Ionising Radiation Protection Policy

Policy Details:

Ref:	To be confirmed
Policy Author:	Superintendent Radiographer, Radiology
Executive Sponsor:	Executive Director of Therapies and Health Sciences
Approval / Effective Date:	13th July 2021
Review Date:	13th July 2023
Version:	v1.7 - Final

Target Audience:

People who need to know this document in detail	Referrers, Practitioners and Operators involved with ionizing radiation and the management chain that is responsible for ionizing radiation within the Health Board
People who need to have a broad understanding of this document	Board Members, Management Board. Senior Leaders. Board Committees.
People who need to know that this document exists	All staff involved in the development of Health Board Policies.

Integrated Impact Assessment:

Equality Impact Assessment Date & Outcome	**Date:** 17th June 2021
	Outcome: No action required
Welsh Language Standard 82	
Date of approval by Equality Team:	Equality Team engaged in the review of this Policy.
Aligns to the following Wellbeing of Future Generation Act Objective	Provide governance regarding the management of ionizing radiation

Policy Approval Route:

Where	When	Why
Radiation Safety Committee	13th Jul 2021	Endorsed for Approval
Quality & Safety Committee	11th October 2021	Approval

Introduction

This policy outlines the processes employed by Cwm Taf Morgannwg University Health Board (UHB), (the employer) to ensure, as far as reasonably practicable, the health and safety of its employees, patients, comforters and carers, contractors working on the premises and of members of the public who may be exposed to the hazards arising from the use of ionising radiation.

Objectives

- To comply with all relevant statutory requirements
- To identify radiation hazards, assess and control risks and prepare contingency plans;
- To ensure that diagnostic procedures are performed in such a way that the radiation dose to the patient is as low as reasonably practicable (ALARP) and that therapeutic procedures are consistent with the required clinical outcome;
- To ensure that radiation exposure to the public as a result of the use and disposal of radioactive materials is minimised through the application of best available techniques (BAT) principle at all stages.
- To ensure that employees, contractors and others are adequately informed of identified radiation risks and, where appropriate, ensure they receive instruction, training and supervision;
- To consult with employees' representatives on radiation safety issues;
- To make arrangements for liaison with other employers, where the activities of one employer could affect the safety of individuals associated with the other;
- To safeguard the environment from the effects of the UHB's activities;
- To make available records at the request of authorised agencies;
- To monitor and review the effectiveness of the Policy and, where appropriate, implement improvements.
- Optimise exposure to ionising radiation in order to reduce radiation dose, provided that this is consistent with any desired clinical or related outcome

Scope

This policy applies to all staff and any areas of responsibility listed.

This policy applies to the following radiation exposures:

- The exposure of staff and other individuals as a result of work activities
- The exposure of patients as part of their own diagnosis or treatment including any exposure of an asymptomatic individual;
- The exposure of individuals as part of occupational health surveillance
- The exposure of individuals as part of health screening programmes
- The exposure of patients or other persons voluntarily participating in medical or biomedical, diagnostic or therapeutic, research programmes
- The exposure of individuals as part of non-medical procedures
- The exposure of comforters and carers
- Exposure to radon gas on the employer's premises

Amendment Record

If a change has been made to the document, the changes must be noted and circulated to the appropriate colleagues.

Detail of change	Why change made?	Page number	Date of change	Version	Name of Policy Author
Reformatting / HIW Amendments.	Amend RSC Approved Policy into Cwm Taf Morgannwg Format and HIW Amendments	all	28.2.19	1.3	C Kalinka
Amendments to staff members. Minor typographical errors. Clarified entitlement. 6.2 Amended definitions to reflect ICRP 103 more accurately. Removed outdated references.	General review in advance of annual Radiation Safety Committee	Various	08.11.19	1.4	Paul Johnston, Superintendent Radiographer
Page 1 – included patients and carers/comforters in the scope. Page 2 – Added Radiologists and Radiographers to 'to be read by' Pages 12-15 incorporated summary information relating to all Employers Procedures. Removed 'Procedure B' - research – covered in Employers Procedures section. Renamed 'Procedure C' to 'Procedure B' Page 27 - Added outsourcing company entitlement	Following advice from Healthcare Inspectorate Wales during inspection (11 & 12.12.19)	Various	17.12.19	1.5	Paul Johnston, Superintendent Radiographer
Amended detail relating to 'female staff and patients' to remove the 'female' reference. Added 'active offer to speak Welsh' to equality form.	Advice received from Equality Manager	Various	06.03.20	1.6	Paul Johnston, Superintendent Radiographer
Changed some responsibilities of COO & Director of Planning to DoTH	As per current structure	10 & 11	17.06.21	1.7	Paul Johnston, Superintendent Radiographer

Removed reference to Radiation Protection Service 'Cardiff'	Advice currently contracted from Cardiff and Swansea	11 & 16			
Changed 'iRefer 8' to 'iRefer (latest edition)'	To identify latest current edition	18	17.06.21	1.7	Paul Johnston, Superintendent Radiographer
Change of job titles and addition of Princess of Wales Hospital staff	Clarification	26			
Added MPE entitlement by DoTH	As advise by MPE and agreed with Medical Director	29 & 31			
Added Consultant Orthopaedic Surgeon entitlement for mini c-arm	Not previously included	32 & 34			

1. PURPOSE

This document outlines the processes employed by Cwm Taf Morgannwg University Health Board (UHB), (the Employer) to ensure, as far as reasonably practicable, the health and safety of its employees, of contractors working on the premises and of members of the public who may be exposed to the hazards arising from the use of ionising radiation.

2. POLICY STATEMENT

The UHB is committed to a policy of restricting exposures to ionising radiation in accordance with the ALARP principle (as low as is reasonably practicable) and will effect this through the organisational arrangements and responsibilities described in this policy.

3. PRINCIPLES

The UHB will have a comprehensive set of policies and procedures relating to radiation safety in order to reduce risk to staff and patients arising from ionising radiation.

4. SCOPE OF POLICY

4.1 This policy applies to all staff and any areas of responsibility listed.
4.2 This policy applies to the following radiation exposures:

- The exposure of staff and other individuals as a result of work activities
- The exposure of patients as part of their own diagnosis or treatment including any exposure of an asymptomatic individual;
- The exposure of individuals as part of occupational health surveillance;
- The exposure of individuals as part of health screening programmes;
- The exposure of patients or other persons voluntarily participating in medical or biomedical, diagnostic or therapeutic, research programmes;
- The exposure of individuals as part of non-medical procedures.
- The exposure of comforters and carers
- Exposure to radon gas on the employer's premises

5. LEGISLATIVE AND NHS REQUIREMENTS

The use of ionising radiation is covered by a series of statutory instruments (See references). Many of these are enforced as if they were health and safety regulations made under the Health and Safety at Work etc. Act 1974.

6. PROCEDURE:

6.1. AIMS AND OBJECTIVES

The purpose of this policy is to ensure that radiation doses to staff, patients, comforters and carers and members of the public resulting from work carried out in the UHB are ALARP. The policy also aims to ensure that Best Available Techniques (BAT) will be employed to minimise radiation exposure of members of the public resulting from the use and disposal of radioactive materials.

Key Objectives for Use of Ionising Radiation:

- To comply with all relevant statutory requirements
- To identify radiation hazards, assess and control risks and prepare contingency plans;
- To ensure that diagnostic procedures are performed in such a way that the radiation dose to the patient is ALARP and that therapeutic procedures are consistent with the required clinical outcome;
- To ensure that radiation exposure to the public as a result of the use and disposal of radioactive materials is minimised through the application of BAT principle at all stages.
- To ensure that employees, contractors and others are adequately informed of identified radiation risks and, where appropriate, ensure they receive instruction, training and supervision;
- To consult with employees' representatives on radiation safety issues;
- To make arrangements for liaison with other employers, where the activities of one employer could affect the safety of individuals associated with the other;
- To safeguard the environment from the effects of the Health Board's activities;
- To make available records at the request of authorised agencies;
- To monitor and review the effectiveness of the Policy and, where appropriate, implement improvements.
- Optimise exposure to ionising radiation in order to reduce radiation dose, provided that this is consistent with any desired clinical or related outcome

6.2 CONTROL OF RADIATION HAZARDS AND RISKS

The risks are controlled by procedures and local rules for radiation safety, which implement three key principles (ICRP2007):

The principle of justification – any decision that alters the radiation exposure situation should do more good than harm.

The principle of optimisation of protection – the likelihood of incurring exposures, the number of people exposed and the magnitude of their individual doses should all be kept as low as reasonably achievable, taking into account economic and societal factors.

