



Healthcare  
Improvement  
Scotland

Inspections  
and reviews  
To drive improvement

# Announced Inspection Report – Ionising Radiation (Medical Exposure) Regulations 2017

Ross Hall Hospital, Glasgow  
Circle Health Group

7 December 2022

Healthcare Improvement Scotland is committed to equality. We have assessed the inspection function for likely impact on equality protected characteristics as defined by age, disability, gender reassignment, marriage and civil partnership, pregnancy and maternity, race, religion or belief, sex, and sexual orientation (Equality Act 2010). You can request a copy of the equality impact assessment report from the Healthcare Improvement Scotland Equality and Diversity Advisor on 0141 225 6999 or email [contactpublicinvolvement.his@nhs.net](mailto:contactpublicinvolvement.his@nhs.net)

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# About our IR(ME)R inspections

## Our approach

Healthcare Improvement Scotland has a statutory responsibility to provide public assurance about the quality and safety of healthcare through its inspection activity.

The quality of care approach and the quality framework together allows us to provide external assurance of the quality of healthcare provided in Scotland.

- **The quality of care approach** brings a consistency to our quality assurance activity by basing all of our inspections and reviews on a set of fundamental principles and a common quality framework.
- **Our quality framework** has been aligned to the Scottish Government's *Health and Social Care Standards: My support, my life* (June 2017). These standards apply to the NHS, as well as independent services registered with Healthcare Improvement Scotland. They set out what anyone should expect when using health, social care or social work services.

We have aligned the Ionising Radiation (Medical Exposure) Regulations (IR(ME)R) 2017 to the quality framework.

## How we inspect services that use ionising radiation for medical exposure

The focus of our inspections is to ensure each service is implementing IR(ME)R 2017. Therefore, we only evaluate the service against quality indicators that align to the regulations.

## What we look at

We want to find out:

- how the service complies with its legal obligations under IR(ME)R 2017 and addresses the radiation protection of persons undergoing medical exposures, and
- how well services are led, managed and delivered.

After our inspections, we publish a report on how well a service is complying with IR(ME)R and its performance against the Healthcare Improvement Scotland quality framework.

More information about the quality framework and quality of care approach can be found on our website:

[www.healthcareimprovementscotland.org/our\\_work/governance\\_and\\_assurance/quality\\_of\\_care\\_approach.aspx](http://www.healthcareimprovementscotland.org/our_work/governance_and_assurance/quality_of_care_approach.aspx)

# Summary of inspection

## About our inspection

We carried out an announced inspection to the Ross Hall Hospital, Glasgow (Circle Health Group) on Wednesday 7 December 2022. We spoke with a number of staff including the chief executive, IR(ME)R lead, radiologists and radiographers. The inspection team was made up of two inspectors.

Ross Hall Hospital offers plain film, computerised tomography (CT) and mammography. The focus of this inspection is the imaging department.

## What we found

### What the service did well

- Clinical audits are carried out regularly and we saw evidence of tangible improvements made as a result.
- The multidisciplinary optimisation group proactively drives improvement, which is supported by work to enhance optimisation.
- Radiographers and radiologists engage in peer review to promote learning and drive improvement.
- We saw a robust approach to training and quality assurance in place.

### What the service needs to improve

- While a robust approach to entitlement was in place, individuals' scope of practice should continue to be reviewed to ensure documentation is accurate.

Detailed findings from our inspection can be found on page 7.

## What action we expect Circle Health Group to take after our inspection

This inspection resulted in no requirements and no recommendations.

We would like to thank all staff at the radiology department, Ross Hall Hospital, for their assistance during the inspection.

# What we found during our inspection

## Outcomes and impact

This section is where we report on what key outcomes the service has achieved and how well the service meets peoples' needs.

### Domain 1 – Key organisational outcomes

High performing healthcare organisations identify and monitor key measures that help determine the quality of service delivery and the impact on those who use the service or work with the service.

IR(ME)R requires those who refer for a patient to be exposed to medical radiation, those who operate equipment and those healthcare professionals (medical and non-medical) who justify the procedure is necessary, must be adequately trained and entitled to do so. Entitlement is given to each person involved in the process by the employer.

### What we found - fulfilment of statutory duties and adherence to national guidelines

#### Entitlement

The process of entitlement sets out the scope of practice an individual can carry out, such as the types of referrals, operate equipment and carry out clinical evaluations. The scope of practice depends on the individual's qualifications, role, training and experience and can change over time, following additional training or moving to a new role. The individual is required to work within this scope of practice.

