Inspection Report

29 March 2023

Lagan Valley Hospital Radiology Department

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Information on legislation and standards underpinning inspections can be found on our website https://www.rqia.org.uk/ and The Ionising Radiation (Medical Exposure) Regulations (Northern Ireland) 2018 known as IR(ME)R

1.0 Service information

Organisation/Registered Provider: South Eastern Health and Social Care Trust (SEHSCT)	**Department Inspected:** Lagan Valley Hospital (LVH) Radiology Department
Name of Employer: Ms Roisin Coulter Chief Executive Officer (CEO) SEHSCT	**Interim Radiology Services Manager (IRSM):** Ms Linda Hamilton
Clinical Director Radiology: Dr Christopher Boyd	**Medical Physics Expert:** Ms Julie Smyth

Brief description of how the service operates:

The LVH radiology department provides adult general radiography services, computed tomography (CT) scans, dual X-ray absorptiometry (DXA) scans and dental scans. The department supports the Urgent Care Centre based on the LVH site Monday to Friday 8am to 8pm with CT cover up to 5pm. After 5pm there is an on call CT service and from 10pm an on call from home limited service for CT brain and C-spine scans. The out of hours service is supported by a consultant radiologist on call for LVH site and a specialist registrar (specialist trainee) covers other Trust sites who is based at the Belfast Health Social Care Trust (BHSCT), Royal Victoria Hospital.

There is a limited paediatric service provided which supports the Urgent Care Centre. An adult fluoroscopy service is provided Monday to Thursday 8am to 4pm for four urology lists in theatre.

Before the inspection Ms Hamilton (IRSM) and her team were asked to complete a self-assessment form (SAF). The submitted SAF confirmed that each year, the LVH radiology department provides 35,596 general radiography, 6525 CT scans, 85 DXA and 197 dental scans. The department consists of two general radiography rooms, one CT scan room, two mobile general radiography units, a DXA scanner, a C-arm fluoroscopy unit (theatre) and one dental unit.

Management confirmed that the position of Trust radiology services manager (RSM) is currently vacant and Ms Hamilton is acting as the IRSM approximately two days a week supported by Trust CT lead and the clinical director of radiology. The current senior management deficits are proving challenging in maintaining the optimum radiology governance oversight. However, it was confirmed that the RSM post is being actively recruited.

The team is supported by a Medical Physics Expert (MPE) contracted from Regional Medical Physics Service (RMPS) based in the BHSCT.

2.0 Inspection summary

On 29 March 2023, warranted Ionising Radiation (Medical Exposure) Regulations (IR(ME)R) inspectors from the Regulation and Quality Improvement Authority (RQIA), with advice being provided by the United Kingdom Health Security Agency (UKHSA) staff carried out an IR(ME)R inspection of LVH radiology department, as part of RQIA's IR(ME)R inspection programme. Remote IR(ME)R inspections had been conducted for inspection years 2020/21 and 2021/22 in line with COVID -19 restrictions. A decision has been taken to resume site based IR(ME)R inspections for the 2022/23 IR(ME)R inspection programme.

For the 2022/23 inspection year the inspections will focus on four key themes:

- Incident management with a focus on audit/action plans and shared learning
- Optimisation including establishing local Diagnostic Reference Levels (LDRLs)
- Entitlement of staff to include training and competency with a focus on those duty holders outside of the radiology department
- Equipment quality assurance (QA) programmes
- Any other areas identified through the review of the submitted self-assessment form and supporting documentation

The purpose of our focus was to minimise risk to service users and staff, whilst being assured that ionising radiation services were being provided in keeping with IR(ME)R (Northern Ireland) 2018.

Previous areas for improvement (if applicable) will also be reviewed.

The service was notified of the inspection date and time; and requested to complete and submit a SAF and include supporting documentation to be reviewed in advance of the inspection. The site inspection process included:

- Discussion with management and staff
- Examination of relevant radiology documentation
- Review of the department and facilities
- Review of patient records to ensure compliance with IR(ME)R
- Discussion with patients/representatives (where appropriate)

IR(ME)R is intended to protect individuals undergoing exposure to ionising radiation as follows:

- Patients as part of their own medical diagnosis or treatment
- Individuals as part of health screening programmes
- Patients or other persons voluntarily participating in medical or biomedical, diagnostic or therapeutic, research programmes
- To carers and comforters
- To asymptomatic individuals
- To individuals undergoing non-medical imaging using medical radiological equipment

3.0 How we inspect

RQIA is responsible for monitoring, inspecting and enforcement of IR(ME)R. The inspection process includes the gathering and review of information we hold about the service, examination of a variety of relevant written procedures, protocols and records, and discussion with relevant staff. RQIA inspection reports reflect on how a service was performing at the time of inspection, highlighting both good practice and any areas for improvement.

