

Radiation Safety Policy

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PURPOSE	To ensure the safe use of radiation within the Trust.
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<ul style="list-style-type: none"> • Essential Reading for: 	All Managers in departments using ionising or non-ionising radiation
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¹ If this Controlled Document will have an impact on any contracts held by the Trust, once approved, this will need to be sent to the Procurement Team requesting that it be added to the Procurement Policy Portal

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1. Policy Statement

- 1.1. University Hospitals Birmingham NHS Foundation Trust (the 'Trust') is committed to a policy of keeping exposures to ionising and non-ionising radiation as low as reasonably practicable.
- 1.2. The Trust will ensure, as far as is reasonably practicable, the safety of patients, members of the public (including the families of patients), staff, and others who may be exposed to hazards arising from the use of:
 - 1.2.1. ionising radiations, including
 - a. X-ray,
 - b. gamma rays
 - c. beta particles
 - d. alpha particles
 - 1.2.2. non-ionising radiations, including
 - a. lasers
 - b. magnetic fields
 - c. ultrasound
 - d. ultra violet (UV)
 - e. optical radiation sources
- 1.3. The Trust will ensure that the legal obligations contained within the Regulations described in section 6 are met.
- 1.4. The Trust will ensure that an appropriate radiation protection programme is implemented and reviewed and that appropriate organisational arrangements are in place to facilitate it.

2. Scope

- 2.1. This policy applies to all employees (including volunteers, students, bank, locum and agency staff working on the premises) of the Trust and to all members of the public, patients and contractors whilst they are on sites managed by the Trust.
- 2.2. This policy applies to outside workers whilst on sites managed by the Trust unless other specific arrangements have been agreed.
- 2.3. Members of staff who work in Commissioned Services on sites not managed by the Trust are covered by this Radiation Safety Policy, unless other specific arrangements have been agreed.
- 2.4. Commissioned services are listed in Appendix B.
- 2.5. Compliance with the Regulations and Good Practice Guides (see References, section 6) covering the use of ionising and non-ionising radiation will ensure that radiation doses for all personnel and patients will be as low as reasonably practicable.

3. Framework

- 3.1. This section describes the broad framework for ensuring radiation safety. Detailed operational instructions for the implementation of this policy are contained within the associated documents listed in section 7. The associated documents may be amended by authority of the relevant Chief Operating Officer provided that such amendments are compliant with this policy.
- 3.2. Any failure to comply with this policy and its associated documents could lead to disciplinary action which could result in dismissal.
- 3.3. The Trust will:
 - 3.3.1. Maintain a radiation protection management structure to implement radiation safety requirements;
 - 3.3.2. Appoint suitable Radiation Safety Advisers (RSA) (section 4.4) to advise on all matters concerning the safe use of ionising or non-ionising radiations;
 - 3.3.3. Where appropriate, appoint Supervisors to cover each department using ionising or non-ionising radiation to enable work with radiation to be carried out in a safe manner and ensure that local rules are followed;
 - 3.3.4. Where appropriate, appoint Site Officers to assist in compliance with the Environment Agency Site Permit and local procedures.
 - 3.3.5. Comply with the relevant Regulations and Good Practice Guides (see References, section 6) covering the use of ionising and non-ionising radiation;
 - 3.3.6. Comply with the standard conditions and schedules included in radioactive substances permits issued by the Environment

Agency under the Environmental permitting (England and Wales) Regulations;

- 3.3.7. Where necessary, when using an exemption under the Environmental permitting (England and Wales) Regulations, comply with the relevant guidance issued by the environment agencies;
- 3.3.8. Ensure that medical examinations involving the use of ionising radiation will only be carried out:
 - a. Where there is sufficient medical justification;
 - b. In accordance with associated standard operating procedures and protocols;
- 3.3.9. Ensure that radiation doses to patients from diagnostic procedures are kept as low as reasonably practicable consistent with the intended clinical outcome. Therapeutic doses of ionising radiation will be in accordance with site-specific medical treatment portfolios developed and reviewed within the Oncology quality system or protocols within Nuclear Medicine controlled documents;
- 3.3.10. Ensure that radiation doses for all personnel will be as low as reasonably practicable; and
- 3.3.11. Ensure clinical audits are carried out.

