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RADIATION SAFETY PROCEDURE FOR PATIENTS

Introduction and Aim

This procedure supports the Radiation Safety Policy. Its purpose is to ensure that radiation doses to patients from medical exposures are justified and optimised.

Linked Policies, Procedures and Written Control Documents

Radiation Safety Policy
Radiation Safety Procedure for Staff
Service-level procedures for medical exposures

[All Corporate policies and procedures are available on the Public Health Wales Website](#)

Scope

This procedure applies to all Public Health Wales staff who are involved with medical exposures. It is also relevant to those who manage or advise services that make medical exposures.

Equality and Health Impact Assessment	An Equality and Health Impact Assessment has been completed.
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Disclaimer

If the review date of this document has passed please ensure that the version you are using is the most up to date either by contacting the document author or the [Corporate Governance](#).

Summary of reviews/amendments				
Version number	Date of Review	Date of Approval	Date published	Summary of Amendments
1	2014	31 January 2013		Original version – part of single Radiation Safety Policy
2	2015, 2016, 2017, 2018	20 August 2014		Minor amendments to Appendix 1 following review by Trust Radiation Protection Group, plus revisions requested by Partnership Forum policy group
3	2018	24 October 2018	01 November 2018	Procedure separated from policy and updated to take account of new regulations and new policy/procedure templates.
4	2021	May 2022	27 October 2022	Reviewed and updated in November 2021 and approved by Breast Screening Programme Board in May 2022. Only minor amendments to update staff changes made.

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1 Introduction

This procedure supports the Radiation Safety Policy. Its purpose is to ensure that radiation doses to patients from medical exposures are justified and optimised.

2 Definitions

Ionising radiation – a type of high energy radiation that can lead to damage in human tissue and increase the risk of cancer.

IRMER – an abbreviation for the Ionising Radiation (Medical Exposure) Regulations 2017

Justification – ensuring that the benefit from a medical exposure outweighs the risk from the radiation.

Medical exposure – in this procedure, this means the use of ionising radiation during medical diagnosis.

Optimisation – ensuring that the radiation dose is as low as reasonably practicable consistent with the intended purpose.

Patient – in this procedure, this means anyone undergoing a medical exposure.

Radiation dose – a measure of the amount of ionising radiation. In general, a higher radiation dose means a higher risk.

X-ray - a type of ionising radiation used for medical imaging.

3 Scope

This procedure applies to all Public Health Wales staff who are involved with medical exposures. It is also relevant to those who manage or advise services that make medical exposures.

In Public Health Wales, medical exposures are currently only performed using x-ray equipment. This procedure controls the risks to patients arising from such exposures. It will need to be revised before Public Health Wales starts any work involving other sources of radiation (e.g. radioactive materials).

A separate procedure controls the risks to staff and others – see Radiation Safety Procedure for Staff.

4 Regulations and guidance

The use of ionising radiation for medical exposures is governed by The Ionising Radiation (Medical Exposure) Regulations 2017. These regulations, and any amendments, are referred to in this procedure as IRMER. The regulations are supported by official and professional guidance.

Healthcare Inspectorate Wales monitors compliance with IRMER on behalf of the Welsh Ministers.

There are additional regulations applicable only to radioactive sources. They are not relevant to current work within Public Health Wales.

5 Roles and responsibilities

5.1 Chief Executive

Public Health Wales is the employer under IRMER. The Chief Executive takes overall responsibility for compliance with IRMER on behalf of Public Health Wales.

5.2 National Director, Health Protection and Screening Services and Executive Medical Director

The National Director, Health Protection and Screening Services and Executive Medical Director is the Trust Board's nominated Director responsible for ensuring compliance with this procedure.

5.3 Radiation Protection Group

The Radiation Protection Group is responsible for overseeing the management of radiation safety throughout Public Health Wales. The Director of Screening Division chairs the Group. It reports to the Quality, Safety and Improvement Committee on matters of patient safety. This provides assurance to the Board and Chief Executive about the radiation safety arrangements within Public Health Wales. Appendix 1 of the Radiation Safety Policy gives the terms of reference and membership of the Radiation Protection Group.

5.4 Divisional Directors

Divisional Directors whose services make medical exposures are responsible for:

- Ensuring that radiation safety arrangements throughout their Division follow best practice and comply with IRMER
- Ensuring that written procedures are in place in accordance with IRMER Schedule 2 (see 6.1)
- Entitling individuals to act as IRMER referrers, practitioners and operators, or authorising appropriate staff to undertake this task on their behalf
- Appointing one or more Medical Physics Expert(s)

5.5 Service/department managers

Managers of services/departments that make medical exposures are responsible for:

- Putting in place the written procedures required by IRMER Schedule 2 (see 6.1)
- Putting in place written procedures for patient referrals
- Putting in place written protocols for medical exposures
- Ensuring that before individuals act as referrers, practitioners or operators they are formally entitled by an authorised person (see 6.2)
- Keeping an auditable record of such entitlements
- Keeping a list of referrers, practitioners and operators, specifying the scope of practice for which they are entitled
- Putting in place a quality assurance programme for equipment used for medical exposures (see 6.4)
- Keeping an inventory of equipment used for medical exposures (see 6.4)
- Involving the Medical Physics Expert as appropriate (see 5.9)
- Submitting an annual report to the Radiation Safety Group to demonstrate the level of compliance with this procedure

5.6 IRMER referrers

Referrers are registered health care professionals who are entitled to refer individuals to a practitioner for medical exposures. They must supply enough information to enable the practitioner to decide whether each exposure is justified.