The information obtained is then considered before a decision is made on whether the service is operating in accordance with the relevant legislation and professional standards. Examples of good practice are acknowledged and any areas for improvement are discussed with the relevant staff in charge and detailed in the Quality Improvement Plan (QIP).

- As already stated, prior to the inspection, the service was requested to complete a SAF and provide RQIA with all relevant supporting information including written policies and procedures. This information was shared with UKHSA prior to the inspection and was used to direct discussions with key members of staff working within the radiology department and provide guidance for the inspection process.

It is the responsibility of the Employer to ensure compliance with legislation, standards and best practice, and to address any deficits identified during our inspections.

4.0 What people told us about the service

As this was a busy radiology department, patients were awaiting or immediately recovering from radiology procedures, it was deemed inappropriate to seek to speak to these patients on the day of the inspection.

5.0 The inspection

5.1 What has this service done to meet any areas for improvement identified at or since the last inspection?

A previous inspection had not been undertaken of the LVH radiology department under the current IR(ME)R legislation.

5.2 Inspection findings

Management and clinical staff described the internal process for reporting accidental or unintended exposures and how notifiable incidents are reported to the appropriate enforcing authority.

A review of radiology incidents evidenced that they had been reported and investigated, with the findings shared, and action taken to prevent reoccurrence.

There is a good culture of incident reporting across notifiable, non-notifiable incidents and near misses. The investigation of incidents by the Trust showed the identification of learning outcomes and the implementation of safety barriers, as well as providing support for those duty holders involved in the incident.

Where a radiographer/radiologist suspects that a patient has been exposed to an accidental or unintended exposure, the radiation incident is reported to the staff member's line manager and if different, the site lead. The incident is logged on DATIX within 24 hours of occurrence. The site lead reviews the DATIX report and completes a preliminary investigation which may include appropriate corrective action. The site lead notifies the MPE. A reflective diary form is completed by the person reporting the incident which is shared with the site lead and other relevant Trust staff such as the RSM and the chair of the Radiation Safety and MRI subcommittee.

The site lead ensures that all relevant information (documents, emails, reports) relating to the investigation are uploaded to DATIX in a timely fashion throughout the investigation. Preliminary investigation includes statements from all staff involved detailing the sequence of events at time of incident, exposure factors and dose factors for the examination and any relevant observations. The MPE undertakes a dose and risk assessment and advises the RSM of any requirement to notify RQIA of the incident using the "Significant accidental and unintended exposures under IR(ME)R, guidance for employers and duty-holders" (SAUE). The site lead will inform RQIA of SAUE incidents. Governance leads review all incidents weekly using the incident management register which has a traffic light alert coding. A clear action plan will be established and it is the site lead who will ensure actions are undertaken. The governance training and quality improvement lead and the IRSM oversee this process and sign off when the incident has been closed.

If the cause of the incident is due to an equipment defect or failure, the Northern Ireland Adverse Incident Centre (NIAIC) may also be informed.

The clinical decision as to when an incident should be classified as clinically significant accidental and unintended exposures (CSAUE) was discussed. It was confirmed that there was a process for establishing and dealing with a CSAUE and that the Trust had not yet had a CSAUE. The employer's procedure (EP) L, CSAUE, did not fully reflect the decision making process in relation to a CSAUE nor outline clear roles and responsibilities within this process and where this information is to be documented including within the patient notes. An area of improvement has been made to address this.

Feedback to radiology staff for all incidents is through quarterly incident shared learning summary reports via email, Sharepoint and at staff meetings.

Radiation incidents are reviewed as part of the radiology governance structures including at the six monthly radiation safety and MRI subcommittee and any wider organisational learning or remedial actions identified. Learning from incidents may be shared regionally where there is appropriate learning to be disseminated.

