CONTROLLED DOCUMENT

University Hospitals Birmingham
NHS Foundation Trust

Ionising Radiation (Medical Exposure) Regulations 2017

Procedure 11: Reducing the Possibility of Accidental or Unintended Exposures to Ionising Radiation

Required under IR(ME)R 2017 Regulation 6 & Schedule 2 (k)

CATEGORY:	Procedure
CLASSIFICATION:	Health & Safety, Clinical Governance
PURPOSE:	To ensure that the probability and magnitude of accidental or unintended exposure to individuals from radiological practices are reduced so far as reasonably practicable.
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Controlled Document Lead:	Chair of the Radiation Safety Board
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Distribution: • **Essential Reading for:**	Staff who are designated as an IR(ME)R duty holder, defined as referrer, practitioner and/or operator. Staff in training to become an IR(ME)R duty holder

• **Information for:**	Managers of IR(ME)R duty holders General managers of departments and areas performing procedures involving ionising radiation All staff working in departments that refer for or perform procedures involving ionising radiation.

Contents

1. Procedure Statement

1.1. To limit the likelihood and extent of accidental or unintended doses to individuals from radiological practices.

2. Scope

2.1. All medical exposures and non-medical imaging exposures carried out by the Trust.

3. Responsibility

3.1. The task of ensuring compliance with this Employer's Procedure has been delegated to the following staff:

- Imaging Modality Managers
- Head of Nuclear Medicine (including PET)
- Head of Cardiology
- Senior Physicist BMD (WTCRF)
- Sister In Charge of OPD Maxillofacial
- Sister in charge of theatres or deputy (Fluoroscan)
- Lithotripter nurse lead
- Head of Radiotherapy Physics
- Head of any other Department or Service using ionising radiation in the diagnosis or treatment of individuals
- Clinical Service Leads of any Department or Service referring individuals for diagnosis or treatment involving ionising radiation

4. Practice: Pre-Exposure Checks

4.1. The referrer must check that the individual they are referring is the correct individual. This includes double-checking that the clinical details and examination required are correct for the name of the individual, following IR(ME)R Employer's Procedures 1 and 2.

4.2. Referrals must be justified by a Practitioner and authorised by an operator entitled under IR(ME)R Employer's Procedure 2.

4.3. The identity of the individual to be exposed is checked prior to any radiation exposure, following the IR(ME)R Employer's Procedure 1.

4.4. Care is taken at all times whilst undertaking radiological practices to select and operate equipment correctly.

4.5. The Society of Radiographers ‘Pause & Check’ lists are available to all duty holders and where appropriate displayed in rooms with equipment capable of issuing ionising radiation.

4.6. The task of checking activity of radiopharmaceuticals is undertaken by Nuclear Medicine Clinical Technologists, Nuclear Medicine Radiographers, Clinical Scientists, pre-registration Clinical Scientists, Nuclear Medicine Nurses, Radiopharmacists, and Radiopharmacy Technicians following the department standard operating procedures held within the quality system

4.7. Checks are made that protective agents have been administered as required prior to administration of radionuclides where appropriate

4.8. Radioactive materials supplied under quarantine are not administered to individuals unless release documents have been received e.g. 18-F-FDG, 177-Lu peptide.

4.9. The task of checking radiotherapy treatment plans is undertaken by clinical oncologists, specialist registrars, clinical technologists, clinical scientists, radiographers following the department standard operating procedures held within the quality system

4.10. Patient set-up for radiotherapy treatment is verified using on-set imaging under protocol prior to treatment delivery.

4.11. If appropriate, enquiries are made of individuals capable of childbearing to check if they are pregnant or breastfeeding, according to the IR(ME)R Employer’s Procedure 4.

5. Practice: Equipment

5.1. Equipment, where appropriate, is subject to a regular preventative maintenance programme, performed by suitably trained in-house or external engineers.

5.2. Equipment is subject to a regular and preventative QA programme as required by IR(ME)R Employer’s Procedure 5, including:

- Commissioning tests before it is first used for clinical purposes.
- Testing at regular intervals and after any major maintenance.
- Representative dose assessments for individuals being exposed.

