Radiation Safety Policy

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Author:	**Lynsey McKay, Radiation Protection Adviser (NHS Grampian)**
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NHS Shetland Document Development Coversheet*

Name of document	Radiation Safety Policy		
Document reference number	MDPOL011	**New or Review?**	Review
Author	Lynsey McKay, Radiation Protection Adviser (NHS Grampian)		
Executive lead	Brian Chittick, Interim Medical Director		
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Proposed groups to present document to:		
CCPGC		

Date	Version	Group	Reason	Outcome
02/12/19	4.0	CCPGC		

Examples of reasons for presenting to the group	**Examples of outcomes following meeting**
• Professional input required re: content (PI)	• Significant changes to content required – refer to Executive Lead for guidance (SC)
• Professional opinion on content (PO)	• To amend content & re-submit to group (AC&R)
• General comments/suggestions (C/S)	• For minor revisions (e.g. format/layout) – no need to re-submit to group (MR)
• For information only (FIO)	• Recommend proceeding to next stage (PRO)
• For proofing/formatting (PF)	• For upload to Intranet (INT)
• Final Approval (FA)	• Approved (A) or Not Approved, revisions required (NARR)

***To be attached to the document under development/review and presented to the relevant group**

Please record details of any changes made to the document in the table below

Date	Record of changes made to document
Nov 2019	Reflect changes of new IRR and IRMER 2017 Policies

Contents

Radiation safety policy statement

NHS Shetland will ensure, as far as is reasonably practicable, the health and safety of members of the public, of its employees and of contractors working on the premises who may be exposed to the hazards arising from the use of ionising and non-ionising radiation.

NHS Shetland is committed to a policy of keeping exposures to ionising and non-ionising radiation as low as reasonably practicable. NHS Shetland will engage the services of the NHS Grampian Radiation Protection Service to advise on compliance with the relevant legislation, including the provision of a Radiation Protection Adviser, Medical Physics Expert and other experts as required by service expansion. Radiation Protection Supervisors (RPS) will be appointed in appropriate departments to enable work with ionising radiation to be carried out in a safe manner.

All radiation facilities will be designed to meet the requirements of relevant regulations and supporting documentation to ensure that doses to members of the public, patients and employees are as low as reasonably practicable and consistent with relevant guidelines and limits. Local Rules will be prepared to cover all procedures using ionising radiation, and for non-ionising radiation on the advice of appropriate experts. Radiation doses to all staff working with ionising radiation will be monitored by means of whole body dosimeters, extremity dosimeters and/or environmental monitoring, as deemed appropriate by the RPA.

Minimising radiation doses to patients will be a prime factor in the selection of X-ray equipment. Quality Assurance tests will be carried out at regular intervals on all equipment involved in patient exposure with ionising radiation, as required by current legislation. All staff working with ionising and non-ionising radiation will be given training to enable them to carry out their duties safely and in line with current legislation.

Note: NHS Shetland Provision for the implementation of the Ionising Radiation (Medical Exposure) Regulations 2017 are described in a separate policy document entitled **Policy on the Implementation of the Ionising Radiation (Medical Exposure) Regulations 2017 in NHS Shetland.**

1. Persons responsible for implementation of the policy

NHS Shetland is committed to a policy of restricting exposures to ionising and non-ionising radiations through the following organisational arrangement and responsibilities.

Overall responsibility for the safe use of ionising and non-ionising radiations within NHS Shetland lies with the Chief Executive Officer. The Medical Director is responsible to the Chief Executive Officer for all matters related to the safe use of ionising and non-ionising radiations within NHS Shetland.

NHS Shetland will engage the services of the NHS Grampian Radiation Protection Service, including the written appointment of a Radiation Protection Adviser (RPA) with appropriate experience and qualifications, to advise on all matters concerning the use of ionising radiations. (See Appendix 1)

NHS Shetland will have a Radiation Safety Committee (RSC) chaired by the Medical Director and attended by the RPA and other experts as required. This committee oversees the management of radiation safety within NHS Shetland and reports back to the CEO. In addition to the Medical Director and RPA, the Radiation Safety Committee will consist of Managers and RPSs from departments where ionising and non-ionising radiations are used. This committee will meet at least once every six months.