5.7 IRMER practitioners

Practitioners are registered health care professionals who are entitled to take responsibility for individual medical exposures within a specified scope of practice. They justify and authorise exposures, either directly or by issuing guidelines to operators.

5.8 IRMER operators

Operators are staff who are entitled to undertake the practical aspects of medical exposures within a specified scope of practice. They are responsible for optimising exposures by selecting appropriate equipment and methods. They may also authorise exposures by following guidelines issued by a practitioner.

5.9 Medical Physics Expert

The Divisional Director will appoint one or more suitable individuals as Medical Physics Experts. A Medical Physics Expert must also be entitled as an IRMER operator. A Medical Physics Expert is involved with certain aspects of medical exposures, including:

- Optimisation
- Specification and quality assurance of medical radiological equipment
- Analysis of events involving accidental or unintended exposures
- Training of staff in relevant aspects of radiation safety
- Provision of advice to Public Health Wales relating to compliance with IRMER

6 Arrangements for the safety of medical exposures

6.1 Written procedures

Each department must have the following standard operating procedures required by IRMER Schedule 2:

- To identify correctly the individual to be exposed to ionising radiation
- To identify individuals entitled to act as referrer or practitioner or operator within a specified scope of practice
- For making enquiries of females of childbearing potential to establish whether the individual is or may be pregnant or breastfeeding
- To ensure that quality assurance programmes in respect of written procedures, written protocols, and equipment are followed
- For the assessment of patient dose and administered activity
- For the use and review of diagnostic reference levels
- For exposures within medical and biomedical research programmes
- For the giving of information and written instructions to patients receiving radioactive medicinal products
- For the carrying out and recording of an evaluation for each medical exposure including, where appropriate, factors relevant to patient dose
- To ensure that the probability and magnitude of accidental or unintended doses to patients from radiological practices are reduced so far as reasonably practicable
- To ensure that the referrer, the practitioner, and the individual exposed or their representative are informed of the occurrence of any relevant clinically significant unintended or accidental exposure, and the outcome of the analysis of this exposure
- To be observed in the case of non-medical imaging exposures
- To establish appropriate dose constraints and guidance for the exposure of carers and comforters

Each department must also have the following:

- Written procedures for patient referrals
- Written protocols for medical exposures

All new or updated IRMER procedures must be submitted to the Radiation Protection Group for ratification and formal adoption on behalf of Public Health Wales.

6.2 Entitlement of referrers, practitioners and operators

Entitlement must only be undertaken by authorised individuals following the department's standard operating procedure.

The department must keep an auditable record of each entitlement including:

- Role (referrer, practitioner or operator)
- Name of person being entitled
- Scope of practice
- Name and signature of person undertaking the entitlement
- Date

Each department must keep a list of its referrers, practitioners and operators, specifying the scope of practice for which they are entitled.

6.3 Referral criteria

Public Health Wales, through the Radiation Protection Group, has established referral criteria for medical exposures, reflecting current national professional guidance. These are referenced in departmental documentation.

6.4 Equipment used for medical exposures

Each department must set up a quality assurance programme for equipment used for medical exposures. This programme must:

- Enable the radiation dose to a patient to be estimated
- Ensure that all equipment is tested before it is first used, at regular intervals, and after maintenance
- Specify acceptable performance criteria for equipment and ensure that corrective action is taken if these criteria are not met

Each department must keep an inventory of equipment used for medical exposures that contains the following information:

- Name of manufacturer
- Model number
- Serial number or other unique identifier
- Year of manufacture
- Year of installation

6.5 Incidents

Staff must report all incidents involving accidental or unintended exposures of patients using the Public Health Wales incident reporting procedure. The department manager must carry out an appropriate level of investigation and take any remedial and/or preventative action. If the investigation shows that a significant overexposure occurred, a more detailed investigation is required and Public Health Wales may need to report the incident to Healthcare Inspectorate Wales. Where appropriate, the Medical Physics Expert should be consulted for advice.

7 Training requirements

Before any individual is formally entitled to act as referrer, practitioner or operator, arrangements must be made to assess their experience and to determine what training must be undertaken before entitlement can take place.

Departments must keep training records for referrers, practitioners and operators. This should include records of professional qualifications and update training relevant to their role(s) under IRMER.

8 Monitoring compliance

The Radiation Protection Group monitors compliance with this procedure by reviewing:

- Annual reports from managers
- Reported radiation incidents involving patients
- Patient radiation dose surveys
- Reports of inspections by relevant external bodies