It was confirmed that Image optimisation teams (IOTs) have been established and part of the terms of reference of the IOTs is the review of incidents.

Staff demonstrated a good understanding of the action to take in the event of an incident occurring.

A review of a quarterly shared learning from incidents reports found a data analysis of radiology incidents and provided clear root cause analysis to drive improvement.

It was confirmed if a referrer error leads to a radiology incident, the referrer is informed individually and requested to complete a reflective diary form. The incident is shared with the clinical director and the medical director. The IRSM or modality lead will issue a letter to the referrer in relation to the error.

Review of the submitted SAF, supporting documentation and discussion with key staff during the inspection, evidenced that the LVH radiology department have robust arrangements with respect to the management of ionising radiation incidents/near misses and are enthusiastic to ensure these arrangements are regularly reviewed and if necessary improvements are made. The inspection team acknowledge the commitment of staff in this regard.

5.2.2 Does the service have appropriate arrangements in relation to optimisation including establishing local Diagnostic Reference Levels (DRLs)?

Optimisation is a key principle of the radiation protection framework within IR(ME)R. The optimisation process is the joint responsibility of the practitioner, operator and MPE. The aim of optimisation is to achieve the image quality required to answer the clinical question using the lowest dose possible.

Staff and management outlined a range of measures in place to ensure that medical exposures are kept as low as reasonably practicable (ALARP). EP J reflected the arrangements in place, these include:

- Applications training
- Modality specific training
- Radiographic protocols
- Standard operating protocols
- IR(ME)R documents are subject or review and amendment
- Routine equipment maintenance
- Equipment quality assurance
- Use of national DRLs which are displayed in the relevant department
- Appropriate exposure charts
- Incident management
- Management of near misses
- Dose audits
- A multi-disciplinary audit programme

The optimisation of paediatric exposures was discussed and staff outlined the measures taken to optimise these exposures including the use of paediatric protocols, paediatric exposure settings and paediatric exposure charts which are available to radiographers in the general radiology rooms. It was confirmed that a limited paediatric service is provided however it was unclear exactly what type of paediatric medical exposures were undertaken at LVH. Staff stated paediatrics are usually triaged to other Trust sites such as the Ulster Hospital. There was a lack of formality on the range of paediatric radiology services provided on the LVH site.

An area of improvement has been identified to review and formalise the range of paediatric radiology service to be provided on the LVH site and ensure relevant stakeholders are made aware.

Staff described clear arrangements in accordance to EPs for the optimisation of exposures where pregnancy cannot be ruled out and for carers and comforters.

DRLs are radiation dose levels or for nuclear medicine the administered activity for typical diagnostic examinations on standard size adults and children for broadly defined types of equipment for example CT, fluoroscopy or general radiography. DRLs are benchmarks of patient radiation dose, based on dose indices and where certain variables such as equipment type, examination and patient size are standardised to minimise uncertainty. DRLs are often considered the first step in the optimisation process. DRLs should not be consistently exceeded when good and normal practice is applied.

It was confirmed that the Trust have adopted the national DRLs (NDRLs) for adult and paediatric radiography. However, it was noted that the NDRLs submitted to RQIA as part of the supporting documentation for the inspection were not in line with current NDRLs which had been updated and published in November 2022 by UKHSA. In additional it was observed that two sets of NDRLs were displayed in the radiology department, the former NDRLs and the current NDRLs. Staff were unclear which set to follow and were vaguely aware they had been updated. The Trust do not have DRLs for the DXA service as there are no NDRLs available however there are European DXA DRLs which are permitted under IR(ME)R.

It was noted work has been done on collating dose data which has been shared with the MPE for analysis as a first step in establishing local DRLs (LDRLs). This work has been ongoing for a number of years. A number of LDRLs have been proposed and are awaiting review by the MPE before being ratified.

It was confirmed that the IOT is involved in taking the lead in establishing and reviewing LDRLs.

Discussion with management and review minutes of meeting for the IOT confirmed the IOT is working on prioritising the establishment of LDRLs. LDRLs are developed by the IOT and ratified by Radiation Protection Committee (RPC). It was confirmed there are no timescales set to work through the proposed programme of establishing LDRLs. It was emphasised to maintain the momentum of this valuable work timeframes are necessary.