5.3. The task of coordinating the Imaging Department’s Quality Assurance programme has been delegated to Imaging Modality Managers, supported by RRPPS. QA tests are carried out by Clinical Scientists and Clinical Technologists from RRPPS and Radiographers within Imaging

5.4. The task of coordinating the QA programme for Radiotherapy has been delegated to the Head of QA and Dosimetry. Equipment QA in Radiotherapy is carried out by Clinical Scientists, Clinical Technologists and pre-registration Clinical Scientists and Radiographer

5.5. Equipment QA in Nuclear Medicine is carried out by Clinical Scientists, Clinical Technologists and pre-registration Clinical Scientists

5.6. Equipment QA in other areas of the Trust is performed according to advice from installers and/or Medical Physics Experts

5.7. All staff are responsible for reporting equipment faults, incidents and equipment operational changes.

5.8. The University Hospitals Birmingham NHS Foundation Trust has an equipment review programme which allocates priorities to the replacement of old equipment.

5.9. Equipment incorporating automatic exposure devices has, when available, pre-programmed back-up timers to limit the extent of failure to terminate. N.B. Should the kV or mAs be adjusted manually, this may no longer apply and the generator may revert back to main generator back-up time. Staff are advised to select large/ thin patient settings when necessary.

5.10. Where QA or maintenance indicates that equipment should not be used, this will clearly communicated to all operators and a notice fixed to the equipment or room entrance

5.11. Where there are limitations to use identified in QA or maintenance this will be clearly communicated to all operators

5.12. Equipment faults, either picked up during clinical use or during QA or maintenance, are logged and escalated according to local department procedures and reported as appropriate to:

- Manufacturer's helpdesk
- Third-party service engineers
- Managed Service Provider's helpdesk
- Radiotherapy Technical Services, and where necessary area relevant MPEs/Head of QA and Dosimetry

5.13. A formal procedure is followed for hand-over of equipment for maintenance, using the Axrem form at Radiation Controlled Area and Equipment Handover Form - AXREM or appropriate local equivalent

5.14. In radiotherapy a formal handover process is followed for maintenance following Radiotherapy procedures and includes local hand over form to external engineers

5.15. All radiotherapy treatment units are calibrated following national dosimetry codes of practice, with doses traceable to primary standards at NPL.

6. Practice: Training

6.1. All operators undergo appropriate in-house training on the operation of equipment in accordance with the Trust's 'Medical Devices Policy and Procedure'. In-house training provided is as follows:

- Trust Corporate Induction.
- Department Local Induction inc. equipment competency leading to medical devices sign off.
- Local Rules and IR(ME)R 2017 Employer's Procedures sign off.
- Modality/Room specific standard operating procedures.
- Annual PDR/ Appraisal inc. Local Rules and IR(ME)R 2017 Employer's Procedures sign off.
- Local induction presentation to all new starters includes 'IR(ME)R17/ IRR17' and 'paused & checked' presentation forms part of local induction.
- Annual IR(ME)R updates, either delivered locally or on-line

7. Practice: Incidents and Audit

7.1. All incidents and near misses are reported and investigated in accordance with IR(ME)R Employer's Procedure 13.

7.2. The reasons for incidents are reviewed and appropriate action taken to prevent recurrence. Feedback is given to the individual involved in the incident.

7.3. Review of radiation incidents takes place monthly within each department and summaries provided to the appropriate Radiation Protection Committee in order to identify trends. Where specific concerns are identified, these will be addressed by the relevant manager or clinical lead.

7.4. The RPCs are overseen by the Radiation Safety Board, which reports directly into the Trust Health, Safety and Environment Committee

7.5. Lessons learned from incidents or near misses are communicated to duty holders via the appropriate channels

7.6. IR(ME)R compliance is audited as outlined in IR(ME)R Employer's Procedure 5

7.7. The Trust has a programme of clinical audit, including the Radiology Education and Learning Meeting where discrepancies in reporting are presented and discussed

7.8. Where relevant, the Trust participates in national dosimetry and clinical trial accreditation audits

7.9. Diagnostic Reference Levels are set and audited as described in IR(ME)R Employer's Procedure 7.

7.10. Image Optimisation Teams are established by the relevant RPC and include, as appropriate, radiologists, radiographers and medical physics experts

8. Contingencies

8.1. Any failure in compliance with this procedure must be reported to the relevant Divisional General Managers or Medical Physics Expert in their absence. Failure to comply with the above procedure may result in the Trust's Disciplinary Policy being invoked.