Employer's procedure EP2B (Procedure to identify individuals entitled to act as referrer or practitioner or operator within a specific scope of practice) provides guidance on the entitlement process. It also provides clear guidance on the roles and responsibilities and the scope of practice within each role.

All radiologists who are fellows of the Royal College of Radiologists are entitled to carry out justifications and clinical evaluations. A radiologist is a doctor who is specifically trained to interpret diagnostic images, such as x-ray and CT scans. The executive director has delegated the function of entitling consultants to Ross Hall Hospital's lead radiology consultant. Radiologists receive a formal letter detailing their scope of practice.

Radiographers are entitled, depending on their training, to act as operators and carry out justifications and reporting of plain film x-rays. Each radiographer had a record of entitlement, which clearly describes their role and is aligned to their competency and training. Entitlement is issued by the imaging clinical services manager.

Another group of staff who are entitled to make referrals are non-medical referrers, healthcare professionals who are not doctors or dentists. A detailed information pack is sent to applicants. It outlines their roles and responsibilities under IR(ME)R and training expectations and standards are identified. Applications are reviewed by the lead radiologist, who only grants referral rights to those who complete the required training, demonstrate competency and a clinical need to refer. Non-medical referrers are encouraged to consider an alternative to ionising radiation. We saw evidence that entitlement was granted for MRI and ultrasound more often than for x-ray or CT.

### Referral

Referrals are received by the radiology department from a variety of sources from within the hospital, from other hospitals and from the community. Referrals are made on a paper form, which is then scanned onto the radiology information system.

A referral can only be made by a person who is entitled to do so. Employer's procedure EP2B (Procedure to Identify individuals to act as referrer or practitioner or operator within a defined scope of practice) sets out the process and provides guidance about the clinical information required. The role of the referrer is recorded on the referral form and can be checked against their entitlement. When a referral is received by non-medical referrer, radiographers will check the referrer's scope of practice against the list of non-medical referrers. Radiographers told us this process works well and the list is easy to access. We were told if a referral is received outwith an individual's scope of practice, it is rejected.

### Justification

Radiologists review all referrals other than plain film x-ray to ensure sufficient information to be able to justify the referral. They would also choose the correct protocol for the medical exposure of ionising radiation.

Some radiographers have completed training to justify under protocol for plain film x-rays. A radiologist is always available to support radiographers if needed. We are assured staff would choose the correct protocol for the medical exposure and processes are in place to demonstrate staff are entitled to justify and they are adequately trained to do so.



All staff told us a patient's clinical information is reviewed when a referral is justified, in line with EP2B. Radiographers ask the patient if they have had any previous imaging to prevent duplicate exposures. If they have, these can be obtained, including images taken by any NHS board.

### Records

We looked at the information recorded on the radiography information system and noted that staff had documented:

- the correct patient information
- details of the referrer and operator
- identification checks
- pregnancy checks
- the recorded dose
- justification, and
- clinical evaluation.

Radiography staff could describe the checks they would carry out before recording information and where they would get the dose information.

- No requirements.
- No recommendations.

## Service delivery

This section is where we report on how well the service is delivered and managed.

### Domain 5 – Safe, effective and person-centred care delivery

High performing healthcare organisations are focused on safety and learning to take forward improvements, and put in place appropriate controls to manage risks. They provide care that is respectful and responsive to people’s individual needs, preferences and values delivered through appropriate clinical and operational planning, processes and procedures.

### What we found - safe delivery of care

#### Safety culture

We were told about a positive safety culture and strong working relationships were evident. Staff felt confident to report mistakes and near misses and were clear about the procedures for reporting and investigating incidents. Staff were also clear that learning from incidents is shared to reduce the chance of something similar happening again.

We saw PAUSE posters prominently displayed in each clinical room in the radiology department to remind staff to take the time when carrying out appropriate checks before carrying out patient exposures. Staff also assured us they are never pressured to rush an exposure.

#### Employer’s procedures

Employers have a duty under IR(ME)R to develop written procedures commonly referred to as employer’s procedures. These are intended to provide a framework under which professionals can practice. We saw a clear structure for the development and review of its employer’s procedures. Employer’s procedures are also updated when improvements are identified. We saw this in practice when a procedure was updated to accurately reflect the lead radiologist’s role in entitling medical staff.

Employer’s procedures we reviewed were all clear and up to date. All staff we spoke with were familiar with the employer’s procedures and could find them easily.