An area of improvement has been identified to in relation to DRLs:

- ensure that only current published NDRLs are displayed and implemented in the radiology department and staff are fully aware of their use
- consider adopting European DXA DRLs
- devise an action plan on the establishment of LDRLs with identified timescales that can be monitored.

It was confirmed that the MPE involvement in optimisation includes the following;

- Involved with and attends IOT meetings
- Provides guidance on dose audits and DRLs, ensuring a consistent approach
- Advice on protocols and on equipment
- Increasingly involved with procurement of equipment and commissioning. MPEs have been present for manufacturer presentations when procuring new equipment and have provided technical advice.

However, MPE resources have been depleted in the last year due to MPE vacancies which has led to a delay in providing some of the above expert support.

Review of the submitted SAF, supporting documentation and discussion with key staff during the inspection evidenced that the LVH radiology department have overall good arrangements with respect to optimisation of medical exposures and are enthusiastic to ensure these arrangements are regularly reviewed and if necessary improvements are made. However, the arrangements for the use of DRLs requires to be strengthened. The inspection team acknowledge the commitment of staff in this regard.

5.2.3 Does the service adhere to legislation in relation to the entitlement of duty holders including assessing training and competency?

Entitlement is the term used to describe the process of endorsement by an appropriate and specified individual within an organisation. They must have the knowledge and experience to authorise on behalf of the Employer, that a duty holder or group of duty holders have been adequately trained and deemed competent in their specific IR(ME)R duty holder roles

There was evidence of induction, training and continuing professional development for all grades of staff. It was suggested to include the dates of training for individuals in the electronic training matrix record.

Systems are in place to check the professional qualifications and registration of all employees with their appropriate professional bodies. It was confirmed comprehensive systems were in place to provide annual appraisals for all grades of staff and individual development needs are identified as part of this process. Consultant radiologists have their appraisals undertaken by an approved medical appraiser. It was confirmed that entitlement is reviewed at annual appraisal and adjusted accordingly if a staff member's scope of practice had changed.

Individual entitlement records for a consultant radiologist, radiographers and non-medical referrers (NMRs) were reviewed. Overall the individual records were found to be well completed. It was advised to further develop the operator function of equipment QA in the record of entitlement for radiographers. The arrangements for entitlement of NMR were very robust and it was good to evidence that they are subject to regular review. Group entitlement records were reviewed for MPEs, whilst they clearly evidenced the entitlement of this group of staff, it was noted that they had been entitled by the previous RSM in April 2021. An area of improvement was identified to review the entitlement process for MPE.

The entitlement of staff outside the radiology department such as those who may act as a duty holder in theatres was discussed. It was noted that urologists clinically evaluate medical exposures undertaken in theatre.

Clinical evaluation is an operator task under IR(ME)R and therefore these individuals should be entitled as an operator duty holder role. An area of improvement was identified to ensure staff undertaking clinical evaluation of medical exposures are subject to the entitlement process as an operator.

As stated previously specialist registrars (specialist trainees) provide an out of hours' service, however these specialist registrars have not been entitled as duty holders in line with their scope of practice. Advice was provided on how to ensure a robust approach to the entitlement process for this group of staff. It was advised to ensure the entitlement reflects a clear scope of practice for individual duty holders and responsibilities. An area of improvement was identified to ensure radiology specialist registrars (specialist trainees) are entitled as duty holders in line with their scope of practice.

EP B on entitlement, sets out the arrangements for entitlement and provides a sound framework for the entitlement process and it was advised to update this EP in line with changes to the entitlement process.

The duty holder roles of operator and practitioner were examined in relation to the justification and authorisation of exposures. Justification is the intellectual activity of weighing up the expected benefits of an exposure against the possible detriment of the associated radiation dose and is the primary role of the practitioner. Authorisation is a process separate to justification and is the documentation that the intellectual activity of justification has taken place. It is not always possible for a practitioner to review every imaging referral, so regulations allow for an appropriately entitled operator to authorise an exposure following written authorisation guidelines issued by a named practitioner. The practitioner is responsible for the justification of any exposure that is authorised by an operator following the authorisation guidelines. The operator is responsible for the authorisation and following the authorisation guidelines accurately. Authorisation guidelines must be clearly written using precise statements that are unambiguous in order to allow the operator to confirm whether the referral can be authorised.