The committee is responsible for:

- Ensuring the provisions detailed in this policy are followed;
- Reviewing the radiation protection arrangements in NHS Shetland;
- Reviewing and auditing compliance with the Ionising Radiation Regulations 2017 (IRR17) and the Ionising Radiation (Medical Exposure) Regulations 2017 (IR(ME)R2017);
- Reviewing non-ionising radiation safety arrangements;
- Promoting a culture of radiation safety within NHS Shetland;
- Reviewing the auditing of quality assurance programs in NHS Shetland;
- Receiving guidance from the RPA /MPE on radiation matters;
- Reviewing and when necessary acting upon the findings of investigations into radiation incidents.

1.1. Ionising radiation

The Radiation Protection Service (Appendix 1) is responsible to Shetland NHS Board, under contract, for provision of an advisory service and quality assurance and dose monitoring programmes. The MPE from this service will be available for consultation on optimisation, including patient dosimetry and quality assurance, and to give advice on radiation equipment procurement.

Departmental managers in Medical Imaging and Dentistry, with the advice of the RPA, are responsible to Shetland NHS Board for ensuring compliance with IRR17 and the provisions set out in this policy within their departments. This will include ensuring suitable risk assessments are carried out, local rules are produced for all radiation controlled and supervised areas, for issuing personal radiation monitors and consulting the RPA on matters of compliance.

Responsibility for supervising the work with radiation and ensuring that it is done in accordance with the Local Rules will lie with Radiation Protection Supervisors (RPSs) appointed in writing by the chair of the Radiation Safety Committee. (See Appendix 1).

Responsibility for ensuring that all ionising radiation equipment satisfies radiation safety requirements and is subject to an appropriate replacement programme will rest with the Head of Medical Imaging or the Dental Director. (See Appendix 1).

It is the responsibility of every Board employee working with radiation to be aware of the Local Rules and precautions necessary to carry out their work in a safe manner. It is their responsibility not to expose themselves or any other person to radiation to a greater extent than is reasonably necessary for the purpose of their work.

2. Procedures for compliance with IRR17

2.1. Notification, registration and consent

The appointed RPA will advise NHS Shetland as to which notifications, registrations or consents need to be obtained from the HSE. A list of current registrations is contained in Appendix 2.

2.2. Radiation Protection Adviser

At least one Radiation Protection Adviser must be appointed by the Chair of the RSC for consultation regarding all work with ionising radiation. The RPA must be able to provide evidence that they are suitably qualified and experienced upon request.

NHS Shetland must consult the RPA on the following matters:

- ensuring that suitable risk assessments have been carried out for all practices using ionising radiation;
- the designation of controlled and supervised areas;
- the prior examination of plans for installations and the acceptance into service of new or modified sources of ionising radiation in relation to any engineering controls, design features, safety features and warning devices needed to restrict exposure to ionising radiation;
- the regular calibration of equipment provided for monitoring levels of ionising radiation and the regular checking that such equipment is serviceable and correctly used;
- the periodic examination and testing of engineering controls, design features and warning devices and regular checking of systems of work provided to restrict exposure to ionising radiation; and
- any other matters relating to compliance with the regulations.

2.3. Classified workers

Doses to staff working for NHS Shetland must be as low as reasonably practicable. Employees must be designated as classified if they are likely to receive an effective dose greater than 6mSv per year, or an equivalent dose greater than 15mSv per year to the lens of the eye, or greater than 150mSv per year to the skin or extremities.

There are no classified workers in NHS Shetland and it is highly unlikely that classification would need to be considered.

2.4. Outside workers

An outside worker is a worker of another employer who carries out work in an NHS Shetland controlled area. This may include radiation equipment service engineers and applications specialists. Departmental procedures must be in place to ensure that they are appropriately trained, monitored and comply with the local rules.