3.4. Expert Advice and Support

Medical physics support and advice for radiation safety is provided as follows:

3.4.1. RRPPS

- a. Radiation Safety Advisers (section 4.4) for diagnostic and radiotherapeutic uses of ionising and non-ionising radiation.
- b. HSE-approved personal monitoring service providing whole body, extremity and eye dosimeters for ionising radiation (section 3.10).
- c. Ionising radiation instrument calibration service and Qualified Persons (section 4.9) for the calibration and testing of both radiation protection and diagnostic radiology quality assurance instruments (section 3.10.5).
- d. Medical Physics Experts (MPE) for diagnostic radiology and nuclear medicine (section 4.8.4).
- e. Radioactive Waste Adviser (RWA) (section 4.10).
- f. Radiation surveys and quality assurance testing of

diagnostic x-ray equipment, gamma cameras, PET-CT scanners, Magnetic Resonance Imaging, lasers and other non-ionising facilities and quality assurance tests of ultrasound equipment (section 3.6.4)

3.4.2. Radiotherapy

- a. MPEs for radiotherapy treatments (section 4.8.4)
- b. Quality Assurance testing and calibration for radiotherapy equipment (section 3.6.4)

3.4.3. Nuclear Medicine (including PET)

- a. MPEs for nuclear medicine and bone mineral densitometry (section 4.8.4)
- b. Site Officer (section 4.7)
- c. Quality assurance testing of nuclear medicine imaging equipment (section 3.6.4)

3.5. Dangerous Goods Safety Adviser, DGSA

A DGSA is appointed to advise on compliance with the transport of radioactive materials within the requirements of the Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2009.

3.6. Radiation Facilities and Equipment

- 3.6.1. All radiation facilities will be designed to meet the requirements of relevant Regulations, Codes of Practice and Guidance Notes to ensure that doses are below relevant nationally agreed dose constraints and the appropriate security measures are included.
- 3.6.2. Local Rules will be prepared to cover areas containing ionising radiation and non-ionising radiations as required. The Local Rules will contain or reference operational instructions designed to minimise radiation doses. Radiation doses to staff who work with ionising radiation will be monitored as deemed appropriate by a Radiation Protection Adviser (RPA).
- 3.6.3. The minimising of radiation doses to patients will be a prime factor in the selection and use of diagnostic equipment.
- 3.6.4. Quality assurance tests, including tests before the equipment is put into clinical use and subsequent regular checks at appropriate intervals, will be carried out (See Appendices **CError! Reference source not found.** and D).
- 3.6.5. When new facilities are being planned or new equipment is acquired the appropriate RSA will be involved to advise on the best method of achieving the required dose constraints.
- 3.6.6. Advice will be sought from the relevant MPE regarding the

technical specification, selection, purchase and replacement of all ionising radiation equipment.

- 3.6.7. Any equipment or apparatus used in connection with medical exposures will, as far as reasonably practicable, be selected, installed and maintained so that it is capable of restricting the exposure of the patient in accordance with the intended clinical purpose.
- 3.6.8. The Trust will ensure that a critical examination of all equipment emitting ionising radiation has been carried out before it is used. Responsibility for performing this critical examination lies with the installer; a RPA must be consulted with regards to the nature and extent of any critical examination and the results of that examination.
- 3.6.9. A Laser Protection Adviser (LPA) will examine laser equipment and other hazardous optical equipment before it is used on patients. Similarly a Magnetic Resonance Safety Expert (MRSE) must check MRI equipment. Other radiation sources such as UV and ultrasound must also be examined by a Radiation Safety Adviser before use.
- 3.6.10. Equipment capable of emitting ionising or non-ionising radiation will not be brought on to site for any purpose, including but not limited to purchase, lease, loan, demonstration or trial without prior consultation with a Radiation Safety Adviser and consideration of indemnity² where appropriate. An appropriate Health and Safety Adviser may also be involved for non-radiation matters.
- 3.6.11. Loan, demonstration and trial equipment will be subject to the same safety and quality checks as permanent equipment.
- 3.6.12. Where facilities require to be permitted to hold open or closed radioactive substances, they are to be constructed to the appropriate standard; a Radioactive Waste Adviser (RWA) will be appointed and consulted on compliance.
- 3.6.13. Any radioactive material will be transported in accordance with the relevant Regulations and procedures.

3.7. Risk Assessments

- 3.7.1. Risk assessments will be undertaken for all radiation activities

² This is to ensure that the relevant statutory provisions such as notification under the graded approach to HSE and risk assessments are satisfied. The supplier of the equipment is responsible for providing details concerning the necessary safety arrangements including (a) documentation proving that the equipment is safe to use and describing the necessary safe working procedures, (b) testing and maintenance requirements of the equipment whilst on loan, (c) any additional personal safety equipment and staff training that might be necessary and (d) training in proper use of the equipment.

prior to any work commencing. The assessments must be reviewed if the activity, equipment or location changes. All assessments must be reviewed at regular intervals not exceeding 3 yearly.

3.7.2. Where risks are identified, appropriate measures will be put in place to reduce the dose and hence risk to as low as reasonably practicable. Such measures must include the following in the order specified below:

- a. Engineering controls (e.g. shielding, interlocks and other safety features);
- b. Changes to working procedures and provision of training to ensure these are correctly followed; and
- c. Personal protective equipment (e.g. lead aprons, gloves, aprons).