A range of authorisation guidelines were reviewed and they were found to have sufficient detail to act as authorisation guidelines and the identity of the practitioner for exposures undertaken using the authorisation guidelines was evident from the guidelines with the exception of the authorisation guidelines for DXA. An area of improvement was identified to ensure clarity on the named practitioner for the authorisation guidelines for DXA.

It was noted that the authorisation guidelines for general radiology had not been updated to reflect the changes made to the EP G, non- medical imaging. An area for improvement was identified to update authorisation guidelines for general radiology in relation to non-medical imaging.

Otherwise the justification and authorisation process was found to be clear on the roles of the operator and practitioner and staff displayed a good understanding of their roles and responsibilities.

Review of the submitted SAF, supporting documentation and discussion with key staff during the inspection evidenced clear entitlement arrangements are in place for the radiology department. However, entitlement arrangements for duty holders outside of the radiology department need to be implemented. Management and staff were receptive to advice on the entitlement process. The inspection team acknowledge the commitment of staff in this regard.

5.2.4 Does the service adhere to legislation with regard to equipment quality assurance (QA)?

The inventory of radiological equipment submitted did not contain all of the information as specified within the legislation. The year of manufacture was not outlined as required. An area of improvement was identified to ensure the inventory of radiological equipment contains all the information as specified within the legislation. It was confirmed the list of equipment will be kept under constant review and will be updated when there is a change.

The inspection team sought to ensure that all QA equipment tests are undertaken and to schedule, that the results of the tests are recorded and interpreted in a suitable manner and that any actions necessary as a result of the tests are followed through appropriately. In addition, that the Trust staff liaise with external providers of QA and advise on performance and optimisation. e.g. Regional Medical Physics Service (RMPS).

The equipment QA programme should specify two levels of testing, level A which is carried out internally by the radiology staff and level B testing which is carried out by an external provider, RMPS.

As part of the service level agreement (SLA) between the SEHSCT and the RMPS a programme for external QA is undertaken using recommended QC test methods and at a frequency advised by The Institute of Physics and Engineering in Medicine (IPEM). The IPEM set the 'Recommended Standards for the Routine Performance Testing of Diagnostic X-ray Imaging Systems' in their IPEM Report 91.

RQIA is aware of a regional issue with the provision of MPE resources to carry out level B testing at the frequency outlined by IPEM. RQIA issued correspondence to all Employers (Trusts) in relation to this challenge. RQIA received a written response from SEHSCT confirming the MPE had carried out a risk assessment and outlined measures in place to mitigate the risk associated with the reduction of frequency of level B testing. It was confirmed that the level B testing was currently not up to date for LVH site.

A robust level A QC testing schedule was evidenced with clear work instructions in place for radiology equipment within the radiology department. A number of QA radiographers have been trained and assessed as competent for LVH radiology department. Staff involved in performing QA testing had evidence of training and a competency assessment to undertake this role and had been entitled to do so.

Review of level A QC test records found they were up to date, well completed and comprehensive for equipment within the radiology department. Staff outlined clearly what action to take if issues with a level A test out of baselines including informing the RPS, repeating the test and seeking advice from the MPE and manufacturer and if necessary removing the equipment from service on the advice of MPE.

Arrangements for equipment QA for radiology equipment outside the radiology department was examined. It was noted that an image intensifier in theatre and an orthopantomogram (OPG) machine in the emergency department had not been included in the equipment QA programme and therefore did not have level A QC checks carried out. It was confirmed that work instructions had been devised for the image intensifier and the OPG machine.

One radiographer had been trained and deemed competent to carry out QC checks on the image intensifier and a number of radiographers likewise for the OPG machine. Despite this no level A QC checks had ever been carried out on either of these pieces of equipment. It was confirmed no level B testing had been carried out on the OPG machine.

The introduction of radiology equipment to operational use was discussed and particularly roles and responsibilities associated with this process. There was a lack of clarity on this matter.

The identified issues were discussed with senior management; in particular; the inadequacy of the QA checks; the governance arrangements for compliance with the legislative requirement to have equipment QA in place for each piece of radiology equipment; and the need for an immediate response to RQIA to provide assurance that the radiology equipment QA is completed to ensure a safe and effective service to patients.