The principle of application of dose limits – the total dose to any individual from regulated sources in planned exposure situations other than medical exposure of patients should not exceed the appropriate limits recommended.

6.3 MANAGEMENT OF RADIATION SAFETY

6.3.1 The Radiation Employer is defined as the Chief Executive of the UHB who takes overall responsibility for radiation safety (SI2017a and SI2017b). This responsibility is discharged through the line management structure.

6.3.2 The standard operating procedures required by IR(ME)R for medical exposures have been established by the UHB at two levels – ***corporate Employer IR(ME)R procedures*** and ***departmental Employer IR(ME)R procedures***. Departmental procedures are tailored to the work of the individual departments and cover all aspects of the process of carrying out medical exposures. Because of the variation in the nature and range of work between departments, these procedures vary in their content from one department to another.

The corporate procedures, which are in the appendix to this policy, cover those processes that apply throughout the UHB and include responsibilities for members of staff working outside the department where the exposure takes place. They are available to all staff through the UHB intranet SharePoint site.

6.4 METHODS OF CONTROL AND REVIEW

6.4.1 This policy is reviewed informally every year by the Head of Radiography / Radiology Directorate Manager and formally every three years by the accountable Executive / Lead Director via the Radiation Safety Committee (RSC).

6.4.2 Directorate Managers will review their local IR(ME)R procedures every 3 years.

6.4.3 Local rules for radiation safety are in place in all areas using ionising radiation as required by IRR17. Local rules are reviewed by the Radiation Protection Supervisor (RPS) in collaboration with the Radiation Protection Adviser (RPA).

6.5 RESPONSIBILITIES

6.5.1 The Chief Executive

Under the ionising radiation legislation [SI 2017a, SI 2017b EPR2016] the Employer (Chief Executive) is ultimately responsible for the radiation protection of all workers, patients and members of the public on its premises and for work with ionising radiation carried out by its staff at other sites. The Chief Executive will ensure that:

- Prior notification is given to HSE of intent to use ionising radiations
- Radiation Safety Committee (RSC) is established to assist in the discharge of duties. The RSC, chaired by the Chief Operating Officer, oversees the implementation of the UHB's radiation protection arrangements on behalf of the Chief Executive. (The terms of reference of the RSC are included in Appendix 1.)
- Certificated RPA(s) with appropriate experience in the use of ionising radiation for medical exposures are appointed to advise the UHB and are consulted with respect to those issues set out in the Ionising Radiations Regulations 2017 (SI2017a)
- Suitably qualified and experienced Medical Physics Experts are appointed to support diagnostic radiology and nuclear medicine. (SI2017b)

- The Chief Executive appoints one or more Radioactive Waste Advisers (RWAs) to advise on compliance with Environmental Permits issued under SI 2016.
- Arrangements are in place for creation and regular review of corporate and departmental IR(ME)R procedures.
- Arrangements exist for the appropriate notification of incidents to the relevant bodies.
- A suitably qualified Dangerous Goods Safety Adviser is appointed.
- The Chief Executive, via a Service Level Agreement with the Radiation Protection Service Cardiff has appointed an Approved Dosimetry service for monitoring staff radiation doses.

6.5.2 Medical Director

The Medical Director will ensure that a management structure for entitlement is in place and ensure that:

- Clinical Directors are appointed
- Entitlement procedures are implemented and documented, including certification and training records.

6.5.3 Director of Therapies and Health Sciences (DoTH)

The DoTH will chair the RSC and will report on radiation safety issues to the Chief Executive and Executive Board.

The DoTH will ensure that:

- The UHB's radiation protection arrangements for health and safety, environmental protection and medical exposure are reviewed.
- Current protection activities are identified, monitored and developed relating to the use of radiation.
- Radiation protection risks are reviewed and the Chief Executive is informed of measures to be taken to secure compliance with relevant legislation and to manage risks.
- Referral guidelines are made available to Referrers and that Referrers are made aware of their statutory responsibilities
- Policy is implemented by the UHB's management structure.
- Incidents are investigated and reported to the appropriate authority on the advice of the RPA/RWA/MPE in accordance with UHB policies and Corporate IR(ME)R Procedure B.
- Advice is sought from the RPA/RWA in relation to plans for new or modified radiation areas;
- A Risk assessment is carried out in consultation with the RPA in respect of any proposed building/engineering works in or around any existing radiation area
- Procurement of radiation equipment is in accordance with all-Wales guidelines where available.

Radon Gas

Employers have a duty to protect their staff from radiation exposure as a result of radon inhalation and consequently the UHB must review the potential radon hazard in all of its premises.

- All below ground workplaces must be monitored to assess radon levels.
- All above ground workplaces that are situated in radon Affected Areas must be monitored for radon levels.

- The Action Level for workplaces is an annual average of 300 Bq m^{-3} and for residences is 100 Bq m^{-3}.
- Occupied areas that are above the relevant Action Level must have remedial work undertaken to reduce levels. These premises must then be re-monitored every 2 years to ensure ongoing effectiveness of remediation.
- Areas where the radon level is below the Action Level will be re-monitored on a less frequent basis (10-yearly if levels are less than 75% of the Action Level; 5-yearly otherwise)
- Consult with the RPA to ensure that relevant premises have been assessed, appropriate actions taken and that there is a suitable re-monitoring programme in place.

6.5.4 Chief Operating Officer (COO)

Where radioactive materials are used the COO will ensure that:

- Radioactive materials are disposed of in accordance with Natural Resources Wales (NRW) permits for the accumulation and disposal of radioactive waste and written procedures are in place
- The RWA is consulted when changes to the NRW permits are required (SI2016)
- Any proposed changes to disposal arrangements are discussed beforehand with the RWA and the relevant RPS.

The UHB must use BAT [SI 2016] to minimise the volume and activity of discharges and disposals of radioactive materials.

6.5.5 Managers of Departments using ionising radiations

Managers of Departments using ionising radiations will ensure that:

For the Protection of Patients;

- All Referrers, Practitioners and Operators are entitled in accordance with Corporate IR(ME)R Procedure A. [SI 2017b].
- There are written Departmental IR(ME)R Procedures covering the relevant aspects of the Departmental process for the medical use of ionising radiation and that the departmental procedures are reviewed.
- Staff within their department who have responsibilities under IR(ME)R are aware of the extent of those responsibilities and comply with the requirements of the policy and associated Corporate and Departmental IR(ME)R Procedures.
- Training records are maintained, state the role for which the individual is trained, the nature of the training and the date(s) on which adequate and relevant training took place.
- Ensure that each request for a medical exposure (including research, comforters and carers and non-medical imaging using medical radiological equipment) is justified and authorised and that this process is recorded prior to the exposure [SI 2017b].
- To ensure that for medical exposures, rigorous patient and subject identification procedures are followed [SI 2017b].
- Radiation incidents are investigated and reported in accordance with Corporate IR(ME)R Procedure B.
- Staff are provided with support to implement recommendations of inspections relating to staff safety and environment.
- All research exposures are identified and recorded and compared with the dose constraint or target dose identified in the research protocol.

For the Protection of Staff;

- The RPA is consulted on all matters affecting radiation safety.
- A prior risk assessment is carried out in collaboration with the RPA before a new activity or new facility involving ionising radiation is introduced.
- Radiation risk assessments are performed, reviewed and the findings implemented. (Including for pregnant staff to limit dose to less than 1MSv for the remainder of the pregnancy – SI2017a)
- All radiation equipment is installed, critically examined, commissioned, inventoried and maintained as per radiation safety requirements. (IR(ME)R 2017).
- Sufficient, competent Radiation Protection Supervisors (RPS) are appointed in writing to supervise working practices.
- Local Rules for Radiation Safety are available and implemented.
- New staff receive appropriate training in radiation safety.
- All staff who regularly work with ionising radiation and who have to enter Controlled Areas will be monitored for radiation exposure. Staff who are regularly monitored must wear their dosimeter whenever they enter a Controlled Area. The dosimeter must be worn in the manner described e.g. for a whole body dosimeter it may be worn on the trunk at waist or preferably chest level, under any radiographic protective apron that may be worn. In some circumstances it may be desirable to measure the dose to additional parts of the body to ensure that other relevant dose limits are not exceeded.
- Persons who may be exposed to radiation but do not have a regular personal dosimeter may be monitored using one of the following categories: job dosimeter, holding dosimeter, or environmental dosimeter (e.g. on C-arm of mobile fluoroscopy units).
- Personal Dosimetry results are regularly reviewed and any results exceeding the action levels are investigated. Dose investigation levels should be defined in the Local Rules. Dose records must be kept for a minimum of 2 years. Annual summaries of radiation doses received by staff will be prepared in conjunction with the Radiation Protection Service contracted to the UHB. These will be reviewed by the RPA and reported to the Radiation Safety Committee.
- Staff will only exceptionally be designated as Classified Persons. Classified Persons [SI 2017a] have annual medicals, arranged by their Directorate Manager.
- Information relating to radiation protection is passed to other departmental staff and contractors as appropriate.