3.8. Work Instructions

Safe Working Practices must be established for the safe use of ionising radiation equipment, MRI scanners, and hazardous optical equipment.

3.9. Medical Exposures

3.9.1. All medical exposures involving the use of ionising radiation will be carried out within a management framework defined by Trust's IRMER Standard Operating Procedures and Protocols (section 7).

3.9.2. The Trust has entitled certain staff to carry out the roles of referrer, practitioner and operator as described within IRMER procedure 2.

3.9.3. All staff acting as operators or practitioners must (legally) follow the IRMER procedures laid down by the Trust and must take legal responsibility for those parts of any procedure for which they are responsible.

3.9.4. The Trust must take steps to ensure that referrers are aware of the IRMER procedures.

3.10. Personal Radiation Monitoring

3.10.1. Radiation dose monitoring for staff regularly using ionising radiation will be routinely carried out as deemed necessary by the RPA. This may include whole body, eye and extremity monitoring as appropriate.

3.10.2. Periodic monitoring of other staff (including extremity and eye monitoring) and of environmental doses in the workplace will be carried out as deemed appropriate by the RPA.

3.10.3. All personal monitoring for the Trust will be carried out by a dosimetry service approved by the Health and Safety Executive

for dose assessment. Dose records will be managed by a dosimetry service approved by the HSE for record keeping. The Trust will follow the advice of the RPA regarding the designation of staff as classified persons³ and the need for monitoring.

3.10.4. Local rules for ionising radiation will specify local investigation levels. Whenever a staff member receives a radiation dose greater than the investigation level, the departmental manager will investigate and discuss any possible dose reduction strategies with the relevant RPA. The manager has responsibility to implement any necessary changes.

3.10.5. All equipment involved with the measurement of radiation hazards in connection with the Ionising Radiations Regulations will be tested annually under the supervision of the Qualified Person (see section 4.9) following national guidelines. All equipment used to calibrate or otherwise monitor performance of treatment machines (e.g. linear accelerators) will be tested according to radiotherapy procedures.

3.11. Classified Workers

3.11.1. Designated classified workers are required under IRR17 to be under the medical supervision of a relevant doctor. This could be an Appointed Doctor recognised by the HSE or an employment medical adviser. Medical examinations are required when first classified and for periodic health reviews at least yearly. Details must be maintained in the employee's health record.

3.11.2. For non-classified workers, the responsibility for medical supervision of staff in respect of radiation exposure will lie with the Consultant Occupational Health Physician.

3.12. Staff Training

All staff working with ionising and non-ionising radiation will be trained to a level commensurate with the work being performed and the degree of hazard involved and to satisfy legal requirements. Records of training will be maintained. Appropriate training requirements are set out in Appendix F.

3.13. Incidents

3.13.1. All radiation incidents will be reported in accordance with the Trust's Incident Reporting system.

3.13.2. In addition some incidents may need to be reported to external

³ Classified persons are defined in the Ionising Radiations Regulations as employees who are likely to receive a dose more than three-tenths of the employee dose limits (or 15mSv to the eye). Radiation monitoring and medical surveillance must be undertaken for Classified persons.

agencies. The RPA or MPE (as appropriate) will give advice when this is necessary. If it is necessary for an incident to be reported externally, the relevant Chief Operating Officer and the Director of Corporate Affairs must be informed beforehand (save where an immediate report is required on safety grounds). If outside normal office hours, the Executive On-call must be informed.

- 3.13.3. MRI Incidents and near misses must be reported to the MR Safety Expert, in accordance with local MR safety policies and procedures.

4. Duties

4.1. Chief Operating Officers

The Chief Operating Officers are responsible for ensuring that an appropriate management structure is maintained to implement, monitor and review the Radiation Safety Policy. Each will ensure the Trust:

- 4.1.1. Informs the Health and Safety Executive (HSE) of the intention to start work with ionising radiation, obtaining notification, registration and/or consent as appropriate to the types of work being performed;
- 4.1.2. Informs the HSE of any significant changes to the work involving ionising radiation or to the Trust (for example change of name or main address);
- 4.1.3. Appoints appropriately qualified and experienced RPA(s), RWA(s), MPE(s), MRSE(s) and LPA(s); radiation protection supervisors, laser protection supervisors and site officers;
- 4.1.4. Establishes Standard Operating Procedures and Protocols which meet the requirements of the Ionising Radiation (Medical Exposures) Regulations 2017 (IRMER17);
- 4.1.5. Notifies the relevant Inspectorate or Agency and Chief Executive of any incident involving ionising or non-ionising radiation as required; and
- 4.1.6. Holds a licence for the administration of radioactive substances on each of the Trust's sites, and that any person justifying the administration of radioactive substances holds an appropriate licence ("ARSAC licenses").

4.2. Divisional Directors of Operations and Group Managers

Divisional Directors of Operations and Group Managers are responsible for monitoring and auditing the arrangements within their Division or Group respectively to check that staff and facilities are complying with this policy.

