

# UNSCEAR GLOBAL SURVEY

## Web version

April 2006

### QUESTIONNAIRE

#### **Global Survey of Medical Radiation Usage and Exposures from 1997 onwards**

The United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR) was established by the United Nations General Assembly to assess and report levels and effects of ionizing radiation. Governments and organizations throughout the world rely on its reports to provide the basis for evaluating radiation risks and for establishing protective measures. In this regard, UNSCEAR collects and analyses data on the global and regional use of radiation in medical diagnosis and treatment. The next UNSCEAR report to the General Assembly on this subject is envisaged for the year 2007. In order to prepare this report, Member States were requested in 2001 to consider providing data to extend the previous UNSCEAR evaluation that was issued in the year 2000.

The General Assembly in its resolution A/60/98 of 8 December 2005 has expressed “its appreciation for the assistance rendered to the Scientific Committee by Member States”, and invited them to “increase their cooperation in this field” and to provide “further relevant data about doses [...] from various sources of radiation, which would greatly help in the preparation of future reports of the Scientific Committee to the General Assembly”.

This present document is to serve both as a reminder to those Member States who have not as yet responded to the request for information, and as an opportunity for others to consider providing additional or updated data.

The data solicited with this Questionnaire are for the period from 1997 onwards. The questionnaire is formulated in five parts:

Form M0	<b>General information and number of practitioners</b>
Form M1	<b>Diagnostic equipment</b>
Form M2	<b>Diagnostic x-ray examinations</b>
Form M3	<b>Nuclear medicine procedures (diagnostic and therapeutic)</b>
Form M4	<b>Radiotherapy treatments</b>

Copies of these forms accompany this covering letter. Responses may be provided directly using these forms or copies of them. However, UNSCEAR would appreciate receiving responses in electronic form, where this is possible. Electronic copies of these forms can be downloaded from the UNSCEAR web-site ([www.unscear.org](http://www.unscear.org)) or requested by addressing an email to:

[susan.habersack@unscear.org](mailto:susan.habersack@unscear.org)

In order for data to be analysed and published in the next UNSCEAR Report, completed questionnaires must be returned to the UNSCEAR Secretariat no later than **31 July 2006**.

All contributions will be acknowledged in the report to the General Assembly.

## Notes for completion of the Medical Exposures Questionnaire

### BACKGROUND

For the initial global survey conducted by UNSCEAR in 1991, data were collected for the periods 1970–1979, 1980–1984 and 1985–1989, and analyses of this information were published in the UNSCEAR 1993 Report. In the UNSCEAR 2000 Report, data were added covering the years 1990–1994 and compared with the three preceding 5-year intervals among countries from all regions of the world. Annex D, “Medical radiation exposures”, of the UNSCEAR 2000 Report (<http://www.unscear.org/docs/reports/annexd.pdf>) can be consulted for additional background and guidance on the present survey. The names of the contributors who submitted data are listed on pages 467-468 of this Annex, and each of the respondents to the questionnaire received a *gratis* copy of the UNSCEAR report.

The medical questionnaire forms have been updated from those used in the previous surveys. Care has been taken so that direct comparison is still possible with the results from previous surveys, while improving surveillance of new procedures that can result in appreciable patient doses and providing for the comparison of conventional versus digital methods.

### GENERAL COMMENTS ON THE DATA NEEDED

Data are needed to reflect the annual average level of practice in the country since 1995, **giving either values for one of the years during the period 1995 to the present or the annual average for this period.** Please indicate the year (or period) to which reported data refer.

The data should reflect the level of practice in the entire country. This may entail **extrapolating, if necessary, data collected for a particular region, city or hospital.** If such extrapolations are used to provide country-level data, **please add comments on how representative the regional data are with respect to the entire country.**

The dosimetric data should represent typical or average values per examination or treatment, together with an indication of the typical variation (standard deviation) between individual (adult) patients. Data are also requested for each type of procedure concerning the distributions of patients by age (three different bands) and by sex. It is important to know how many examinations are undertaken on male and female patients separately. Consequently, the data in the six boxes (3 age bands by 2 sexes) should add up to 100%. Please include significant data for any other important types of examination or treatment (curative or palliative) not specifically listed or indeed more detailed analyses within the broad categories shown. Data are particularly sought on medical exposures of children; summaries of available information should be submitted.