In Nuclear Medicine

- Procedures are in place to implement the statutory requirements for the transport of radioactive materials.
- Ensure that up-to-date copies of appropriate Environmental Permits issued by NRW [SI 2016] are available in areas where work with radioactive substances is carried out.
- Procedures are in place for the management of radioactive materials. All departments must use BAT [SI 2016] to minimise the volume and activity of discharges and disposals of radioactive materials.
- Departments performing nuclear medicine exposures have a written procedure for ascertaining whether patients are breast feeding. Where a nuclear medicine procedure requires restrictions on breastfeeding then the Operator who performs the medical exposure must take the appropriate action as recommended in the latest revision of the Administration of Radioactive Substances Advisory Committee (ARSAC) Notes for

Guidance on the Clinical Administration of Radiopharmaceuticals and use of Sealed Radioactive Sources.

- Where appropriate, patients are provided with relevant information to enable them to restrict doses to family and members of the public. Written information is preferable, and must always be provided for therapeutic medical exposures.
- Standard procedures define contact restrictions that keep the predicted dose to members of the public within the relevant dose limit [SI 2017a] or within appropriate dose constraints in the case of 'comforters and carers' [SI 2017b] who knowingly and willingly accept the additional risks. These procedures should take account of national guidance and should be written in consultation with the RPA/MPE.
- Radiation monitors are regularly tested.

The following Employers Procedures are in place within the Health Board and need to be utilised by Departments using equipment which produces ionising radiation:

Patient identification

- Outlining the process for correctly identifying a patient referred for an examination involving ionising radiation. Also to be able to identify patients with communication difficulties.

Entitlement of duty holders for medical exposures

- Covered under Corporate Procedure A but may also be useful to adapt a local procedure covering the relevant areas.

Checking for pregnancy in low dose and high dose examinations

- To ensure the risk of irradiating a foetus is minimised.

Quality assurance programme

To ensure a process of documentation control is in place and also that there is a quality assurance programme for imaging equipment

All departments undertaking medical exposures must have appropriate quality assurance (QA) programmes which include:-

- Acceptance testing of new equipment before it is used for clinical procedures [IR(ME)R 2017]. All new radiological equipment must be provided with a means of indicating patient dose.
- Adequate testing of the performance of the equipment at appropriate intervals and after any major maintenance procedure [HSE 2006].
- A programme for testing active engineering controls and warning devices, including lights.
- Regular assessments of doses delivered to persons undergoing medical exposures.
- An up-to-date inventory of radiation equipment at each installation.
- The QA programme shall specify action levels and appropriate remedial actions, including removal from service when necessary [IPEM 2005]. Special attention should be given to equipment used for medical exposures of children, as part of health screening programmes, and equipment delivering high radiation doses (e.g. CT and interventional radiology).

Assessment of patient dose

- To ensure there is a method in place for recording exposures so that patient dose can be calculated as and when required.

Diagnostic reference levels

- All departments undertaking diagnostic and interventional medical x-ray exposures shall establish local DRLs, following guidance in IPEM Report 88 [IPEM 2004]. These shall take account of National and European DRLs where available, and be defined in conjunction with the MPE.
- Ongoing Audit programmes are established to re-survey patient doses at defined frequencies and to review DRLs on an annual basis for high dose examinations and 3 yearly for low dose examinations. If DRLs are exceeded, departments will take corrective action, with the advice of the MPE. All such reviews will be reported to the Radiation Safety Committee.
- DRLs for Nuclear Medicine are set by the Employer, in consultation with the MPE, using ARSAC Guidance Notes and local optimisation to keep doses ALARP.

Medical research exposures

- To ensure all such studies have received prior approval from the Local Research Ethics Committee and to outline specific dose constraints for any studies undertaken.

Providing information relating to risk and benefit from an exposure

- Departments have a procedure outlining how they inform patients (or their representative) prior to an exposure taking place, of the benefits and risks associated with the radiation dose from the exposure.

Clinical evaluation of the outcome of an exposure

- To ensure that a clinical evaluation of all exposures is completed appropriately.

Reducing the probability and magnitude of accidental or unintended doses to patients

- To identify good practice to minimise such occurrences.

Investigation of exposures much greater than intended

- To identify the role of staff in reporting and investigating clinically significant unintended or accidental exposures and exposures much greater than intended.

Non-medical imaging

- Non-medical imaging exposure means any deliberate exposure of humans for imaging purposes where the primary intention of the exposure is not to bring a health benefit to the individual being exposed;
  This includes occupational health surveillance; radiological health assessment for employment, immigration or insurance; concealed objects within human body; age assessment; athlete development or selection (non-medical care); physical development of children;
- If such exposures are carried out a specific departmental procedure is required.

- Non-medical exposures should only be requested based on specific medical advice, and if they are expected to show a net benefit to the subject. They should only be performed if no results of a previous examination giving the suggested information can be obtained. All departments performing non-medical exposures must have a written procedure that specifies the individuals able to justify the examination and requires that the examination should be recorded as a non-medical exposure.

Carers and comforters

- Departments have a procedure outlining the guidance to be provided for carers and comforters, including risks when supporting patients and defining dose constraints for radiation exposure.

6.5.6 Clinical Directors

Clinical Directors will be notified by the Clinical Director for the department receiving referrals that:

- Individual Referrers to the Directorate are entitled in accordance with Corporate IR(ME)R Procedure A and are aware of their responsibilities.
- Research applications are made in accordance with the relevant Employers Procedure.

6.5.7 Radiation Protection Adviser (RPA)

The RPA will proactively ensure that:

- Environmental radiation surveys are carried out regularly for all radiation controlled areas.
- Critical examinations, commissioning tests and regular equipment performance tests are carried out for all X-ray equipment

The RPA will proactively advise on:

- Prior examination of plans for installations and acceptance into service of new or modified sources of ionising radiation at the UHB
- Instrument purchase and calibrations.
- Requirements for designated areas i.e. supervised and controlled areas.
- Designation and monitoring of workers including personal dosimetry and investigation of excess results.
- Local Rules, risk assessments, control measures, and contingency arrangements; in particular, aspects relating to UHB employees and others persons in or adjacent to designated areas.
- Appropriate training.
- Application for new or variation to existing permits.
- Critical appraisals by means of formal audits to agreed standards and less formal visits of rooms, sources and stores.
- Reviews / audit of radiation safety management systems and quality systems.
- Support in the event of emergencies and incidents.

6.5.8 Radiation Protection Supervisors (RPS)

RPSs are appointed in writing and identified in Departmental Local Rules for Radiation Safety. They will ensure that:

- All employees working with ionising radiation have read the Local Rules.
- The RPS is responsible for ensuring all staff and other persons are appropriately monitored.
- The arrangements for controlling radiation safety as detailed in the Local Rules are implemented, monitored and reviewed in collaboration with the RPA.
- Regular liaison takes place with the RPA and advice is sought as soon as possible in the event of any incident.
- They inform the Directorate Manager of any situations where there has been non-compliance with the local rules or where changes to the local rules are required.

Where radioactive materials are used:

- Records of radioactive waste are collated in respect of patients returning from other hospitals where they have undergone nuclear medicine tests
- Radioactive materials are purchased or brought onto the site in accordance with the appropriate Natural Resources Wales (NRW) permit including the keeping of appropriate records.
- Radioactive waste is disposed of in accordance with the NRW permit including the keeping of appropriate records.
- The RWA is consulted when changes to the NRW permits are required
- The RWA is informed immediately of any unauthorised accumulation, disposal or loss of radioactive material or sources.
- Sealed sources are used onsite in accordance with the NRW Permit.

6.5.9 Medical Physics Experts (MPE)

MPEs are those registered clinical scientists who are entitled, in accordance with Corporate IR(ME)R Procedure A, to take on this role in the fields of diagnostic radiology and nuclear medicine.

The Medical Physics Experts are identified together with their scope of practice in documents held by the Heads of Radiation Protection, within the SLA between the relevant Radiation Protection Service.