2.5. Handover of controlled areas

Control of an NHSS radiation area may be temporarily transferred to another employer, with the other employer carrying responsibility for workers in that area and for compliance with IRR17. This process should be documented using the standard NHS Scotland X-ray Equipment / Controlled Area Handover Form. In this case, workers of the other employer are not classed as outside workers (see 2.4 above).

2.6. Risk assessments

A risk assessment must be carried out before any new work starts which involves ionising radiation to establish:

- the nature of the exposures to ionising radiation including dose rates;
- results of any previous dosimetry or area monitoring relevant to the work;
- requirements for dose monitoring;
- designation of controlled or supervised areas;
- requirements based on advice from the manufacturer;
- engineering controls and design features present or planned;
- safe working procedures;
- effectiveness and suitability of PPE;
- possible accident situations and steps to limit their likelihood and consequences; and
- contingency plans.

The risk assessment should be used as a tool to determine the control measures necessary to ensure doses arising from the work are as low as reasonably practicable. It is the responsibility of Department Managers to ensure that risk assessments are carried out and cover all uses of ionising radiation. Department managers must have provisions in place to ensure that risk assessments are reviewed at yearly intervals and when conditions change. The RPA should be involved in drawing up and reviewing risk assessments.

2.7. Local Rules

Local Rules set out procedures designed to minimise radiation doses to staff, patients and members of the public. Local Rules will be in place for each controlled area. The Local Rules include systems of work which must be followed at all times. Local rules will be written at department level with the advice of an RPA. As a minimum, local rules must contain:

- clear working instructions designed to minimise exposure;
- identification and description of the radiation areas;
- names of the RPS and RPA with contact details;
- arrangements to restrict access;
- requirements for dose monitoring and investigation levels; and
- contingency arrangements.

Local rules must be reviewed at least every 3 years. Departmental managers must ensure that the local rules are brought to the attention of everyone affected by them at their induction and whenever there is a revision. Departments must have procedures in place for recording this process.

2.8. Radiation Protection Supervisors

NHSS must appoint suitably trained persons as Radiation Protection Supervisors (RPSs) for all radiation controlled areas. RPSs must be appointed in writing by the Chair of the RSC. All RPSs must undergo initial and refresher training, the provisions of which are set out in the EP6.

RPSs are responsible for supervising the work with radiation and ensuring that it is done in accordance with the local rules. RPSs are responsible to their Departmental Manager for all matters relating to radiation safety.

2.9. Personal monitoring

The risk assessment process should be used as a means of determining which staff groups should be routinely monitored. Whole body dosimeters, collar dosimeters and/or extremity dosimeters will be issued to staff identified in the risk assessment or as deemed appropriate by an RPA. All staff issued with a personal dosimeter must wear it as directed and return it as instructed.

Periodic monitoring of other staff and of environmental doses in the workplace will be carried out as indicated by the risk assessment or as deemed appropriate by an RPA.

2.10. Dose investigation levels and dose investigations

Dose investigation levels will be set, on advice from an RPA, at a level that takes into account the working practices and protection measures in each area. Investigation levels will be used as a means of constraining staff doses to a level that represents good practice. Staff dose records will be monitored by the Radiation Protection Service and by the Departmental Manager. The Radiation Protection Service will raise a Datix report for any instance where a member of staff exceeds an investigation level. The Departmental Manager is then responsible for carrying out a suitable investigation and reporting back to the RPA who will then determine if additional action is required.

2.11. Personal Protective Equipment (PPE)

The risk assessment will determine what PPE is required for each staff group. An RPA must be consulted on the selection of PPE and its suitability for the application and for the wearer. Staff must be informed of the correct use and care of the equipment provided. Staff must use PPE correctly as detailed in the local rules, report any defects and ensure it is stored correctly.

2.12. Arrangements for pregnant staff working with ionising radiation

Anyone working with ionising radiation must inform their line manager as soon as they know they are pregnant to allow a risk assessment to be performed. This will determine any measures necessary to ensure that the dose to the foetus is as low as reasonably practicable and unlikely to exceed 1mSv over the remainder of the pregnancy. Any particular arrangements regarding pregnant staff will be documented in each department's local rules.