**Form M0 – General Information and Number of Practitioners:** The number of physicians in the country may be interpreted as the number of medically qualified doctors. In some countries, radiology technicians are referred to as radiographers. Any nurses who perform x-ray examinations should be included in the number of radiology technicians. In some countries diagnostic radiology physicians are called radiologists. UNSCEAR would like to know the total number of physicians/doctors who specialize in radiology. In some countries the name radiotherapist is used instead of radiation oncologist.

**Form M1 – Diagnostic and Therapy Equipment:** Information is required concerning the numbers of individual machines used for diagnosis or therapy. For x-ray equipment, this is broadly taken to be the number of mobile or static generators (rather than x-ray tubes) that are used for radiography or fluoroscopy. Separate totals are now requested for conventional (i.e. non-digital) and digital machines. Separate totals are requested for the distinct categories of dedicated mammography systems, dental units, interventional radiography systems and computed tomography (CT) scanners. (This last category appears only under the digital section.) Please also indicate the number of different types of bone densitometers. For nuclear medicine equipment, estimates are required of the numbers of imaging devices, including, where appropriate, positron emission tomography (PET) scanners and combined PET/CT scanners. With regard to radiotherapy equipment, please indicate the numbers of so-called low-dose-rate (LDR) and high-dose-rate (HDR) brachytherapy afterloading units. The number of nuclear medicine and radiotherapy centres or facilities is also requested.

**Form M2 – Diagnostic X-ray Examinations:** Indicate the estimated average patient dose per diagnostic x-ray examination, the dose quantities and the variations (standard deviations) between individual patients. An

indication of dose (such as entrance surface dose or dose-area product, for example) from wide-scale patient dose monitoring programmes should be specified and reported (alternatively, other available indicators of dose may be submitted). Estimates of effective dose are requested, if available. Information is sought in particular in relation to interventional radiological procedures.

**Form M3 – Nuclear Medicine Procedures:** Indicate the mean activity of radiopharmaceutical administered to the patient per procedure and the variation (standard deviation) between individual patients. Include information for all major types of procedure within each of the broad categories of diagnostic examinations or therapeutic treatments.

**Form M4 – Radiotherapy Treatments:** Indicate the typical value and variation (range) between individual patients of the prescribed dose to the target volume for each type of treatment. Any information concerning the typical doses to critical organs outside the target volume would be most welcome.

Any bibliography, reference documents, additional papers and reports that can be enclosed in support of the data would be particularly helpful and are welcomed. Also, please feel free to add comments to your answers or to supply any other information that you consider might be of interest to the review by UNSCEAR.

Please complete the questionnaire as fully as possible with available information – however UNSCEAR is interested in responses even if the information is incomplete. For information to be considered by UNSCEAR in its final report on medical exposures, the responses must be returned, preferably by email, no later than **31 July 2006** to:

UNSCEAR Secretariat  
Vienna International Centre  
Wagramerstrasse 5  
P.O.Box 500  
A-1400 Vienna, Austria

Email address: [susan.habersack@unscear.org](mailto:susan.habersack@unscear.org)

Your assistance in contributing to this important survey is very much appreciated. UNSCEAR will inform you of the results in due course.

UNSCEAR also encourages the relevant competent bodies to have systems in place for routinely collecting such data so that they can contribute to future global surveys effectively and efficiently.

## ACKNOWLEDGEMENTS

UNSCEAR is grateful to Professor Eliseo Vaño of Madrid and his team of medical specialists, Dr. Keith Faulkner and Mr. Christian Lavoie for their assistance in initiating the revisions to the questionnaire.