Ensure Surveys of patient doses in diagnostic radiology are carried out regularly.
The duties of the Medical Physics Experts are defined in IR(ME)R 2017 (SI2017a,b,HSE2017)

6.5.10 Radiation Waste Adviser (RWA)

A RWA is a specialist in radioactive waste disposal and environmental radiation protection who has demonstrated competence in these areas.
An Environmental Permit holder must appoint a suitable RWA to meet a specific condition of its Environmental Permit.

The role of the RWA is advisory; responsibility for compliance with radioactive waste legislation and permit conditions lies with the permit holder.
The role of the RWA is to provide advice to the UHB on radioactive waste management and environmental radiation protection. The scope of advice given includes:

- Achieving and maintaining an optimal level of protection of the environment and the population
- Checking the effectiveness of technical devices for protecting the environment and the population.
- Accepting into service equipment and procedures for measuring and assessing exposure and radioactive contamination of the environment and the population.
- Regular calibration of measuring instruments and regular checking that they are serviceable and correctly used.

In addition the RWA will advise on:

- Key national legislation and regulations (including competent authorities)
- Hazard and risk assessment including environmental impact.
- Control of releases
- Record keeping (sources, doses, etc.)
- Radioactive waste management.
- Radioactive waste disposal.
- Optimisation techniques – Best Achievable Technology (BAT) and Best Practicable Means (BPM).
- Environmental monitoring.

6.5.11 Referrers

A *Referrer is* a registered health care professional who is entitled to take on this role in accordance with Corporate IR(ME)R Procedure A.
A referral for a medical exposure is a request to a *Practitioner* to consider the most appropriate technique (including non-radiation techniques) to meet the *Referrer*'s objective.
The Referrer will ensure that:

- The Practitioner is supplied with sufficient medical data relevant to the medical exposure requested to enable the Practitioner to decide whether there is sufficient net benefit
- The Practitioner is supplied with sufficient non-medical data (such as name, address, date of birth) to enable the accurate identification of the patient and processing of the request
- They request imaging as appropriate to their grade and area of clinical responsibility as detailed in the referral guidance and scope of practice documentation.
- The referral is made in accordance with the referral guidelines identified in Corporate IR(ME)R Procedure A.

- Where doubt exists as to the appropriateness of an investigation advice/guidance is sought from the Practitioner or the Royal College of Radiologists Guidelines / iRefer (latest edition).
- Referrals that are part of a research protocol approved by an NHS Research Ethics Committee are identified as such.
- The clinical information required from procedures involving ionising radiation has not already been provided by previous diagnostic tests.
- Reports are read in a timely fashion and acted upon appropriately.
- They sign the request form only after a patient details are completed and / or an addressograph label is affixed.

If a Referrer repeatedly fails to comply with the above requirements the Clinical Director of the relevant Department carrying out the medical exposure is authorised to withdraw the entitlement of that person to refer to the Department.

Reporting / Evaluation

For those cases where a clinical report is not provided by the Radiology Department, identified clinicians are entitled in accordance with Corporate IR(ME)R Procedure A to carry out a clinical evaluation as O*perators.*

In carrying out this task the clinician is responsible for making a record detailing the resultant diagnostic findings or therapeutic implications in the patient's notes. If it is known prior to exposure that no clinical evaluation will occur, then the exposure is not justified and should not take place.

6.5.12 Practitioners

A Practitioner is a registered health care professional who is entitled to take on this role in accordance with Corporate IR(ME)R Procedure A.

The primary role of the Practitioner is to decide whether an individual medical exposure is justified. In carrying out this task the Practitioner will:

- consider the specific objectives of the exposure and characteristics of the individual involved.
- consider the potential diagnostic or therapeutic benefits, including the direct health benefits to the individual and the benefits to society, of the exposure
- consider the individual detriment that the exposure may cause
- consider the efficacy, benefits and risk of available alternative techniques having the same objective but involving no or less exposure to ionising radiation
- take into account any data supplied by the Referrer in order to avoid unnecessary exposure
- authorise the exposure if justified by signing the request form, or where this is not practicable provide written delegated authorisation guidelines so that Operators entitled in accordance with Corporate Procedure A may carry out the authorisation
- Cooperate regarding practical aspects of medical exposures with other specialists and staff as appropriate
- Keep records of their training in accordance with Corporate IR(ME)R Procedure A.
- Incomplete or illegible requests will be returned to the Referrer unless sufficient supplementary information can be provided to uniquely identify the patient and the

examination required. The same standards of legibility and completeness are required for all requests, including those made in person by the Practitioner.
- Exposures will be optimised by Operators following departmental procedures and protocols for practical aspects of exposures.

The Practitioner must pay special attention to:
- Exposures on non-medical grounds
- Exposures that have no direct health benefit for the individuals undergoing the exposure in accordance with the relevant Employers Procedure relating to non-medical exposures.
- Exposures of children
- The urgency of the exposure, where appropriate, in cases involving:

Patients where pregnancy cannot be excluded, if abdominal and pelvic regions are involved, taking into account the exposure of both the expectant mother and the unborn child, and a patient who is breastfeeding and who undergoes a nuclear medicine exposure, taking into account the exposure of both the expectant mother and the unborn child.

6.5.13 Operators

An Operator is a member of staff who is entitled to take on this role in accordance with Corporate IR(ME)R Procedure A.

Within the limitations of their entitled scope of practice Operators will:
- Select equipment and methods to ensure that for each medical exposure the patient dose is ALARP and consistent with the intended diagnostic or therapeutic purpose
- Pay special attention to quality assurance as set out in departmental QA procedures
- Pay special attention to assessment of patient dose or administered activity as set out in departmental IR(ME)R procedures
- Pay special attention to adhere to diagnostic reference levels as set out in departmental IR(ME)R procedures
- Cooperate regarding practical aspects of medical exposures with other specialists and staff as appropriate
- Carry out and record a clinical evaluation of the outcome of each medical exposure
- Keep records of their training in accordance with Corporate IR(ME)R Procedure A.

Within the limitations of their entitled scope of practice Operators must pay special attention to:
- The need to keep doses arising from non-medical exposures ALARP
- Medical exposures of children
- Medical exposures as part of a health screening programme
- Medical exposures involving high doses to patients
- Medical exposures of patients in whom pregnancy cannot be excluded, if abdominal and pelvic regions are involved, taking into account the exposure of both the expectant mother and the unborn child
- Medical exposures of patients who are breastfeeding and who are undergoing nuclear medicine exposures, taking into account the exposure of both the expectant mother and the unborn child.

6.5.14 Individual Responsibilities

It is the duty of all members of staff to protect themselves and others from any hazard arising from their work. Members of staff must not knowingly expose themselves or any other person to ionising radiation to an extent greater than is reasonably necessary for the purposes of their work, and shall exercise reasonable care while carrying out such work
All members of staff will ensure that:

- They protect themselves and others from any hazard arising from their work
- They have read and understood and follow the Local Rules for Radiation Safety relevant to their area of work.
- They report any hazards to the Radiation Protection Supervisor / Manager
- They follow the relevant Corporate and Departmental IR(ME)R Procedures and protocols for medical exposures
- Employees are required to return any dosimeters supplied to them in a timely fashion at the end of each monitoring period. Failure to do so could result in a prosecution (under criminal law) of both the individual and the UHB. Failure to comply with Local Rules or written procedures and protocols for medical exposures may result in disciplinary action.
- Staff must not act as Operator in the exposure of patients under IR(ME)R [SI 2017b] unless they have undergone relevant training. The role should be agreed and reflected in the Health Board's procedures
- Staff engaged in work with ionising radiation should inform their RPS and Manager as soon as they discover or believe that they have become pregnant, or if they are breastfeeding. For a declared pregnancy, a risk assessment of working conditions will then be carried out to ensure that the foetal dose is unlikely to be more than 1 mSv for the remainder of the pregnancy.
- They use, as instructed, any protective equipment and personal dosemeters provided by the employer
- They report to the Radiation Protection Supervisor / Manger any defect in such equipment and dosemeters
- They report immediately to their Manager if any incident occurs in which a patient may have received a radiation exposure significantly greater than that intended or any other incident in which a person may have been overexposed or a radioactive source may have been lost, stolen or spilt
- They do not recklessly endanger the safety of others.

6.6 IMPLEMENTATION AND POLICY COMPLIANCE

6.6.1 Any advice required on implementation of this policy should be obtained via the RSC or relevant expert (RPA, MPE or RPS).

