Document Control Report

Title Assessment of Patient Dose: Periodic Assessments Standard Operating Procedure - IR(ME)R 2017				
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0.2	Sept 2017	Draft	Checking details and amendments to text
1.0	Sept 2017	Final	Approved and signed off by the Lead Clinician for Radiology
1.1	Nov 2017	Final	Amendments to document made following CQC IR(ME)R inspection
2.0	Sept 2020	Final	Reviewed and amended to include updated regulations in text and references.

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Consulted with the following stakeholders: • Clinical Audit Lead Radiology • Radiologists • Radiographers • Practitioner Referrers • Medical Physics	**Contact responsible for implementation and monitoring compliance:** Radiology Governance Lead **Education/ training will be provided by:** Radiology Governance Lead
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CONTENTS

1. Introduction

The Ionising Radiation (Medical Exposure) Regulations {IR(ME)R} 2017 were introduced to protect patients against the hazards associated with the use of ionising radiation in medical settings. It is a requirement of IR(ME)R that for each patient examination, the dose of ionising radiation will be kept as low as reasonably practicable (ALARP) to obtain the necessary clinical information with minimal risk.

Diagnostic Reference Levels (DRLs) will be maintained for common diagnostic examinations. These DRLs will be in the form of region of the body exposed and one of the following Dose Area Product (DAP) meter readings, kVp and mAs recordings, Fluoroscopy screening times and Dose Length Product (DLP) for CT.

2. Purpose

The Standard Operating Procedure (SOP) has been written to:

- Clarify the role of the Operator.
- Clarify the role of the Medical Physics Expert.
- Periodic re-assessment.

3. Scope

This Standard Operating Procedure (SOP) relates to the following staff groups who may be involved in Assessment of Patient Dose:

- Radiographers (Operators)
- Radiologists (Practitioners)
- Referrers
- Medical Physics

4. Location

This Standard Operating Procedure applies to medical exposures being undertaken in the Radiology Departments at the North Devon District Hospital, Barnstaple; Bideford and District Hospital, Bideford; and Tyrell Hospital, Ilfracombe.

Staff undertaking ionising radiation exposures at these sites must be able to demonstrate competence as per the organisations policy on assessing and maintaining competence.

5. Equipment

All Radiology imaging equipment on the above sites including General and A+E x-ray units, AMX Mobile imaging machines, Dental imaging equipment, Mobile Image Intensifiers, Interventional fluoroscopy equipment, CT and DEXA.

6. Procedure

6.1. Responsibility of the Operator

It is the responsibility of the Operator to ensure that all relevant exposure information for each patient is recorded on the Radiology Information system. This will allow the Medical Physics Expert to calculate patient doses if necessary.

For the majority of procedures following the trust standard protocol this would include the region of the body exposed and one of the following:

- Dose Area Product (DAP) value
- kVp & mAs where DAP meters are not fitted
- Dose Length Product (DLP) for CT examinations (a single screen shot of final patient dose will be sent to PACs

Where the standard protocol is not followed, the reason behind this (e.g. obese patient) should be recorded along with the kV and mAs values used.

For Dental examinations where DAP value is not available kV, mAs and exposure time will be recorded.

6.1.1 Recording of Patient Skin Dose for Very High Dose Interventional Procedures

The recording of patient skin dose for very high dose interventional procedures, on the Siemens Artis Zee, is described in the “Recording Clinical Evaluation and Dose” – IR(ME)R 2017 SOP.

6.2. Responsibility of the Medical Physics Expert (MPE)

The MPE will provide national DRLs for reference and assist in the production of local DRLs.

Upon request from the Radiology Services Manager or nominated deputy, a Medical Physics Expert will provide an estimate of patient dose (for “normal” patient build) using a Monte Carlo Based dose calculator that uses current risk and weighting factors.

For more complex investigations, (e.g. those involving a mixture of fluoroscopy and radiography), the dose estimates will be produced by a Medical Physics Expert, using methods derived from and traceable to techniques published by national authorities (e.g. PHE) or otherwise published in peer-reviewed scientific journals.

In all cases, full documentation of measurement results and traceable methodology will be maintained by the Medical Physics Department. This will be provided:

- In summary for to the Medical Exposures Committee annually.

- Immediately to the Radiation Protection Advisor if any repeat dose evaluation shows a variance of >25% from a previous assessment.

- In full summary to the radiology Department on request.

6.3. Periodic re-assessment.

Assessment of patient dose is monitored by annual audit of exposure information by the RPS, Senior Radiographers, MPE and RPA.

The relationship between DRL and Patient dose will be validated by the MPE at a minimum frequency of every 3 years.

7. References

- Ionising Radiation (Medical Exposures) Regulations 2017. Statutory Instruments 2017 No 1322
  http://www.legislation.gov.uk/uksi/2017/1322/pdfs/uksi_20171322_en.pdf
- Radiology authorisation and IRMER assessment working practice document.
- Ionising (Medical Exposures) Regulations 2000. Statutory Instruments 2000 No 1059 –

  http://www.opsi.gov.uk/si/si2000/20001059.htm
- IRMER – Ionising Radiation (Medical Exposures) Amendment Regulations 2006

  http://www.opsi.gov.uk/si/si2006/uksi_20062523_en.pdf

8. Associated Documentation

- Northern Devon Healthcare NHS Trust Radiation Policy