4.3. **Departmental/Service Managers**

Responsibility for the provision of radiation protection, staff and patient dose monitoring and radiation equipment quality assurance programmes within each Department will lie with the Departmental Manager using the services of the relevant section of the Medical Physics Department (RRPPS, Radiotherapy Physics or Nuclear Medicine). The Departmental Manager will ensure that:

- 4.3.1. Local rules and written systems of work have been drawn up with approval by the appropriate Radiation Safety Adviser and are reviewed appropriately;
- 4.3.2. Staff are provided with personal radiation monitors in accordance with any advice from the RPA as appropriate;
- 4.3.3. Staff wear personal radiation monitors appropriately and return them for evaluation at the required intervals;
- 4.3.4. Staff carrying out work with ionising or non-ionising radiation are appropriately trained and that records of this training are kept;
- 4.3.5. Any work involving ionising radiation, lasers and MRI is carried out in accordance with local rules (under the supervision of the local supervisors) and staff are notified of any changes in these local rules;
- 4.3.6. The necessary risk assessments are completed before carrying out work with ionising or non-ionising radiation;
- 4.3.7. Risk assessments are reviewed every year or whenever there is a significant change in working practice;
- 4.3.8. Any special measures required to restrict doses to staff, particularly for pregnant staff, are implemented;
- 4.3.9. Risk/benefit information is provided to patients before exposure to ionising radiation wherever practical;
- 4.3.10. Dose constraints and appropriate guidance are established for exposure of carers and comforters;
- 4.3.11. An investigation is carried out whenever a member of staff receives a dose of ionising radiation exceeding the local investigation level set in the local rules or a dose of non-ionising radiation exceeding an exposure limit and any necessary action is taken to reduce doses in the future;
- 4.3.12. All medical radiation exposures in their Department are carried out in accordance with the Trust's Procedures for IRMER17;
- 4.3.13. Any equipment or apparatus used in connection with medical exposures will, as far as reasonably practicable, be selected, installed and maintained so that it is capable of restricting

exposure of the patient in accordance with the intended clinical purpose;

- 4.3.14. An inventory of their own ionising radiation equipment is kept and all such equipment both satisfies radiation safety requirements and is also included in appropriate replacement programmes;
- 4.3.15. Quality assurance tests are carried out at the appropriate intervals on all equipment involved in patient exposure with ionising and non-ionising radiation (See Appendices C and D);
- 4.3.16. Incidents which could require notification to the relevant inspectorate or agency⁴ are reported to the Radiation Safety Adviser immediately in addition to following the normal incident reporting process. (The Radiation Safety Adviser will advise whether the relevant inspectorate or agency requires notification);
- 4.3.17. The appropriate Radiation Safety Adviser is consulted when the department is considering using ionising or non-ionising radiation for the first time or will be implementing a change in practice;
- 4.3.18. An appropriate Radiation Safety Adviser is notified when new ionising or non-ionising radiation equipment is installed so that the appropriate commissioning tests and critical examinations are undertaken before use;
- 4.3.19. Equipment is not brought on to site for demonstration, trial or testing purposes without prior consultation with a Radiation Safety Adviser and consideration of indemnity;
- 4.3.20. All instruments used for monitoring levels of ionising radiation in controlled and supervised areas are tested and examined annually;
- 4.3.21. In relation to work with radioactive materials,
 - a. The Site Officer (section 4.7) is informed before any work with a new radionuclide commences or there are significant changes in workload, stock or disposal of radioactive material including transfers of work to new rooms or premises;
 - b. The Department complies with the Environmental Permitting (England and Wales) Regulations and amendments in relation to keeping and using radioactive

⁴ For example staff doses above legal limits have to be notified to the Health & Safety Executive (HSE). Doses to patients much greater than intended or significant therapeutic underexposures have to be notified to the Care Quality Commission in line with the Department of Health Guidance. Lost or stolen radiation sources have to be reported to the Environment Agency and the police (and possibly the HSE).

materials and the local limits established by the Site Officer in relation to quantities of radioactive material held and for disposal.

- c. The appropriate reports (e.g. monthly stock values, disposal values etc.) are sent to the Site Officer;
- d. Arrangements within the Department are monitored and audited to ensure that staff and facilities comply with this policy; and
- e. Recommendations made following inspections of their radiation facility (equipment and building) are followed up and actioned when necessary.

