**OBJECTIVES**

The ICRU has as its principal objective the development of internationally accepted recommendations regarding:

1. quantities and units of radiation and radioactivity;
2. procedures suitable for the measurement and application of these quantities in diagnostic radiology, radiation therapy, radiation biology, nuclear medicine, radiation protection, and industrial and environmental activities;
3. physical data needed in the application of these procedures, the use of which ensures uniformity in reporting.

The ICRU endeavours to collect and evaluate the latest data and information pertinent to the problems of radiation measurement, and to recommend in its publications the most appropriate values of radiation quantities and the most appropriate and safest techniques for current use.

The ICRU has contacts with the US National Council on Radiation Protection (NCRP) as well as with other international organizations including the International Atomic Energy Agency (IAEA), World Health Organization (WHO), the International Commission on Radiological Protection (ICRP), the United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR), the International Bureau of Weights and Measures/Bureau International des Poids et Mesures (BIPM) and the International Committee for Weights and Measures/Comité International des Poids et Mesures (CIPM).

Many organizations and institutes, radiation workers, patients (particularly those with cancer) and indeed the public benefit directly from the activities of the ICRU.

**GRAY MEDAL**

The prestigious Gray Medal was established by the ICRU in 1967. The medal is awarded for outstanding contributions to scientific fields of interest to the ICRU and honors the late Louis Harold Gray, former member and Vice Chairman of the ICRU and eminent medical physicist and radiobiologist. The medal is awarded with a frequency determined by the ICRU and is usually awarded, in rotation, to recipients in the fields of Radiation Oncology, Medical Imaging and Basic Radiation Science. The medal is presented at an appropriate international event where the recipient is invited to give a scientific lecture.

**RECIPIENTS**

- 1999 P Lauterbur (Medical Imaging)
- 2001 H D Suit (Radiation Oncology)
- 2003 R M Fry (Radiology)
- 2003 M J Berger (Radiation Physics)
- 2005 C E Metz (Medical Imaging)
- 2007 E J Hall (Radiation Physics)
- 2009 A van der Kogel (Radiobiology)
- 2011 D T Goodhead (Rad. Science)

**HISTORY**

The ICRU (originally known as the International X-Ray Unit Committee and later as the International Committee on Radiological Units) was conceived at the First International Congress of Radiology (ICR) in London in 1928 and officially came into being at ICR-2 in Stockholm in 1928. The primary objective was to propose an internationally agreed-upon unit for measurement of radiation as applied to medicine. From 1950 the ICRU expanded its role significantly to embrace a wider field of radiation protection, dosimetry and medical physics.

**MEMBERSHIP**

Since the sixth meeting in 1950 members have been elected to the ICRU by incumbent members. The Commission is composed of a maximum of 15 members selected for their scientific ability and is widely regarded as the foremost panel of experts in radiation medicine and in the other fields of ICRU endeavor.

There is currently one vacancy. Meetings are held annually.

**CURRENT MEMBERS**

- H G Menzel (Switzerland), Chairman
- D Burns (France)
- P M DeLuca, Jr (USA) Vice-Chairman
- P Dawson (UK)
- D T L Jones (South Africa), Secretary
- E Fantuzzi (Italy)
- A Wambersie (Belgium), Executive Director
- R A Gahbauer (USA)
- G F Whitmore (Canada), Executive Director
- V Grégoire (Belgium)
- S M Bentzen (USA)
- H G Paretzke (Germany)
- J M Boone (USA)
- H Tatsuzaki (Japan)

**FUNDING**

Income is currently derived from the sale of ICRU Reports and from financial support provided mainly by the European Commission, the US National Cancer Institute and the International Atomic Energy Agency. Smaller contributions come from national and international organizations and societies and commercial companies. Indirect monetary support is provided by organizations which host meetings and subsidize personnel (salaries and travel expenses) to participate in ICRU activities. All Commissioners, Report Committee members and consultants serve without compensation. Funds are expended for administrative purposes, to maintain a part-time secretariat and to provide reimbursement for travel expenses.

**REPORT COMMITTEES**

The Commission is assisted at any given time by several Report Committees, composed of expert voluntary members who are selected to produce reports on specific topical subjects. Voluntary consultants with specialized knowledge of particular issues are often appointed to assist the Report Committees. These ICRU reports are the premier international authoritative reference sources for medical radiation procedures and for specifications and standards in industrial, environmental and other applications of radiation and in radiation protection.

Two reports per year are published as the Journal of the ICRU by Oxford University Press. ICRU recommendations are often adopted by governments, national statutory bodies and international associations and organizations.

**EVOLUTION OF RADIATION UNITS (ICRU RECOMMENDATIONS)**

<table>
<thead>
<tr>
<th>QUANTITY</th>
<th>UNIT</th>
<th>SPECIAL NAME</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exposure</td>
<td>X</td>
<td>rAd</td>
<td>1928</td>
</tr>
<tr>
<td>Absorbed dose</td>
<td>Gy</td>
<td>rad</td>
<td>1956</td>
</tr>
<tr>
<td>Activity</td>
<td>Ci</td>
<td>curie</td>
<td>1953</td>
</tr>
<tr>
<td>Absorbed dose</td>
<td>rad</td>
<td>1953</td>
<td></td>
</tr>
<tr>
<td>Fluence</td>
<td>Gy/m²</td>
<td>1962</td>
<td></td>
</tr>
<tr>
<td>Dose equivalent</td>
<td>rem</td>
<td>1971</td>
<td></td>
</tr>
<tr>
<td>Absorbed dose</td>
<td>Gy</td>
<td>gray</td>
<td>1974</td>
</tr>
<tr>
<td>Activity</td>
<td>beq</td>
<td>1974</td>
<td></td>
</tr>
<tr>
<td>Dose equivalent</td>
<td>Sv</td>
<td>1977</td>
<td></td>
</tr>
</tbody>
</table>

**ICRU REPORTS**

- [www.icru.oxfordjournals.org](http://www.icru.oxfordjournals.org)

**RECENTLY PUBLISHED REPORTS**

- 78 Prescribing, Recording, and Reporting Proton-Beam Therapy (2007) [with IAEA]
- 79 Receiver Operator Characteristic (ROC) Analysis in Medical Imaging (2008)
- 80 Dosimetry Systems for Use in Radiation Processing (2008)
- 81 Quantitative Aspects of Bone Densitometry (2009)
- 82 Mammography: Assessment of Image Quality (2009)

**ICRP 110** Reference Phantom for Radiation Protection (2009) [with ICRP]

**ICRP 116** Dose Conversion Coefficients for Radiological Protection for External Radiation Exposure (2010) [with ICRP]

**85s Fundamental Quantities and Units (2011)**

- 86 Quantification and Reporting of Low-Dose and Other Heterogeneous Exposures (2011)

**REPORTS IN PREPARATION**

- Prescribing, Recording, and Reporting Cervical Brachytherapy
- Image Quality and Patient Dose in Computed Tomography
- Key Data for Measurement Standards in the Dosimetry of Ionizing Radiation
- Prescribing, Recording, and Reporting Ion-Beam Therapy (IRMT) (2010)
- Reference Data for the Validation of Doses from Cosmic Radiation Exposure of Aircraft Crew (2010) [with ICRP]
- Dose Conversion Coefficients for Radiological Protection for External Radiation Exposure (2010) [with ICRP]