the general principles of protection against occupational exposure, takes new concepts into account and replaces outdated recommendations on monitoring for exposures.

A report on Potential exposures, published in 1997, is also primarily oriented towards optimisation in the workplace. It provides practical examples on how to deal with smaller, not very rare, accidents mainly affecting individuals who are also subject to the normal exposures in the practice concerned.

Task Groups are working on protection criteria in Chronic exposure situations and on Disposal of long-lived radioactive waste. Their reports are expected around 1999.

Working Parties are considering basic questions on protection philosophy as a basis for the forthcoming Consolidation/Recapitulation of fundamental ICRP recommendations. Some specific areas are also being monitored and may possibly later become scheduled projects.

The Scientific Secretariat

The previous Scientific Secretary retired in January 1997, and with the appointment of a new Secretary, the Secretariat moved from Chilton, UK, to Stockholm, Sweden. The seat of ICRP remains in the United Kingdom where ICRP is a Registered Independent Charity.

Tasks of the Secretariat include preparations for and organisation of meetings, final editing of reports for publication in the *Annals of the ICRP*, maintenance of contacts with all collaborating organisations, and administrative issues.

The ICRP document filing register and the ICRP book-keeping system were both computerised during 1997. About 200 different matters were filed for action in 1997. Initial work on arranging an Internet Web Site was also begun in 1997.

Contacts, Meetings, etc.

Numerous different contacts were maintained, formally and informally, during the year. The Chairman of ICRP, Professor Clarke, gave presentations on ICRP Philosophy and the background to Commission recommendations at a number of international conferences. The Chairman also held specific discussions on technical issues with officials of the European Commission and with US Nuclear Regulatory (NRC) Commissioners and representatives of other US Federal Agencies. He participated in several International Atomic Energy Agency (IAEA) and World Health Organization (WHO) meetings, and lectured on IAEA Training Courses.

Furthermore, Professor Clarke addressed German Parliamentarians and others on the background to Radiation Protection Directives and addressed Members of the European Parliament and representatives and European Union Member States at the Third Standing Conference of Health and Safety in the Nuclear Age.

In addition, the Scientific Secretary, Dr Valentin represented ICRP in meetings of various kinds with IAEA, the International Electrotechnical Commission (IEC), the International Radiation Protection Association (IRPA), the International Standards Organization (ISO), the Nuclear Energy Agency of the Organization for Economic Co-operation and Development (OECD/NEA), the United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR), the US National Council on Radiation Protection and Measurements (NCRP), and WHO.

There was also a brisk demand for informal enlightenment and information via telephone, e-mail, and regular mail to the Secretariat.

ICRP Publications, etc., 1997

ICRP (1997). General principles for the radiation protection of workers. ICRP Publication 75. *Annals of the ICRP* 27(1), Pergamon Press, Oxford, UK.

ICRP (1997). Protection from potential exposures: Application to selected radiation sources. ICRP Publication 76. *Annals of the ICRP* 27(2), Pergamon Press, Oxford, UK.

'Individual monitoring for intakes of radionuclides by workers' is in press and will appear as *ICRP Publication 78* in *Annals of the ICRP* 27(3-4). Being the concluding issue of Volume 27, this will be dated 1997 although it does not appear in print until early 1998.

Similarly, 'Radiological protection policy for the disposal of radioactive waste' is in press and will appear in early 1998 as *ICRP Publication 77* in a Supplement to *Annals of the ICRP* Vol. 27 (1997).

A CD ROM compiling and extending data from *ICRP Publications 68* and *72* is being produced and will be publicly available in 1998.

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and Committees, 1997 - 2001**

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