Worcestershire Acute Hospitals NHS Trust

Breast Imaging Department

Ionising Radiation (Medical Exposure) Regulations 2017
Regulation 6 Schedule 2 Employer's Procedures

(e) Procedure to assess patient dose	
Responsibilities relating to IR(ME)R procedures:	
Ensuring the required IR(ME)R procedures are in place	Worcestershire Acute Hospitals NHS Trust (WAHT)
Authorisation of Breast Imaging IR(ME)R procedures	Clinical Director of Breast Imaging
Development, review and amendment to this document	Superintendent Radiographer
Assisting in development, review and amendment to this document	Radiation Protection Supervisors
Governance pathway:	
Medical Physics Expert review (IRS)	12th July 2024
Submission to Breast Directorate for approval	11.1.2023
Circulation to Women and Children Division for information	1.3.2023
Circulation to Radiation Protection Committee for information	28.4.2023
Authorised by Clinical Director of Breast Imaging	1.3.2023

Version No	Reviewed	Action	Next Review Date
1	9.12.22 IRS	Revision of format and IRMER audit	1.3.2026
2	12.7.24 IRS	Dose recording section updated to reflect screening vans now live	12.7.25

Purpose

To enable assessment of patient dose for any medical exposure including accidental or unintended (see procedure k)

Scope

All medical exposures carried out by Worcestershire Acute Hospitals NHS Trust Breast Imaging Service Incorporating Hereford and Worcester Breast Screening Service.

Responsibility

Operators carrying out medical exposures: to record dose information, report incidents

Medical Physics Expert: incident dose assessment, dose systems calibration

QA Radiographer: arrange dose monitoring programmes

Practice

Dose Recording

Operators must record details and factors actually given so that, if necessary, the patient's dose can be subsequently assessed. This is dependent on where the patient is imaged and should be performed via the following method:

a. **Mobiles only:** The total number of exposures is recorded on the client screening form and in NBSS (Daybook Initially –data is uploaded into the Live System when clinic returned to base) operator confirmation of dose check against LDRL and NDRL

b. **Static units:** The number of exposures should be recorded on the client screening form, NBSS and CRIS.

Information relating to exposure factors (kV, mAs, target/filter combination, projection, and compressed breast thickness) are recorded on the digital mammogram and available via the DICOM header.

Records of the above details must be kept for 10 years

Dose Monitoring

1. Patient dose monitoring should be performed when required:
   - as part of the routine QA programme
   - to optimise techniques, particularly after changes to equipment or examination protocols
   - to set local diagnostic reference levels
2. Protocols for dose monitoring should be agreed by the departmental manager, QA coordinator and Medical Physics Expert.
3. When dose monitoring is in progress, operators should keep a record of additional patient or examination information (such as target/filter combination and compressed breast thickness) required by the monitoring protocol (in addition to information listed in above).

Note: Details of exposure factors (kV, mAs, target/filter combination, projection, and compressed breast thickness) are recorded on the digital mammogram and available via the DICOM header.

Dose Assessment

Dose assessment is carried out annually for all mammography units by IRS

Radiation Incidents

1. If the operator suspects that a patient has received a dose whish was unintended or much greater than intended, they will alert the Superintendent Radiographer. The departmental procedure for radiation incident is followed (see appendix).
2. Operators will provide the MPE with sufficient information to enable them to perform a patient dose assessment.
3. If the assessment establishes that the patient has been exposed to an extent much greater than intended, the incident will be investigated and reported to the appropriate regulator through the Trust incident reporting process. If the assessment establishes that patient has not been exposed to an extent much greater than intended an investigation will be conducted and external reporting to the regulator will not be required. In each case the investigation should seek to identify the root cause of the incident and to implement corrective action to minimise the risk of the incident recurring.

Dose Monitoring

1. Patient dose monitoring is performed as part of the routine QA programme at intervals not exceeding three yearly (as required by NHSBSP) and on installation of new equipment.

2. Procedures for patient dose monitoring are agreed by the Breast Imaging Superintendent Radiographer and Medical Physics Expert

3. Where patient dose monitoring indicates that doses have consistently exceeded action levels or established diagnostic reference levels the Medical Physics Expert shall be consulted on optimisation, assist with any investigation in to the causes and recommend appropriate corrective action. See IRMER procedure f regarding the use of diagnostic reference levels.

4. When corrective action is deemed necessary, this shall be fully documented and once implemented new dose assessments undertaken.

Unintended dose or over-exposure, including accidental exposure, incorrect patient, equipment failure, vetting error or incorrect timing etc