4.4. Radiation Safety Advisers (Ionising or Non-Ionising): RPA, LPA, MRSE

- 4.4.1. Responsibility for advising Trust managers, departmental managers, staff and the public on radiation matters will lie with the relevant Radiation Safety Adviser (RSA).
- 4.4.2. The Head of Radiotherapy Physics will assist the RPAs in the provision of protection advice for radiation therapy.
- 4.4.3. For laser safety, the adviser is referred to as the Laser Protection Adviser (LPA) and for MR imaging and spectroscopy the adviser is called the MR Safety Expert (MRSE).
- 4.4.4. The appropriate RSA will be involved in the planning of all new radiation facilities and any changes to existing facilities.
- 4.4.5. RSAs have a duty to keep up to date with radiation safety requirements and maintain their competence in order to maintain their certification as advisers.
- 4.4.6. The Radiation Protection Advisor will advise whether the relevant inspectorate or agency requires notification.

4.5. Radiation Protection Committee (RPC)

- 4.5.1. The RPC will monitor the radiation protection programme, including a regular review of all occupational, medical and public exposure to radiation.
- 4.5.2. The RPC is split into six branches, namely:

- a. QEHB diagnostic x-ray,
 - b. QEHB radionuclides,
 - c. QEHB radiotherapy,
 - d. QEHB MRI (Other non-ionising issues will be dealt with via the diagnostic x-ray branch),
 - e. HGS Ionising Radiation,
 - f. HGS Non-Ionising Radiation.
- 4.5.3. The chairperson of the relevant branch of the RPC is responsible for arranging for that branch to meet at least yearly.
- 4.6. Radiation and Laser Protection Supervisors (RPS and LPS)**
- 4.6.1. The Radiation Protection Supervisors will be familiar with the requirements of the local rules and relevant parts of the Ionising Radiations Regulations (IRR17) and the Approved Code of Practice. The RPS assists the Department Manager in ensuring that the local rules are read, understood and, as far as possible, are followed by the relevant staff.
- 4.6.2. The Laser Protection Supervisor will be familiar with the requirements of the laser local rules and the relevant guidance notes. The laser local rules will stipulate Nominated Users of the lasers. The LPS assists the Department Manager in ensuring that the local rules are read, understood and, as far as possible, are followed by the relevant staff.
- 4.6.3. Other tasks that are carried out by the Radiation and Laser Protection Supervisors are given in the appropriate local rules. Responsibility for these tasks remains with the Department Manager.
- 4.7. Site Officer**
- 4.7.1. The Site Officer will be familiar with the site's Environment Agency Permit and the relevant parts of the Environmental Permitting Regulations. The Site Officer assists the RPA and RWA in ensuring compliance with these Regulations.
- 4.7.2. Responsibility for maintaining records of the quantities of radioactive material kept on, and disposed from a particular site will lie with the Site Officer. The Site Officer:
- a. Monitors the records and advises the Head of Department, RPA and RWA if the permit limits which apply to the particular site in accordance with Environmental Permitting Regulations (EPR) are likely to be exceeded. If a limit has been exceeded, the RPA/RWA and Site Officer will agree between themselves who will advise the relevant Chief Operating Officer and formally notify the Environment

Agency;

- b. Prepares annual summaries (of the releases of radioactive materials to air and water) for submission to the Environment Agency in accordance with the EPR; and
- c. May assign to each working area, limits for the quantities of radioactive material which can be kept and used, and limits for the accumulation and disposal of radioactive waste.

4.8. **Medical Exposures**

IR(ME)R defines certain duty holders associated with the process of carrying out medical exposures. These are:

4.8.1. Referrer

The referrer is responsible for supplying the practitioner with sufficient medical data to enable the practitioner to justify the exposure.

4.8.2. Practitioner

The practitioner is responsible for justifying the exposure and, within the extent of their involvement, keeping the dose to the patient as low as reasonable practicable consistent with the intended purpose.

4.8.3. Operator

Operators are staff who carry out practical aspects of the exposure, including calibration, quality assurance or maintenance of the equipment used. They are responsible for ensuring that, within the extent of their involvement, they keep the dose to the patient as low as reasonable practicable consistent with the intended purpose.

4.8.4. Medical Physics Expert (MPE)

The MPE carries out and gives advice (as appropriate) on technical specifications of equipment, patient dosimetry, dose optimisation, clinical radiobiology, radiation risk assessment, quality assurance of equipment and development and use of techniques and equipment for medical ionising radiation exposures.

4.9. **Qualified Person**

The Qualified Person (as defined within the Ionising Radiations Regulations) is responsible for completing appropriate tests and examinations on radiation monitoring equipment.

4.10. **Radioactive Waste Advisor, (RWA)**

The RWA provides advice to the Trust on radioactive waste management and environmental radiation protection. This advice will include assistance in applying for, and complying with, the conditions of the permits issued by the Environment Agency to accumulate and dispose of radioactive waste.