6.6.2 The RSC will receive reports from departments using ionising radiation to verify compliance with the requirements of this policy and results will be reported to the Executive Board as part of annual report.

7. TRAINING IMPLICATIONS

Training Impact Assessment
If training requirements are identified a policy training impact assessment is to be completed and forwarded to the Workforce and Organisational Development Directorate.

Will training be required as a result of the policy?

No	If no, please state how this policy will be communicated within the UHB Agreement via Image optimisation team, Radiation Safety Committee (following period of consultation) and published on SharePoint.

8. REVIEW, AUDIT AND MONITORING ARRANGEMENTS

This policy will be reviewed every three years unless any changes in legislation or guidance. Review will be approved by Radiation Safety Committee.
This policy will be monitored alongside yearly audits conducted with RPA.

9. MANAGERIAL RESPONSIBILITIES

Consultation process
The policy has been amended by consultation with RPA, Radiology managers and Staff organisation. (The document has been approved as indicated on page 2.)

10. RETENTION / ARCHIVING

The Board Secretary must ensure that copies of policies and procedures are archived and stored in line with the Health Board Records Management policy and are made available for reference purposes.

11. NON CONFORMANCE

There is a requirement of all staff to comply with the provisions of this policy and where requested to demonstrate such compliance. Failure to comply will be dealt with in accordance with the appropriate Health Board Human Resources policy

12. EQUALITY IMPACT ASSESSMENT STATEMENT

See Equality Impact Assessment in Appendices

13. PRIVACY IMPACT ASSESSMENT STATEMENT

See privacy Impact Assessment in Appendices

14. REFERENCES

The use of ionising radiation in health establishments in the UK is governed by a series of statutory instruments. General health & safety of staff and members of the public is specified in the *Ionising Radiations Regulations 2017* [SI 2017a] and the associated Approved Code of Practice [HSE 2017]. The *Ionising Radiation (Medical Exposure) Regulations 2017* [SI 2017b] impose responsibilities on both the employer and employees with regard to medical exposures.

There are additional legal requirements covering radioactive substances. The *Ionising Radiation (Medical Exposure) Regulations 2017* control the administration of radioactive medicinal products to humans.

The *Environmental Permitting (England and Wales) Regulations 2016* [SI 2016] control the storage and use of radioactive substances and their disposal, including discharge as radioactive waste. The principle of "Best Available Techniques" (BAT) must be applied to all aspects of radioactive waste creation and disposal to ensure that doses to members of the public are kept "as low as reasonably achievable" (ALARA).

The *Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2009 [SI 2009]* (as amended [SI 2011]) covers the transport and movement of radioactive materials, including driver training. Other regulations, regulatory regimes, codes of practice or guidance apply to security of radioactive substances on user premises, e.g. the National Counter Terrorism Security Office's "Security Requirements for Radioactive Sources".

Radioactive Sources published by the Department of Health (ARSAC). It is the policy of the Health Board that such guidance should be followed except where specifically agreed by the Radiation Protection Committee.

ARSAC. Notes for Guidance on the Clinical Administration of Radiopharmaceuticals and Use of Sealed Radioactive Sources, Administration of Radioactive Substance Advisory Committee. Updated version is online at www.arsac.org.uk

HPA 2009. Protection of pregnant patients during diagnostic medical exposures to ionising radiation. Advice from the Health Protection Agency, Royal College of Radiologists and the College of Radiographers, Documents of the HPA, RCE-9. Chilton: HPA. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/335107/RCE-9_for_web.pdf

HSE 2006. Equipment used in connection with medical exposure. Health & Safety Executive Guidance Note PM77 (Third edition). London: HMSO. www.hse.gov.uk/pubns/guidance/pm77.pdf

HSE 2017. Work with ionising radiation, Health & Safety Executive, Approved Code of Practice and Guidance L121, 2nd edition. London: HMSO. http://www.hse.gov.uk/pubns/books/l121.htm

ICRP 2007. The 2007 recommendations of the International Commission on radiological protection, Annals of the ICRP, Publication 103. London: Elsevier

IPEM 2004. Guidance on the Establishment and Use of DRLs for Medical X-ray Examinations, Institute of Physics & Engineering in Medicine Report 88. York: IPEM

IPEM 2005. Recommended Standards for the Routine Performance Testing of Diagnostic X-ray Imaging Systems Institute of Physics & Engineering in Medicine Report 91. York: IPEM

SI 2009. The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2009. Statutory Instrument 2009 No. 1348. London: HMSO
http://www.legislation.gov.uk/uksi/2009/1348/contents/made

SI 2011. The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment (Amendment) Regulations 2011. Statutory Instrument 2011 No. 1885. London: HMSO
http://www.legislation.gov.uk/uksi/2011/1885/contents/made

SI 2016. The Environmental Permitting (England and Wales) Regulations 2016. Statutory Instrument 2016 No. 1154. London: HMSO.
http://www.legislation.gov.uk/uksi/2016/1154/contents

SI 2017a. The Ionising Radiations Regulations 2017. Statutory Instrument 2017 No 1075. London: HMSO.
http://www.legislation.gov.uk/uksi/2017/1075/contents/made

SI 2017b. The Ionising Radiation (Medical Exposure) Regulations 2017. Statutory Instrument 2017 No 1322. London: HMSO
http://www.legislation.gov.uk/uksi/2017/1322/contents/made

Welsh Government 2018. Ionising radiation - Requirements for NHS organisations in Wales from February 2018. Welsh Health Circular WHC/2018/007.
https://gov.wales/docs/dhss/publications/whc2018-007en.pdf

Radon in the workplace. Health and Safety Executive

iRefer. Royal College of Radiologists.

Selection criteria for dental radiography. Faculty of General Dental Practitioners (UK).

15. APPENDICES

Appendix 1

Radiation Safety Committee (RSC)
Terms of Reference

1. Introduction

Cwm Taf Morgannwg University Health Board (UHB) has a legal duty to ensure, as far as reasonably practicable, the health and safety of its employees, of contractors working on the premises and of members of the public, patients and comforters and carers who may be exposed to the hazards arising from the use of radiation.

The UHB has a number of policies and procedures, relating to the use of both ionising radiation (e.g. X-rays and radioactive materials) and non-ionising radiation (e.g. lasers), which are designed to control radiation risks in line with legal requirements.

2. Purpose

The purpose of the RSC is to be a key part of the corporate framework for the management of radiation protection in ensuring compliance with relevant radiation protection legislation and implementation of best practice. The objectives are:

- To review implementation of the UHB's radiation protection arrangements for health and safety, environmental protection and medical exposures.
- To identify and monitor current activities and developments relating to the use of radiation and its optimisation.
- To review radiation risks and inform the Chief Executive of measures to be taken to secure compliance with relevant legislation and to manage risks.

3. Membership

Director with UHB Responsibility for Radiation Protection (To Chair)
Radiation Protection Adviser(s) (RPA)
Medical Physics Expert(s) (MPE)
Radioactive Waste Adviser(s) (RWA)
Clinical Director Radiology
Clinical Service Group Manager, Radiology
Head of Radiography
Director of the National Imaging Academy
Radiation Protection Supervisors:

- Dewi Sant Hospital; x-ray, DEXA
- Prince Charles Hospital; x-ray, theatre, dental
- Princess of Wales Hospital; x-ray, cardiac catheter suite, theatre, dental
- Royal Glamorgan Hospital; x-ray, nuclear medicine, cardiac catheter suite, interventional suite, theatre
- Ysbyty Cwm Cynon; x-ray
  Ysbyty Cwm Rhondda; x-ray

Non-ionising leads;

- Royal Glamorgan Hospital; MRI
- Prince Charles Hospital; MRI

- Clinical Engineering/Ultrasound Governance

4. Meetings

- The Committee will meet every 6 months.
- Additional meetings may be convened with the agreement of the Chair.
- The meeting shall be deemed to be quorate when the Chair, a RPA and three other members are in attendance.

5. Relationships and Accountabilities

The Committee will receive information from the Members and report to the Quality & Safety Committee following each meeting.

In order to fulfil its role, the RSC will:

- Identify appropriate actions within a corporate framework to achieve good radiation protection practices including training requirements and optimisation.
- Revise and approve corporate policies and procedures on the safe use of radiation with respect to health and safety, environmental protection and medical exposures.
- Recommend a structured process for implementation of new regulations and associated codes of practice and guidance.
- Receive and consider reports from the radiation protection adviser.
- Receive, review and act upon reports from image optimisation team.
- Receive and consider reports from the radiation protection supervisors / other supervisors on the implementation of local rules for radiation safety.
- Review radiation incidents and ensure appropriate action is taken.
- Review reports of statutory inspections and monitor identified action points.
- Review results of personal dose monitoring.

