



Atoms for Peace

الوكالة الدولية للطاقة الذرية

国际原子能机构

International Atomic Energy Agency

Agence internationale de l'énergie atomique

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Principles of operation of the IAEA/WHO postal dose audit service for radiotherapy centres

- This service is offered to IAEA Member States that are eligible to receive Technical Cooperation support from the IAEA. It is also offered to WHO Member States upon WHO's request. The service is not routinely offered to Member States that have a national dosimetry audit network for radiotherapy.
- The service is cost free to participants. It checks the calibration of clinical teletherapy photon beams (Co-60 and megavoltage beams from accelerators where the reference conditions (10 cm x 10 cm field size at 10 cm depth in water, SSD or SAD) can be set-up. This audit is not designed for small beams used in radiosurgery.
- Please note, that we do not check: electron beams, brachytherapy or orthovoltage X-ray beams, or stereotactic radiosurgery equipment, be it a Gamma-knife, X-ray knife, Cyber-knife, Stereotactic Gamma System, or similar.
- A hospital can request the number of dosimeter sets corresponding to the number of clinical photon beams used for teletherapy; however, not more than 3 beams will be checked in an irradiation run (irradiation window).
- The IAEA/WHO dosimetry audit service is organized in 10 irradiation runs per year. Over a period of two years, each participant can be included in one of these irradiation runs.
- Individual requests (outside the irradiation windows) are accepted for new installations, following major repair of the treatment units, Co-60 source replacements, unusual patient skin reactions, and for other important reasons. Such requests can be made at any time and will be given the highest priority.
- Your institution is now being invited to participate in the upcoming audit run. Only those institutions that agree on the terms and conditions of the IAEA/WHO postal dose audit service, as outlined in this note, will be provided with the dosimeters.
- During each irradiation window, the IAEA Dosimetry Laboratory irradiates reference dosimeters (2 Gy, Co-60 beam) for every beam in participating hospitals. It's therefore important that the participants keep to the fixed irradiation window.
- In each irradiation run, two reference institutions, such as a Primary Standards Dosimetry Laboratory and a leading radiotherapy centre, irradiate dosimeters with well-defined doses to provide proper quality control of the process.
- Dosimeters irradiated by participants should arrive at the IAEA laboratory not later than 6 weeks after irradiation, otherwise the hospitals will have to wait for their results due to queues to the dosimeter readings arising from irregular return of dosimeters.
- If an individual participant cannot irradiate the dosimeters in the scheduled time window, he/she can still do this later. The "late" irradiations will be evaluated individually at a later date. The IAEA should be informed when the "late" participant intends to make the irradiation in order to prepare the reference dosimeters.
- The audit results are sent to the participants within 8 weeks of receiving their irradiated dosimeters at the IAEA, depending on the queue to the readers. Participants receive individual result certificates for each beam checked. Results within 5% limit are considered acceptable.
- If the results are within the acceptance limit of 5%, the next participation is recommended after two years period.
- Institutions with results outside the 5% acceptance limit are provided with a second, follow-up dosimetry set for immediate repeat irradiation. If the second audit result is still not acceptable, an expert visit is recommended to resolve the discrepancy, and the next participation is recommended after one year.
- The results of IAEA/WHO postal audits are kept confidential by the IAEA/WHO staff and the national audit coordinators, where existing, and will not otherwise be disseminated without the written permission of the participating radiotherapy centre.
- The audit material sent to your institution represents a significant investment in cost, time and effort to the IAEA/WHO. Failure to return dosimeters may be reported to your local authorities or to the Ministry of Health.

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