The inspection team outlined the following action to be addressed by the IRSM and her management team;

- inform the CEO, the Employer of the matter immediately.
- confirm within 24 hours that level A QC checks had been carried out on the image intensifier and the OPG machine by trained and competent staff.
- submit to RQIA a notification in accordance to SAUE guidance under the multi-patient category.
- submit to RQIA an action plan within one week of the inspection outlining the action taken and actions proposed to ensure all QA of radiology equipment is fully compliant with QA procedures, including governance arrangements.

On 30 March 2023 RQIA received confirmation that the Employer had been informed and evidence that level A QC checks had been carried out on the image intensifier and the OPG machine. This information was reviewed and found to be in order.

On 5 April 2023 RQIA received two SAUE notifications relating to the issue identified during the IR(ME)R inspection on the absence of equipment QA on the image intensifier and the OPG machine.

In additional RQIA received a comprehensive action plan on the matter. The following was outlined:

- the implementation of level A QC testing for the image intensifier and OPG machine
- immediate communication with team leads highlighting the importance of all equipment undergoing regular quality assurance testing as per rolling QA programme. Email with a request for confirmation from leads that no other pieces of equipment are sitting outside of the current scope of audit
- the two Datix reports have been submitted to the Trust
- notifications have been submitted to RQIA
- QA radiographers to be trained and signed off as competent by QA coordinator to undertake level A testing for the Cranex D Digital & Siemens CIOS (Image intensifier)
- amendments to the Radiation Safety Policy to include post equipment install measures including applications and equipment quality assurance training. The processes in place for record keeping of the monthly equipment quality assurance testing and the review and update of the equipment inventory in a timely manner

- MPE to prioritise Level B testing of the Cranex D Digital & Siemens CIOS. Results must be formally reported to RQIA
- staff responsibility regarding raising concerns around equipment QA. IRSM, governance lead and Trust CT lead to attend all upcoming staff team meetings for face to face communication. This attendance will be recorded.
- ongoing monthly review of QA audit for documented compliance of level A testing for Cranex D Digital & Siemens CIOS (image intensifier)
- lead appointed to review QA monthly audit. Feedback to senior management team on the first Tuesday of each month
- draft action plan to be tabled for senior management team (SMT) meeting on 04/04/23 and weekly progress updates given thereafter. Action plan tabled for monthly senior business meeting with progress update given to clinical director and assistant director. Monthly progress report from assistant director to medical director and chief executive. Progress report from action plan feeding into next relevant IOT meeting. Action plan to be tabled at bi-annual radiology safety subcommittee chaired by the medical director.

The action plan had clearly defined timescales and identified individuals who are responsible for the implementation of the plan.

To ensure the full implementation of all the measures set out above by the Trust, an area for improvement has been identified to ensure the equipment QA procedures are robustly complied with by suitably qualified, trained and competent staff and associated governance arrangements are rigorously implemented to ensure the safety and wellbeing of patients.

In addition, an area of improvement has been identified to ensure that level B testing is carried out on the image intensifier and OPG machine as a priority.

Review of the submitted self-assessment, supporting documentation and discussion with key staff during the inspection evidenced that the arrangements for the equipment QA programme require to be strengthened with a particular focus on the radiology equipment outside of the radiology department. The management and staff were responsive to matters raised and have been timely in their submission of an action plan to address these matters. The inspection team acknowledge the commitment of management and staff in this regard.

5.2.5 Additional areas reviewed - other areas identified through the review of the submitted self-assessment form and supporting documentation

Employers Procedures (EPs)

It was noted that the EPs had been subject to extensive review following the previous IR(ME)R inspection to a Trust site. These draft EP had not been fully approved and ratified. It was confirmed that draft EPs are with the MPE for review. However, it was confirmed that the draft EPs had been issued to the department for use. As legal frameworks EPs should not be issued for use until the full ratification process has taken place to ensure they are fit for purpose.

Following the inspection IRSM confirmed that the draft EPs had been withdrawn from use until the full approval and ratification has taken place and the former EPs have been reinstated. Staff have been made aware of the change. It is hoped the draft EPs can be fully approved and ratified in a timely fashion.