#### Patient identification

Employer’s procedure EP2A (Procedure to correctly identify the individual to be exposed to ionising radiation) provides guidance on the six point identification

checks to be carried out for all patients before an exposure. These checks are essential to ensure the correct person is being exposed.

All staff we spoke with could clearly describe the checks carried out. They told us they would review the patient's clinical history to check it matches the clinical information received. They would check the site, laterality (part and side of the body to be exposed) and reason for exposure matches the referral and ensure this matches the patients understanding.

If any discrepancies are identified during the identification checks, radiographers told us they would return the referral to the referrer and await a new referral. Radiographers also check for any previous images. They would consult with the referrer to confirm whether a new exposure is required. Once the patient identification checks are complete, this is recorded the radiology information system.

#### Risk benefit conversations

Employer's procedure EP2I (Procedure for radiation risk and benefit) details the procedure for providing information on the risks and benefits associated with the radiation dose from medical exposure. We saw information posters displayed in the radiology department and in changing rooms to inform patients of the risk of an exposure. The posters describe the risk benefit discussion and includes equivalent background radiation for a range of exposures to provide valuable information to the patient.

#### Making enquiries of individuals who could be pregnant

Employer's procedure EP2C (Procedure for making enquiries of individuals of childbearing potential) provides guidance for carrying out pregnancy status checks before any exposure. All radiographers we spoke with were familiar with the procedure. They told us everyone aged between 12 and 55, for exposures where the lower diaphragm and upper thigh are directly in the primary beam, are asked the pregnancy status questions.

A new form has been developed, which the patient signs to confirm there is no risk they might be pregnant. This form is scanned on to the radiology information system. All radiographers we spoke with confirmed pregnancy checks are always carried out.

The radiographer can check both the pregnancy status check form and the pregnancy test results from the patient's notes if a patient is unconscious in theatre. They can then confirm there is no risk of pregnancy before carrying out the exposure.

The referring clinician will make the final decision about whether to proceed if a patient is confirmed to be pregnant. Radiographers were not aware of any times when this had happened.

Information posters displayed in the diagnostic department also highlighted the need to inform a member of staff of any possibility that the patient may be pregnant.

#### Carers and comforters procedures

Employer's procedure EP2N (Procedure to establish appropriate dose constraints guidance for the exposure of carers and comforters) provides clear guidance on the authorisation of an exposure to a carer or comforter, such as the mother of a child. All staff could describe the measures they would take to encourage carers and comforters to reduce their exposure or leave the room if possible. However, the nature of the service means a carer or comforter has not been needed.

#### General duties in relation to equipment

Quality assurance checks are carried out on all equipment and the frequency required is clearly documented and complied with.

An equipment register records the details of all equipment. A maintenance programme is also in place.

#### Optimisation

Dose optimisation is the balance between the lowest dose and the image quality that is clinically suitable. All operators we spoke with could describe how they would select the correct protocol for the intended purpose. Both radiologists and radiographers told us they would always consider if there is an alternative to ionising radiation.

Radiographers take an active role in dose optimisation. An example of this is work underway to monitor the dose for head CT scans. The radiographer has worked with the medical physics expert and the applications specialist to optimise images and continues to monitor dose and image quality on an ongoing basis.

The medical physics expert carries out dose audits. This information is used to set local dose reference levels for every piece of equipment. We saw local dose reference levels displayed near equipment. Should the recorded value of an exposure be outside agreed limits, an investigation will be carried out. The investigation will consider the patient details, the quality of the image taken, the protocol used and scan range.

Circle Health Group has a multidisciplinary optimisation group, which includes representation from Ross Hall Hospital. We saw very good examples of the optimisation group reviewing the dose information from each hospital and identifies any anomalies and any actions required. Examples of this included a CT sinus review and a CT chest abdomen and pelvis review.

#### Accidental or unintended exposure

Employer's procedure EP2L (Procedure for unintended and accidental exposure) details the procedure to follow when an error has taken place. The process of reporting and investigating incidents was well understood by all staff we spoke with. We were told about a culture that supports the reporting of incidents and sharing lessons learned. Learning is shared nationally throughout out Circle Health Group.

- No requirements.
- No recommendations.

### Domain 6 – Policies, planning and governance

High performing healthcare organisations translate strategy into operational delivery through development and reliable implementation of plans and policies, and have effective accountability, governance and performance management systems in place.

#### What we found - policies and procedures

Circle Health Group has identified an imaging lead who is responsible for the implementation of IR(ME)R in all of its hospitals. This is set out in its IR(ME)R implementation procedure. All hospitals are supported by a corporate team who have expertise in medical physics and radiation protection.