6. Reporting and Assurance Arrangements

The Radiation Safety Committee will report to the Quality and Safety Committee following each meeting. The Report from RSC by Radiology Directorate Manger will include:

- Summary of results of personal dose monitoring
- Summary of reportable radiation incidents
- Major issues raised during committee meetings regarding radiation safety and radiation regulatory compliance.

7. Review

Terms of Reference will be reviewed every three years or amended as necessary with the agreement of the Committee.

APPENDIX 2

Corporate IR(ME)R Procedures

These procedures are required by the Ionising Radiation (Medical Exposures) Regulations 2017, further referred to as IR(ME)R and apply throughout the UHB. They are supplemented by local procedures in each Department where medical exposures are carried out.

Procedure A. Entitlement of Duty Holders for Medical Exposures

1. Purpose

To describe the procedures that will be used throughout the UHB to identify individuals entitled to act as Referrer or Practitioner or Operator, in accordance with IR(ME)R 2107 and to limit the ***scope of entitlement*** of each duty holder.

Scope of entitlement for Operators refers to the ***Operator tasks*** that make up the various physical aspects of medical exposure from checking the patient identification to the final clinical evaluation including initiating the radiation exposure. Each Operator task may also be limited to defined types of medical exposure.

For Practitioners the scope of practice refers to the **types *of medical exposures*** (e.g. interventional procedures, radioiodine therapy and plain radiography).

To ensure that the scope of entitlement for Practitioners and Operators is limited to those tasks or types of medical exposure for which they have been properly trained.

To formally entitle staff to refer for diagnostic examinations.
Departmental Entitlement Documentation will be held for all staff. E.g. Reference copy of entitlement certificate.

2. Responsibilities (refer to Fig.1)

The Medical Director will ensure that the structures described in this document for entitlement of IR(ME)R duty holders are in place.

The Medical Director is responsible for entitling primarily the Radiology Clinical Director (but also other departmental Clinical Directors responsible for the use of equipment utilising ionising radiation) who, in turn, will entitle all fellow Clinical Directors and the medical staff working for them as Referrers. The Medical Director is responsible for entitling all other Clinical Directors and the medical staff working for them as Practitioners and Operators.

Clinical Directors are responsible for ensuring that medical staff working for them are appropriately qualified and aware of their entitlement and the scope of practice that this entails.

Medical Physics staff will be entitled to act as *Operators* for specific tasks via a Service Level Agreement.

No member of staff may take on the role of *Referrer*, O*perator* or *Practitioner* unless entitled to do so in accordance with this procedure.

3. Entitlement of Referrers

The Medical Director entitles all GMC registered medical staff to refer to the UHB for all diagnostic examinations by authorising this procedure. Referrers are informed by letter from the receiving service Clinical Director.

For non-medical *Referrers,* training and a protocol describing the scope of practice will need to be approved by the Clinical Director Radiology and Directorate Manager Radiology. Training requirements will be consistent with those set out in professional guidance.

Where an entitled *Practitioner* recognises that an entitled R*eferrer* has provided a referral that does not accord with this policy, they shall advise the Referrer directly. Where a *Practitioner* recognises consistent failures by a particular Referrer, they shall advise the Clinical Director Radiology who may revoke or further limit the entitlement of any *Referrer* at his discretion.

Referral Guidelines

Referral guidelines used by the UHB for general diagnostic radiology and nuclear medicine are
iRefer Guidelines: Making the best use of clinical radiology – Latest edition
These are available to all Referrers through the Radiology intranet site on SharePoint.
Referral guidelines used for dental radiology *are;*
Selection criteria for dental radiography. Faculty of General Dental Practitioners (UK).

4. Entitlement of Operators (including Medical Physics Experts) and Practitioners

The UHB authorises Clinical Directors to entitle IR(ME)R *Operators* and P*ractitioners* in their respective areas of work.
Each of the Clinical Directors shall authorise a local IR(ME)R procedure for entitlement of *Practitioners* and O*perators* that:

- identifies the Clinical Director responsible for entitlement of P*ractitioners* and *Operators*.
- identifies those people who are authorised to assess the competences of *Operators* and P*ractitioners*, and define their scope of their entitlement.
- identifies staff groups, and defines the qualifications, experience and training required for each relevant staff group to be considered for entitlement as a *Practitioner* or O*perator* for defined *Operator* tasks or types of medical exposure.
- Where an external company is contracted to act as Practitioner and Operator for medical exposures (e.g. Everlight for out of hours imaging and out-sourced reporting) a list of the individual entitled staff members will be held by the Radiology Departments throughout the term of the contract.
- Medical Physics Experts will be entitled and appointed by the Director of Therapies and Health Sciences.

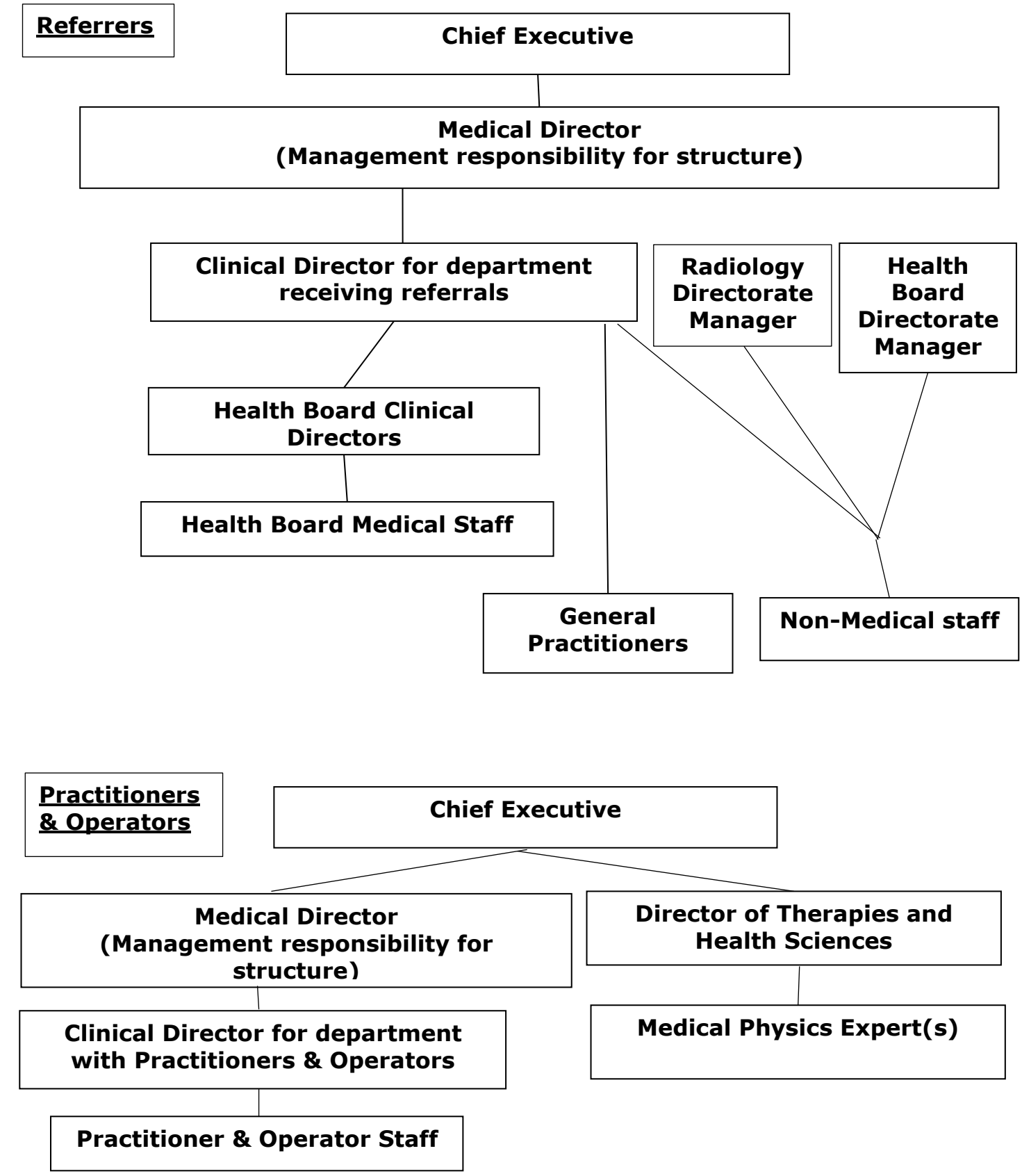
Guidance on training requirements is provided within this policy. Where these are not included in professional qualifications or training courses approved by professional bodies, the Manager or Clinical Director will submit the proposed training to the Radiation Safety Committee and obtain approval before using it as a basis for granting entitlement. This approval requirement is identified in the Guidance.