4.11. **Employees**

It is the responsibility of every employee working with ionising or non-ionising radiation to be aware of the local rules and precautions necessary to carry out their work in a safe manner. It is their responsibility:

- 4.11.1. Not to expose themselves or any other person to radiation to a greater extent than is reasonably necessary for the purpose of their work;
- 4.11.2. To follow any local rules or procedures and thus comply with relevant legislation;
- 4.11.3. To report incidents or defects in equipment in accordance with the associated Incident Reporting Procedure;
- 4.11.4. To use and look after any protective equipment that is provided;
- 4.11.5. To use, look after and return personal dosimeters appropriately; and
- 4.11.6. To inform their line manager or RPS in writing as soon as possible if they are pregnant.

The staff of commissioned services working at other Trust premises will work to their own Trust's IRMER procedures.

5. **Implementation and Monitoring**

5.1. Implementation

- 5.1.1. Managers will ensure that radiation protection responsibilities are included in personal development review and personal objectives of their staff.
- 5.1.2. This Policy will be available on the Trust's Intranet Site. The policy will also be disseminated through the management structure within the Trust.

5.2. Monitoring

Appendix A provides full details on how the policy will be monitored.

6. **References**

6.1. Ionising Radiations

- 6.1.1. *Regulations*

Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2009 (SI 2009 No 1348) and (Amendment) Regulations 2011 (SI 2011 No 1885)

Environmental Permitting (England & Wales) Regulations 2016 (SI 2016 No 475) and (Amendment) (No 2) Regulations 2018 (SI 2018 No 428)

European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR) 2017

The Ionising Radiation (Medical Exposure) Regulations 2017 (SI 2017 No 1322)

The Ionising Radiation (Medical Exposure) (Amendment) Regulations 2018 (SI 2018 No 121)

The Ionising Radiations Regulations 2017 (SI 2017 No 1075)

The Justification of Practices involving Ionising Radiation Regulations 2004 (SI 2004 No 1769)

The Justification of Practices involving Ionising Radiation (Amendment) Regulations 2018 (SI 2018 No 430)

The Ionising Radiation (Basic Safety Standards) (Miscellaneous Provisions) Regulations 2018 (SI 2018 No 482)

6.1.2. *Codes of Practice, Guidance Notes, Health Service Guidance etc.*

L121 Approved Code of Practice and Guidance, Work with Ionising Radiation, The Ionising Radiations Regulations, 2017. Second Edition, London. (HSE 2018)

Fitness of Equipment used for medical exposure to ionising radiation. Health and Safety Executive Guidance Note PM77 (Third Ed) <http://www.hse.gov.uk/pubns/guidance/pm77.pdf>

Notes for Guidance on the Clinical Administration of radiopharmaceuticals and use of sealed radioactive sources Administration of Radioactive Substances Advisory Committee (ARSAC) (Public Health England)

Protection of Pregnant Patients during Diagnostic Medical Procedures to Ionising Radiation. Health Protection Agency Joint Guidance from HPA, CoR, RCR. Doc HPA, RCE-9 2009

The Examination, Testing and Calibration of Portable Radiation Protection Instruments. Measurement Good Practice Guide 14. National Physical Laboratory, Teddington 2014, London

The Medical and Dental Guidance Notes. A good practice guide to implement ionising radiation protection in the clinical environment. Institute of Physics in Engineering & Medicine (IPEM) 2002, York

The Regulatory Requirements for Medical Exposure to Ionising Radiation. An employer's overview. Health and Safety Executive and Department of Health. HSE Books HSG223, 2001

Working Safely with ionising radiation: Guidelines for expectant or breastfeeding mothers. Health & Safety Executive INDG334 (rev1) 2015

Exemption Guidance. Medical and veterinary uses of radioactive sources (Version 1, September 2011) (EA 2011)

Radiation Protection in Nuclear Medicine (Report 109) (IPEM 2014)

Guidance in investigation and notification of medical exposures much greater than intended. (DH 2017)

<https://www.gov.uk/government/publications/the-ionising-radiation-medical-exposure-regulations-2000>.

Guidance to the Ionising Radiation (Medical Exposure) Regulations 2017. Department of Health and Social Care 2018

6.2. Non-ionising Radiations

6.2.1. *Regulations*

The Control of Artificial Optical Radiation at Work Regulations 2010 (SI 2010 1140)

The Control of Electromagnetic Fields at Work Regulations 2016 (SI 2016 266)

6.2.2. *Guidance*

HSG281 A guide to the Control of Electromagnetic Fields at Work Regulations 2016

Lasers, intense light source systems and LED's – guidance for safe use in medical, surgical, dental and aesthetic practices (MHRA Sept 2015).

Safety Guidelines for Magnetic Resonance Imaging equipment in Clinical Use (version 4.2, MHRA March 2015).

6.3. General

Management of Health & Safety at Work Regulations 1999 (SI 1999 3242) and amendment Regulation 2006 (SI 2006 No 438)

HSE (2000) Approved Code of Practice & Guidance on The Management of Health & Safety at Work Regulations 1999., Health and Safety Executive, HSE Books L21 2000.