#### What we found - risk management, audit and governance

The local radiation protection committee is chaired by the imaging lead. It meets once each year and reviews implementation of IR(ME)R, any near misses and incidents. It is attended by the radiologist, medical physics expert and director of clinical services. The group also links with the following.

- The national radiation protection advisory board. This meeting takes place every 3 months and includes regionally appointed medical physics experts representing their Circle Health Group hospitals. This group reviews all employer's procedures.

- The corporate radiation protection committee includes core membership from the medical director, consultant radiologist, medical physics expert, radiation protection advisor and the national lead for imaging and diagnostics. These staff represent all of Circle Health Group's hospitals across the UK. Minutes of this meeting are shared with the Ross Hall Hospital's imaging lead. The committee is also aligned with, and feeds up to, the Circle Health Group's health and safety committee.

IR(ME)R is also discussed at the Ross Hall Hospital clinical governance meeting every 2 months and the health and safety committee. This is attended by all departments in the hospital.

We are assured the governance arrangements in place provide the chief executive with the necessary assurance about the implementation of IR(ME)R.

#### Clinical audit

Circle Health Group has a comprehensive IR(ME)R compliance audit, which is completed regularly. The results of this are used to develop an action plan to drive improvement.

We saw a proactive approach to clinical audit in place. Several radiographers lead on these – the scope of the clinical audits includes:

- monitoring the dose from CT scans of the head
- observing radiographers carrying out identification checks to ensure best practice guidelines are followed
- radiographers compliance with pregnancy checks on the radiology information system, and
- reject analysis (review any rejected exposures) to assist with learning and improvement.

Peer review is encouraged in Ross Hall Hospital. Radiographers and radiologists regularly peer review exposures and reports.

An annual report of all audits is sent to the radiation safety committee. We saw an annual audit and noted the outcomes are shared throughout the department and action plans are developed. We saw evidence of improvements resulting from these audits, such as the optimisation of head CTs following the ongoing dose audit.

- No requirements.
- No recommendations.

## Domain 7 – Workforce management and support

High performing healthcare organisations have a proactive approach to workforce planning and management, and value their people supporting them to deliver safe and high quality care.

### What we found - staff recruitment, training and development

#### Expert advice

Medical physics expertise is provided by St George's Hospital in London. The medical physics expert for Ross Hall Hospital is appointed by a letter. They provide expert advice in relation to compliance with IR(ME)R. Staff told us the medical physics experts are easily contactable and available for advice and support. They are involved in a variety of areas such as:

- commissioning of new equipment
- acceptance testing of new equipment
- local dose reference levels
- dose monitoring, and
- analysis of incidents.

We were told that the medical physics experts provide an annual report to Ross Hall Hospital following an onsite visit.

Medical physics experts also provide advice on whether or not an incident requires to be reported to Healthcare Improvement Scotland.

#### Training

We found comprehensive training records in place for staff involved in medical exposure to radiation. Records showed training had been provided for each piece of equipment used. Radiographers told us they are never asked to use equipment unsupervised until they have been assessed as competent. We saw a sample of records and the entitlement records corresponded to the training records.

Ross Hall Hospital has identified designated trainers, who are clearly identifiable and trained by the applications specialist. They deliver training to other radiographers on both the use of the equipment and how to quality assure equipment. Clinical leads have further input from the application specialist when required to optimise the equipment.

IR(ME)R training is delivered by Circle Health Group and all radiology staff complete this regularly. Some staff have also completed an advanced IR(ME)R course.

- No recommendations.
- No recommendations.



## Appendix 1 – Requirements and recommendations

This inspection resulted in no requirements and no recommendations.

## Complaints/Concerns

If you would like to raise a concern or complaint regarding any aspect of the inspection then please discuss this with the lead inspector in the first instance.

If there is a concern or complaint about the conduct of an inspector please contact Kevin Freeman-Ferguson, Head of Service Review, [kevin.freeman-ferguson@nhs.scot](mailto:kevin.freeman-ferguson@nhs.scot) in the first instance to discuss your concerns in more detail.

Alternatively, Healthcare Improvement Scotland has a complaint and feedback service that can be contacted directly. Details can be found on our webpage.

[http://www.healthcareimprovementscotland.org/about\\_us/contact\\_healthcare\\_improvement/complaints.aspx](http://www.healthcareimprovementscotland.org/about_us/contact_healthcare_improvement/complaints.aspx)

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