Departmental competency training (e.g. for new equipment and techniques) is approved by the Clinical Director.
Managers will maintain individual records of *Operators* and *Practitioners* showing names and scope of practice.

5. Training Records

Clinical Directors for medical and dental staff and Directorate Managers for other staff shall make provisions to ensure that an up-to-date record is kept of the scope of entitlement for each *Operator* or *Practitioner* supported by verifiable qualifications, training and experience. Each duty holder will maintain a personal file that contains accurate details (nature and date) of education and training. The record should be compliant with any recommendations or mandatory requirements for Continuing Medical Education (CME) or for Continuous Professional Development (CPD). Each duty holder will make records available to the Competency Assessor and statutory inspectors as required.

Fig 1: Flow-chart Describing Entitlement process



Guidance on staff entitled to act as Referrers, Practitioners & Operators

Staff entitled to act as Referrers

Category of Referrer	Expected level of Training and Approval	Scope of referral	Entitlement provided by
Medical and Surgical Consultants	GMC Registration	All diagnostic examinations. Interventional examinations	Clinical Director for department receiving referrals
Non-consultant Hospital Doctor	GMC Registration	All diagnostic examinations. Interventional examinations	Clinical Director for department receiving referrals
General Practitioners	GMC Registration	All diagnostic examinations	Clinical Director for department receiving referrals
Dental Practitioners	GDC Registration	Plain radiography of the jaw and OPTs within protocol	Clinical Director for department receiving referrals
Oral Surgeons	GMC Registration	Diagnostic examinations, Interventional examinations	Clinical Director for department receiving referrals
Radiographers	HCPC Registration	Refer to Radiology Employers Procedure 2 - Entitlement	Clinical Director for department receiving referrals
Non-medical Referrers	Professional Registration plus IR(ME)R training	Scope of practice in specific protocol	Clinical Director for department receiving referrals

Staff entitled to act as Practitioners

Category of Practitioner	Expected level of Training and Approval	Scope of practice	Entitlement provided by
Consultant Radiologists	FRCR	Diagnostic x-ray examination and interventional procedures as per entitlement document.	Clinical Director for department managing Practitioners and Operators
Specialist Registrars (Radiology)	On FRCR training beyond part covering IR(ME)R Schedule 2 training	Diagnostic x-ray examinations and interventional procedures as per entitlement document.	Clinical Director for department managing Practitioners and Operators
ARSAC Certificate Holders (Consultant Radiologists, Consultant Physicians)	Medical Degree plus training approved by ARSAC Committee	Nuclear Medicine Examinations as per certificate.	Clinical Director for department managing Practitioners and Operators
Consultant Cardiologists, Interventional Fellows and Registrars	MRCP + IR(ME)R training course	Cardiology examinations	Clinical Director for department managing Practitioners and Operators
Consultant Orthopaedic Surgeons	GMC registration, IR(ME)R Training	Examinations using mini c-arm in theatre	Clinical Director for department managing Practitioners and Operators
Radiographers	HCPC Registration	Examinations listed in entitlement document.	Clinical Director for department managing Practitioners and Operators

Oral Surgeons	GDC/GMC Registration	Dental x-rays and OPTs	Clinical Director for department managing Practitioners and Operators
Physician in Bone Mineral Metabolism Service	MRCP + IR(ME)R training course	Bone Mineral Densitometry (DXA).	Clinical Director for department managing Practitioners and Operators
Clinical Scientist (DXA)	HCPC Registration plus training approved by IPEM and in-house training	Bone Mineral Densitometry (DXA).	Clinical Director for department managing Practitioners and Operators

Staff entitled to act as Operators
Where in-house competency training is required lists of individuals able to act in these capacities will be kept in each department.

X-Ray Procedures

Operator Task	Staff Employed as	Training requirements	Entitlement provided by
Performing all plain film radiography and associated tasks excluding clinical evaluation	Diagnostic Radiographer	HCPC Registration + competency training	Clinical Director for department managing Practitioners and Operators
Performing more complex examinations e.g. • Extended role (fluoroscopy) • CT scanning	Diagnostic Radiographer as per department entitlement lists	HCPC Registration + competency training	Clinical Director for department managing Practitioners and Operators
Performing fluoroscopic, angiographic and interventional procedures including associated radiographs	Radiologist (Consultants and Registrars) Radiographer / Nurse (as per departmental entitlement)	Competency training and/or relevant experience.	Clinical Director for department managing Practitioners and Operators
Performing all cardiology procedures	Consultant Cardiologists, and Registrars.	IR(ME)R training course, practical training	Clinical Director for department managing Practitioners and Operators
Performing examinations using the mini c-arm in theatre	Consultant Orthopaedic Surgeons	IR(ME)R training course, practical training	Clinical Director for department managing Practitioners and Operators
Performing DXA scanning	Clinical Technologist	In-house training	Clinical Director for department managing Practitioners and Operators
Dental Radiography	Dental care Professionals	General Dental Council approved training	Clinical Director for department managing Practitioners and Operators

Operator Task	Staff Employed as	Training requirements	Entitlement provided by
Routine x-ray equipment QA	Radiographer	In-house competency training.	Clinical Director for department managing Practitioners and Operators
Advanced x-ray equipment QA Commissioning of diagnostic x-ray equipment	Radiation Protection Service Staff (Clinical Scientists, Clinical Technologists)	Post-graduate training, appropriate, practical experience and in-house competency training	Clinical Director for department managing Practitioners and Operators
QA on image receptors	Radiographer	In-house competency training	Clinical Director for department managing Practitioners and Operators
Administration of contrast agent	Diagnostic Radiographer Radiologist, Nurse, Doctor (as per SOP)	Competency in IV injection assessed in-house or by formal course.	Clinical Director for department managing Practitioners and Operators
Image Processing	Radiographer	In-house competency training	Clinical Director for department managing Practitioners and Operators
Clinical Evaluation	Radiologists, (as per department entitlement) (Includes Everlight Radiologists as a group)	FRCR training covering IR(ME)R Schedule 2 training	Clinical Director for department managing Practitioners and Operators
Clinical Evaluation (agreed cardiology procedures)	Cardiology consultant (as per departmental entitlement)	MRCP + IRMER training	Clinical Director for department managing Practitioners and Operators
Clinical Evaluation	Radiographer (as per	HCPC Registration plus	Clinical Director for department

Operator Task	Staff Employed as	Training requirements	Entitlement provided by
	departmental entitlement)	post-graduate or documented in-house training	managing Practitioners and Operators
Clinical Evaluation (agreed limited plain film)	Orthopaedic consultant	MRCP/ FRCS + in house training	Clinical Director for department managing Practitioners and Operators
Clinical Evaluation (DXA)	Clinical Scientist	Specific IR(ME)R course + in-house competency training	Clinical Director for department managing Practitioners and Operators
Clinical evaluation of any diagnostic image by medical officer or non-medical Referrer	Medical Officer / Non-medical Referrer	Professional Registration / post-graduate or suitable evaluation training.	Clinical Director for department managing Practitioners and Operators
Advice on Radiation Exposure (alarp) including DRL, assessment of doses	Medical Physics Expert	The Department of Health list of appointed MPEs held by RPA 2000 recognises the Health Board's currently appointed MPEs.	Clinical Director for department managing Practitioners and Operators
Operating Radiology equipment	Radiation Protection Service staff	Service contracts and local SLA	Clinical Director for department managing Practitioners and Operators

Nuclear Medicine

Practical Aspects of Operator	Staff Employed as	Training requirements	Entitlement provided by
Preparation and dispensing of radiopharmaceuticals	Clinical Scientist / Radiographer	Post-graduate training + in-house competency based training	Clinical Director for department receiving referrals
Administration of diagnostic radiopharmaceutical	ARSAC Certificate holder	None	Clinical Director for department receiving referrals
	Clinical Technologist / Radiographer	Competency in IV injection assessed by formal course Delegation in writing by IR(ME)R Practitioner or specified in departmental procedure	Clinical Director for department receiving referrals
	Radiologist	Delegation in writing by ARSAC certificate holder or specified in departmental procedure.	Clinical Director for department receiving referrals

Practical Aspects of Operator	**Staff Employed as**	**Training requirements**	**Entitlement provided by**
Administration of therapeutic radiopharmaceutical	Clinical Scientist	Post-graduate training plus in-house competency based training Delegation in writing by ARSAC certificate holder or specified in departmental procedure for therapies	Clinical Director for department receiving referrals
Performing Nuclear Medicine Imaging	Radiographer	In-house competency based training	Clinical Director for department receiving referrals
Equipment QA	Radiographer/ Clinical Scientist		Clinical Director for department receiving referrals
Image processing	Clinical Scientist/ Clinical Technologist/ Radiographer		Clinical Director for department receiving referrals
Clinical Evaluation (diagnostic, therapeutic)	ARSAC certificate holder	Training approved by ARSAC committee (procedures listed in personal ARSAC certificate)	Clinical Director for department receiving referrals

Procedure B: Accidental or unintended medical exposures

- Departments must have a procedure outlining how they manage Accidental or Unintended Medical Exposures, including advice and reporting to appropriate external agencies.