The ratification process for documents was discussed and it was noted to be unclear, with several documents and frameworks issued before the approval date. There was lack of consistency in the application of the ratification process and an area of improvement was identified to formalise the ratification process as part of quality assurance of written procedures and protocols, and clearly outline the process in EP T.

On review of the EPs it was noted that EP C patient identification, outlined reference to a nurse lead for DXA in LVH however it was confirmed this position no longer exists. In addition, EP C did not fully reflect current professional guidance on inclusivity. An area of improvement was identified to review EP C to remove a reference to the nurse lead for DXA and to reflect professional guidance on inclusivity when carrying out patient identification checks.

6.0 Conclusion

There were 13 area of improvements identified as a result of this inspection. This is fully outlined in the appended quality improvement plan (QIP).

The management team and staff are to be commended for their ongoing commitment and enthusiasm to ensuring that the LVH radiology department is well managed and operating within the legislative framework; and maintaining optimal standards of practice for patients.

The inspection team would like to extend their gratitude to the management team and staff for their contribution to the inspection process.

7.0 Quality Improvement Plan/Areas for Improvement

Areas for improvement have been identified where action is required to ensure compliance with The Ionising Radiation (Medical Exposure) Regulations (Northern Ireland) 2018 known as IR(ME)R and other published standards which promote current best practice to improve the quality of service experienced by patients.

Total number of areas for improvement	13

Areas for improvement identified during this inspection are detailed in the QIP. Details of the QIP were discussed with senior management as part of the inspection process. The timescales commence from the date of inspection.

It is the responsibility of the Employer to ensure that all areas for improvement identified within the QIP are addressed within the specified timescales.

The QIP should be completed and detail the actions taken to address the area for improvement identified. The employer should confirm that these actions have been completed and return the completed QIP via BSU.Admin@rqia.org.uk for assessment by the inspector.

Quality Improvement Plan

Action required to ensure compliance with The Ionising Radiation (Medical Exposure) Regulations (Northern Ireland) 2018

Area for improvement 1 **Ref:** Regulation 8 (1) **Stated:** First time 29 June 2023	The Employer must ensure that employer's procedure (EP) L is amended to clearly reflect the decision-making process in relation to a clinically significant accidental and unintended exposures (CSAUE), outlining clear roles and responsibilities within this process and where this information is to be documented including within the patient notes. Ref 5.2.1
	Response by Employer detailing the actions taken: Employers Procedure L will be reviewed by the Governance Lead to include the recommendations above by 29th June 2023
Area for improvement 2 **Ref:** Regulation 12 (8) (a) **Stated:** First time **To be completed by:** 29 June 2023	The Employer must review and formalise the range of paediatric radiology services to be provided on the Lagan Valley Hospital (LVH) site and ensure relevant stakeholders are made aware. Ref 5.2.2
	Response by Employer detailing the actions taken: Discussions are ongoing with Clinical Director of Emergency Medicine and the Radiology Clinical Director re future scope of peadiatric service on the LVH site. A further meeting has been arranged to reach a concensus
Area for improvement 3 **Ref:** Regulation 6 (5) (c) Schedule 2 (1) (f) **Stated:** First time **To be completed by:** 29 June 2023	The Employer must: • ensure that only current published national diagnostic reference levels (NDRLs) are displayed and implemented in the radiology department and staff are fully aware of their use • consider adopting European dual X-ray absorptiometry (DXA) DRLs • devise an action plan on the establishment of local DRLs with identified timescales that can be monitored. Ref 5.2.2
	Response by Employer detailing the actions taken: Current published national diagnositc reference levels were discussed at the CT IOT last week and will be displayed and implemented for all relevant modalities across sites.