7. **Associated Policy and Procedural Documentation**

Local Rules and Working Instructions are available for staff in individual

departments using potentially hazardous radiation equipment

IRMER procedures, protocols and justification criteria describing the framework for the management of medical exposures undertaken for imaging

IRMER procedures relating to therapeutic uses of ionising radiation

The Trust Procedure for the Reporting and Management of Incidents including Serious Incidents Requiring Investigation

Waste Policy

Appendix A – Monitoring Matrix

MONITORING OF IMPLEMENTATION	MONITORING LEAD	REPORTED TO PERSON/ GROUP	MONITORING PROCESS	MONITORING FREQUENCY
Inspections to cover: risk assessments, personal monitoring, training (local rules, competencies to use equipment and IRMER) and equipment records	Directors of Operations	Health, Safety and Environment Committee	Directors of Operations will carry out rolling inspections of their departments	Rolling Programme
Summaries of significant non-compliances and incidents with respect to the relevant legislation	As appropriate: Group/Directorate Manager Departmental Manager Relevant Protection Supervisor	Chair of relevant branch of Radiation Protection Committee	Verbal or written report (non- attending RPSs) Datix incidents	Annual
Written report – Patient Safety issues	Chair of relevant branch of Radiation Protection Committee	Director of Corporate Affairs/Chair of Health, Safety and Environment Committee	Provide Health, Safety and Environment Committee with a report highlighting by exception any Patient Safety issue that needs	As appropriate

			to be addressed by the Trust	
Written report – Health and Safety Issues	Chair of relevant branch of Radiation Protection Committee	Director of Corporate Affairs/Chair of Health Safety and Environment Committee	Provide HS&E with a report highlighting by exception any Health and Safety issues that need to be addressed by the Trust	As appropriate
Programme of radiological equipment performance and radiation protection surveys	Departmental Manager	Chair of relevant branch of Radiation Protection Committee	Review of written reports issued by Medical Physics and local quality assurance tests	Annual
Periodic reviews of radiation protection programme including, e.g. action on survey recommendations, releases of radioactive materials to air and water, occupational and patient doses, and radiation incidents.	Chair of relevant Branch of Radiation Protection Committee	Chief Operating Officers, Director of Cooperative Affairs, Chair of Health, Safety and Environment Committee, Chair of Health Safety and Environment Committee	Minutes of RPC	At least annually
Action from Radiation Protection committee meetings	Chair of Group Health and Safety Meeting	Group Manager	Completed Actions	Quarterly

Appendix B – Commissioned Services

- UHB have a number of SLA's to provide staff to a number of customers:
 - South Birmingham Primary Care Trust
 - West Heath Hospital – provision of staff only
 - Moseley Hall Hospital – provision of staff only
 - Heart of England PCT
 - Greet Medical Centre (Percy Road) – provision of staff only
 - Birmingham Children's Hospital
 - Bone Densitometry Services - provision of staff only
 - Nuclear Medicine - provision of staff and Radiopharmaceuticals
 - Interventional Radiology
 - ITM Imaging Centre
MRI – provision of staff only