2.13. Radiation Equipment and Engineering Controls

All equipment producing ionising radiation must have passed a Critical Examination before it is put into clinical use to ensure that any safety features and warning devices operate correctly and that there is sufficient protection for persons from exposure to ionising radiation. This is the installer's responsibility; this requirement should be included in the contract drawn up with equipment suppliers.

Regular checks must be carried out on all engineering controls designed to restrict exposure e.g. warning lights, emergency off buttons and on PPE. These checks and their frequencies are detailed in department procedures. The RPA must be consulted for advice on quality assurance issues.

3. Non-Ionising Radiation

The Radiation Protection Service will provide expert advice for areas where hazardous exposure to non-ionising radiation may occur. This will include the preparation of risk assessments and local working procedures where necessary.

4. Staff Training

NHSS will ensure that employees engaged in or directly concerned with work involving ionising radiation are given radiation training, instruction or information as appropriate on how to protect themselves and others from the hazards of radiation.

Employer's procedure EP6: Radiation Training Standard details the level of training required for individual staff groups.

Procedures must be in place in each department to ensure that staff undertake refresher training at appropriate intervals of not more than 3 years and that records are kept.

Appropriate training in the correct use of new equipment will be given to all staff, where it is required.

All training will be adequately recorded according to the provisions set out in the NHS Shetland Implementation of the Ionising Radiation (Medical Exposure) Regulations 2017 Policy.

5. Radiation protection audit

Departmental managers are responsible for carrying out audits of compliance with this policy and the regulations within their departments. The Radiation Protection Service will assist in carrying out the audits. Departmental managers must submit an audit report to the Radiation Safety Committee at 2-yearly intervals. Practices in minor installations will be reviewed at intervals considered appropriate by the RPA.

6. Investigation and reporting of adverse events and near misses

All adverse events and near misses involving ionising radiation must be reported according to the provisions of the ‘Learning from Adverse Events through Reporting and Review Procedure’. Employer’s procedure EP5 details the process for reporting and investigating adverse radiation events and near misses, and determining whether these are externally reportable and to which regularly body.

Abbreviations

Abbreviation	Full term
HSE	Health & Safety Executive
IR(ME)R	Ionising Radiation (Medical Exposure) Regulations 2017
IRR17	Ionising Radiation Regulations 2017
MPE	Medical Physics Expert
mSv	MilliSieverts: a measure of radiation
RPA	Radiation Protection Adviser
RPS	Radiation Protection Supervisors

Appendix 1 – Roles and contacts

Shetland NHS Board representative with responsibility for radiation issues

Medical Director

Radiation Protection Adviser / Medical Physics Expert

Radiation Protection Service
Orange zone Level 1
Aberdeen Royal Infirmary
Foresterhill
Aberdeen
AB25 2ZN

Tel: 01224 553257 or ext 53209

Radiation Safety Committee

Medical Director (Chairman)

Head of Service, Medical Imaging Department (Departmental Manager for IRR17)

Radiation Protection Adviser

Radiation Protection Supervisor(s)

Dental Director (Departmental Manager for IRR17)

Occupational Health Advisor

Director of Patient Services

Health and Safety Manager

Radiation Protection Service

Radiation Protection Service
Orange zone Level 1
Aberdeen Royal Infirmary
Foresterhill
Aberdeen
AB25 2ZN

Tel: 01224 553257 or ext 53209

Radiation Protection Supervisors

Medical X-ray facilities: appointed senior radiographers, Medical Imaging Department, Gilbert Bain Hospital. Tel: 01595 743158

Dental X-ray facilities: the dentist in charge of each practice (excluding independent contractors) with the Dental Director having overall responsibility as appropriate.

Appendix 2 – List of current registrations under IRR17

Type of License under IRR17	Activities	Applicable areas	Certificate no.
Registration	Working with a radiation generator (for example, X-ray devices)	NHS Shetland sites	DEC-15531-N1S8D8-D7R6