	Dexa will adopt Eurpoean dexa DRL's and the DRL's will be disseminated to all Dexa staff. The DRL's will be displayed on both the LVH and Bangor sites An action plan for the establishment of local DRL's will be devised and timescales agreed with the MPE Local DRL's for both CT Brain and Cardiac CT are on the agenda for ratification at the next Radiation Safety and MRI Sub Committee meeting in Jun 23
Area for improvement 4 **Ref:** Regulation 6 Schedule 2 (1) (b) **Stated:** First time **To be completed by:** 29 June 2023	The Employer must review the entitlement process for MPEs. Ref 5.2.3
	Response by Employer detailing the actions taken: This area of improvement has been actioned 03/05/23
Area for improvement 5 **Ref:** Regulation 6 Schedule 2 (1) (b) **Stated:** First time **To be completed by:** 29 June 2023	The Employer must ensure staff undertaking clinical evaluation of medical exposures are subject to the entitlement process as an operator. Ref 5.2.3
	Response by Employer detailing the actions taken: The Clinical Director of Radiology has been in communication with the Lead Urologist to progress the entitlment of Urologists. When this year's appraisal round has been completed in June 23, the Clinical Director for Radiology will meet with the Lead Urologist to discuss the the assessment of competence of each team member Other staff groups undertaking clinical evaluation will be identitifed and the entitlement prcess will be actioned for these staff
Area for improvement 6 **Ref:** Regulation 6 Schedule 2 (1) (b) **Stated:** First time **To be completed by:** 29 June 2023	The Employer must ensure radiology specialist registrars (specialist trainees) are entitled as duty holders in line with their scope of practice. Ref 5.2.3
	Response by Employer detailing the actions taken: The Employer will ensure entitlement is in place for all rotational specialist registrars each year. Equipment training will be provided and documented where appropriate
Area for improvement 7 **Ref:** Regulation 11 (5) **Stated:** First time	The Employer must ensure clarity on the named practitioner for the authorisation guidelines for DXA. Ref 5.2.3

To be completed by: 29 June 2023	**Response by Employer detailing the actions taken**: Named practitoner for Dexa has read and signed the authorisation guidelines
Area for improvement 8 **Ref:** Regulation 11 (5) **Stated:** First time	The Employer must update authorisation guidelines for general radiology in relation to non-medical imaging. Ref 5.2.3
To be completed by: 29 June 2023	**Response by Employer detailing the actions taken**: The authorisation guidelines will be updated for non-medical imaging by the author
Area for improvement 9 **Ref:** Regulation 15 (2) **Stated:** First time	The Employer must ensure the inventory of radiological equipment contains all the information as specified within the legislation. Ref 5.2.4
To be completed by: 29 June 2023	**Response by Employer detailing the actions taken**: All Manufacturers's have been emailed asking for the date of manufacture of their pieces of equipment. Responses have been prompt. Dates are being populated into the inventory The inventory of radiological equipment contains the information as specified within the legislation
Area for improvement 10 **Ref:** Regulation 15 (3) Schedule 2 (1) (d) **Stated:** First time	The Employer must ensure the equipment quality assurance (QA) procedures are robustly complied with by suitably qualified, trained and competent staff and associated governance arrangements are rigorously implemented to ensure the safety and wellbeing of patients. Ref 5.2.4
To be completed by: 29 April 2023	**Response by Employer detailing the actions taken**: At the first Senior Management Team meeting each month, the monthly equipment qualitiy assurance audit will be reviewed The meeting minutes will document the outcome of the review, any deficiencies, required actions, by whom and timescales All staff undertaking equipment QA are suitably qualified, trained and signed off as competent by the quality assurance co-ordinators across all sites
Area for improvement 11 **Ref:** Regulation 15 (3) **Stated:** First time	The Employer must ensure that level B testing is carried out on the image intensifier and orthopantomogram (OPG) machine as a priority. Ref 5.2.3
To be completed by: 29 June 2023	**Response by Employer detailing the actions taken**: Completed by MPE and RQIA notified

Area for improvement 12 **Ref:** Regulation 6 Schedule 2 (1) (d) **Stated:** First time **To be completed by:** 29 June 2023	The Employer must formalise the ratification process as part of quality assurance of written procedures and protocols, and clearly outline this process in EP T. Ref 5.2.5
	Response by Employer detailing the actions taken: EP T will be reviewed to outline the ratification process as part of the quality assurance of written procedures and protocols
Area for improvement 13 **Ref:** Regulation 6 Schedule 2 (1) (a) **Stated:** First time **To be completed by:** 29 June 2023	The Employer must review EP C to remove a reference to the nurse lead for DXA and to reflect professional guidance on inclusivity when carrying out patient identification checks. Ref 5.2.5
	Response by Employer detailing the actions taken: EP C has been reviewed and reference to the nurse lead for Dexa has been removed. The procedure will be further reviewed to reflect professional guidance on inclusivity when carrying out patient identification checks

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