Incidents, Overexposure, Accidental or Unintended Exposure (of patients)

All radiation work shall be conducted with due regard to minimising exposure of persons (patients, staff and public). Suspicions of over-exposure and equipment faults leading to a person's exposure being greater than intended must be investigated by departmental procedures. Procedures must include:

- the advice of the RPA, MPE or RWA,
- the decision-making and reporting process regarding external notification if required,
- and information on timescale.

Radiation Incidents will be entered on Datix and a summary will be reported to the Radiation Safety Committee.

In cases where staff doses exceed 3/10ths of any dose limit, For eye dose this is 15mSv with a limit of 20 mSv, a record of the assessment must be kept until the person to whom the record relates has or would have attained the age of 75 years but in any event for at least 30 years from the date of the relevant accident [SI 2017a].

Further details in respect of the incident and reporting process can be found in Cwm Taf Morgannwg Incident Reporting Procedure.

Appendix 3: Equality Impact Assessment - Policies
Section 1: Preparation

Section 1 – Preparation		
1.	**Title of Policy**	**IONISING RADIATION PROTECTION POLICY**
2.	**Policy Aims and Brief Description**	This document outlines the processes employed by Cwm Taf Morgannwg University Health Board (UHB), (the employer) to ensure, as far as reasonably practicable, the health and safety of its employees, of contractors working on the premises and of members of the public who may be exposed to the hazards arising from the use of ionising radiation.
3.	**Who Owns/Defines the Policy?**	Chief Operating Officer Head of Radiography Directorate Manager Radiology
4.	**Who is Involved in undertaking this EqIA?**	Superintendent Radiography with advice from the Equality Manager
5.	**Other Policies** - Describe where this Policy/work fits in a wider context. Is it related to any other policies/activities that could be included in this EqIA? Is it relevant to the Integrated Medium Term Plan (IMTP)	This document outlines the processes employed by Cwm Taf Morgannwg University Health Board (UHB), (the employer) to ensure, as far as reasonably practicable, the health and safety of its employees, of contractors working on the premises and of members of the public who may be exposed to the hazards arising from the use of ionising radiation. The Policy is vital in ensuring that staff have the information they need to comply with the UHB's requirements of them
7.	**What might help/hinder the success of the policy?**	Staff not being aware of the policy
8.	Is the policy relevant to "eliminating discrimination and eliminating harassment?"	The policy provides the structure and process for ionising radiation safety and management and therefore does not directly eliminate discrimination and harassment.

Section 1 – Preparation		
9.	Is the policy relevant to "promoting equality of opportunity?"	The aim of all Cwm Taf Morgannwg UHB policies will be to promote the equality of opportunity. This policy includes equality impact assessment and privacy assessment.
10.	Is the policy relevant to "promoting good relationships and positive attitudes?"	The aim of all Cwm Taf Morgannwg policies will be to promote good relationships and positive attitudes. The policy includes some cooperation between employers and outlines responsibilities regarding ionising radiation.

Section 2. Impact	
Please answer the following	
Do you think that the policy impacts on people because of their age? (This includes children and young people up to 18 and older people)	Not specifically – some age limitations in application of policy regarding pregnancy status enquiries.
Do you think that the policy impacts on people because of their caring responsibilities? I,e, would it affect their ability to care for somebody who is primarily dependant on them	Not specifically – policy does cover some carer and comforter responsibilities regarding exposure to ionising radiation – covered in more detail in employers procedures
Do you think that the policy impacts on people because of their disability? E.g. sensory loss, physical disability, Learning disability, some mental health issues	No
Do you think that the policy impacts on people because of Gender reassignment? This includes all people included under trans* e.g. transgender, non-binary, gender fluid etc	No
Do you think that the policy impacts on people because of their being married or in a civil partnership?	No
Do you think that the policy impacts on people because of their being pregnant or having recently had a baby?	Not specifically – some limitations in application of policy regarding pregnancy status enquiries and post examination care in Nuclear medicine – covered in more detail by employers procedures.
Do you think that the policy impacts on people because of their race? (This includes colour, nationality and citizenship or ethnic or national origin such as Gypsy and Traveller Communities.)	No
Do you think that the policy impacts on people because of their religion, belief or non-belief? (Religious groups cover a wide range including Buddhist, Christians, Hindus, Jews, Muslims, and Sikhs)	No
Do you think that the policy impacts on men and woman in different ways?	Not specifically – only in terms of pregnancy enquiries due to ionising radiation risks.
Do you think that the policy impacts on people because of their sexual orientation? (This includes Gay men, heterosexual, lesbian and bisexual people)	No
Do you think that the policy impacts on people because of their Welsh language? (e.g. the active offer to receive services in Welsh, bilingual information etc)	No – 'active offer' displayed in all Radiology departments

The Human Rights Act contains 15 rights, all of which NHS organisation have a duty to act compatibly with and to respect, protect and fulfil. The 7 rights that are particularly relevant to healthcare are listed below. Consider the relevance of your Policy to these Human Rights and list any available information to suggest the Policy may interfere with, or restrict the enjoyment of these rights.
The right to life No specific impact
The right not be tortured or treated in an inhuman or degrading way No specific impact
The right to liberty No specific impact
The right to a fair trial No specific impact
The right to respect for private and family life, home and correspondence No specific impact
The right to freedom of thought, conscience and religion No specific impact
The right not be discriminated against in relation to any of the rights contained in the Human Rights Act No specific impact on human rights identified.

Section 3 Outcome Report

Policy Title:	**IONISING RADIATION PROTECTION POLICY**
Organisation:	Cwm Taf Morgannwg University Health Board
Name: **Title:** **Department:** **Date:**	Paul Johnston Superintendent Radiographer Radiology 17.06.2021
Summary of Assessment: **Please indicate issues of significant concern and changes that will be made to the policy accordingly.** **Please indicate whether these changes have been made.**	This policy is substantially concerning radiation safety, there are no specific issues of concern identified in relation to equality and diversity. No changes are required.
Please indicate where issues have been raised but the policy has not been changed and indicate reasons and alternative action taken where appropriate.	Not applicable
Monitoring Arrangements:	Review in response to any particular issue.
Review Date: **This is usually the same as the policy review date.**	The policy will be reviewed annually by the responsible manager.
Signature of all Parties:	Paul Johnston

Appendix 4

Privacy Impact Assessment
Screening Questions
Use √

Answer the questions below to identify whether your policy/ procedure or project is likely to need a PIA.

	Questions – please tick appropriate answer	***Yes***	***No***
1.	Will the policy involve the collection of new information about individuals?		√
2.	Will the policy compel individuals to provide information about themselves?		√
3.	Will information about individuals be disclosed to organisations or people who have not previously had routine access to the information?		√
4.	Are you using information about individuals for a purpose it is not currently used for or in a way it is not currently used?		√
5.	Does the policy involve you using new technology which might be perceived as being privacy intrusive? For example, the use of biometrics or facial recognition.		√
6.	Does the policy result in you making decisions or taking action against individuals in ways which can have a significant impact on them?		√
7.	Is the information about individuals of a kind particularly likely to raise privacy concerns or expectations? For example, health records or other information that people would consider to be particularly private?		√
8.	Will the policy require you to contact individuals in ways which they may find intrusive?		√

Where you have answered yes to one or more of these questions, it is a likely indication that a PIA would be a useful exercise. If you are in any doubt as to whether a PIA is required, support is available the Information Governance Team.