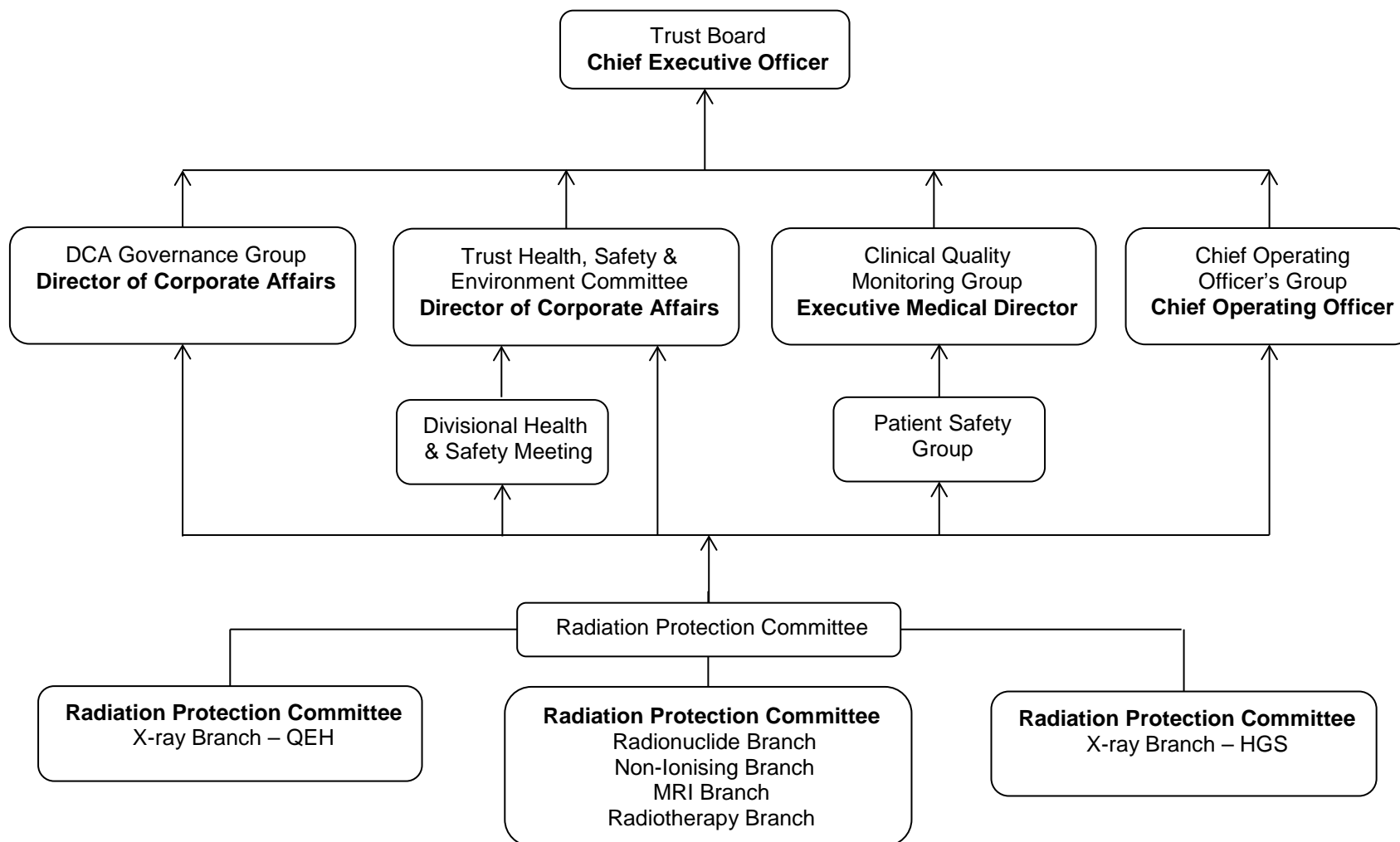
Appendix C – Quality Assurance Programme (Ionising Radiation)

Task	Responsibility	Frequency
Preventative maintenance	Manufacturer/ Outside Service Contractor In-house clinical technologists (radiotherapy equipment)	As recommended
Radiation Protection & equipment performance Surveys	Radiation Protection Service	Community dental: 3 yearly Hospitals x-ray: annually Mammography: 6 monthly Radionuclide facilities: annually
	Radiotherapy Physics Service	Radiotherapy Equipment: As specified in radiotherapy procedures
Calibration of radiation protection instrumentation	Department Manager to arrange	Annually
Quality assurance test by department	Department Manager	As determined by local protocols
Commissioning test/critical examinations	An MPE/RPA (after notification) by department manager	Before use on patients
Personnel Monitoring	Assessment by RRPPS Review by line manager/RPS	Continuous, staff monitored as required in conjunction with advice from RPA

Appendix D – Quality Assurance Programme (Lasers & Ultrasound, MRI)

Task	Responsibility	Frequency
Preventative maintenance	Manufacturer/ Supplier	As recommended
Radiation Protection Surveys & equipment performance	Radiation Protection Service	Annually
Quality assurance test by department	Department	As recommended by Adviser
Commissioning test	LPA (after notification) MRSE (after notification)	Before use on patients

Appendix E – Trust Organisation for the Radiation Safety Programme:



Appendix F – Training Requirements

Activity	Training Requirement
General Radiation Safety Awareness	All staff working with ionising or non-ionising radiation must be trained to follow the relevant local rules and safe working instructions in their department.
Medical exposures	All Practitioners and Operators must have received adequate training as required by the Ionising Radiation (Medical Exposure) Regulations (IRMER17). They must have received adequate instruction, including practical experience, in the techniques being used.
Administrations of Radiopharmaceuticals	Staff acting as practitioners for the clinical administration of radiopharmaceuticals or the clinical use of sealed radioactive sources must have appropriate certification issued under the Medicines (Administration of Radioactive Substances) Regulations 1978 or licence issued under the Ionising Radiation (Medical Exposure) Regulations 2017.
	All operators administering radiopharmaceuticals to patients must have permission, in writing, from the ARSAC certificate/licence holder covering the particular type of administration (examination).
Lasers	All staff operating therapeutic lasers must have received adequate training as specified in the Medicines and Healthcare products Regulatory Agency guidance.
Magnetic Resonance Imaging (MRI)	All staff operating MRI equipment must have received adequate training and be approved by the responsible person listed in the local rules (MRI) as specified in Medicines and Healthcare products Regulatory Agency guidance and the Control of EMF at Work Regulations.
Transport of radioactive materials	All staff transporting radioactive materials must be trained as required by The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations and the latest ADR.