



The **Regulation** and  
**Quality Improvement**  
Authority

# An Independent Review of Reporting Arrangements for Radiological Investigations

Phase 1 Report, March 2011

Northern Health and Social Care Trust

informing and improving health and social care  
[www.rqia.org.uk](http://www.rqia.org.uk)

# **Table of Contents**

## **Section 1 Introduction**

- 1.1 The Regulation and Quality Improvement Authority**
- 1.2 Context for the Review**
- 1.3 Terms of Reference**
- 1.4 The Review Team**
- 1.5 Methodology used to Collect Evidence in Phase 1**

## **Section 2 Findings of the Review Team**

- 2.1 Description of the Systems for Handling and Reporting of Plain X-rays in Northern Health and Social Care Trust**
- 2.2 Governance Arrangements to Assure Patient Safety and Protection with Regard to Handling and Reporting on Radiological Investigations**
- 2.3 Arrangements for Communication of the Reports of X-rays to Patients and Practitioners**

## **Section 3 Conclusions and Recommendations**

## **Section 1: Introduction**

### **1.1 The Regulation and Quality Improvement Authority (RQIA)**

RQIA is a non departmental public body responsible for monitoring and inspecting the quality, safety and availability of health and social care services across Northern Ireland. It also has the responsibility of encouraging improvements in those services. The functions of RQIA are derived from The Health and Personal Social Services (Quality, Improvement and Regulation) (Northern Ireland) Order 2003.

RQIA operates within a value system that supports the belief that learning is at the heart of improvement. To ensure a clear focus on improvement, organisations need to have effective systems which can identify performance standards and support the learning necessary for improvement.

RQIA's main functions are:

- To inspect the quality of services provided by Health and Social Care (HSC) bodies in Northern Ireland through reviews of clinical and social care governance arrangements within these bodies.
- To regulate (register and inspect) a wide range of services delivered by HSC bodies and by the independent sector. The regulation of services is based on minimum care standards to ensure that service users know what quality of services they can expect to receive, and service providers have a benchmark against which to measure their quality.
- To undertake a range of responsibilities for people with mental ill health and those with a learning disability, following the transfer of duties of the Mental Health Commission to RQIA under the Health and Social Care (Reform) Act (NI) 2009.
- To carry out monitoring, inspection and enforcement of legislative measures for the protection of individuals against dangers of ionising radiation in relation to medical exposure set out in The Ionising Radiation (Medical Exposure) Regulations (Northern Ireland) 2000 (IR(ME)R). RQIA became responsible for functions in relation to IR(ME)R on 15 March 2010.

### **1.2 Context for the Review**

On 15 February 2011, Michael McGimpsey, MLA, Minister for Health, Social Services and Public Safety, commissioned RQIA to undertake an independent review of the handling and reporting arrangements for plain x-ray investigations across Northern Ireland

The request for the review followed delays in the reporting of plain x-ray investigations at Altnagelvin Hospital, Londonderry (Western Health and Social

Care Trust) and Craigavon Hospital, Craigavon (Southern Health and Social Care Trust).

On 18 February 2011, RQIA agreed to undertake this commissioned review in two phases, as set out in the terms of reference, taking into account the following framework documents and advice issued from the Department of Health, Social Services and Public Safety (DHSSPS) in respect of their application to the service in Northern Ireland:

- Standards for the Reporting and Interpretation of Imaging Investigations (Royal College of Radiologists), January 2006
- National Patient Safety Agency (NPSA) Safer Practice Notice 16; Early Identification of failure to act on radiological imaging reports, February 2007
- Standards for the Communication of Critical, Urgent and Unexpected Significant Radiological Findings (Royal College of Radiologists), 2008
- Priorities for Action (PfA) 2010

### **1.3 Terms of Reference**

#### **Phase 1**

1. To describe the systems in place for handling and reporting on plain x-rays across the five HSC trusts.
2. To examine the governance arrangements in place across the five HSC trusts to assure patient safety and protection with regard to handling and reporting on radiological investigations.
3. To examine the arrangements for communication of the reports of x-rays to patients and practitioners.
4. To make recommendations for action to manage any identified current issues in relation to the handling and reporting of x-rays.

#### **Phase 2**

Following publication of the report of Phase 1 of the review, the terms of reference for Phase 2 will be reviewed in the light of the findings of Phase 1.

5. To describe the circumstances leading to any significant delays in the handling and reporting of radiological investigations in the last two years and how those delays have been managed by the five HSC trusts and the HSC Board.
6. To identify any factors which contributed to delays in handling and reporting radiological investigations across Northern Ireland during the past two years and make recommendations to avoid these happening in the future.
7. To consider the impact of identified delays on service users.

8. To examine any other relevant matters emerging during the course of the review.

#### **1.4 The Review Team**

The team includes the following membership for Phase 1 of the review:

- Dr Nicola Strickland, Registrar of the College and Registrar of the Faculty of Clinical Radiology, Royal College of Radiologists (RCR)
- Sally MacLachlan, Senior Clinical Officer, Medical Exposure Department, Health Protection Agency (HPA)
- Jon Billings, Director of Healthcare Quality, Health Information and Quality Authority (HIQA)
- Dr David Stewart, Director of Service Improvement and Medical Director, RQIA
- Hall Graham, Head of Primary Care and Clinical and Social Care Governance Review and Independent Health Care Regulation, RQIA

supported by:

- Helen Hamilton, Project Manager, RQIA

#### **1.5 Methodology Used to Collect Evidence in Phase 1**

- a. RQIA asked all HSC trusts to provide the following written material in relation to radiology services within the trust:
  - completion of a questionnaire at trust level on radiology services and systems
  - completion of a short questionnaire in relation to each radiology department within the trust
  - provision of a specified list of supplementary information and documentation
- b. The members of the review team met with representatives of managerial and clinical staff responsible for the provision of radiology services in each trust, to gain further clarification in relation to the written material provided. These meetings took place between 10 and 14 March 2011. The meeting with representatives of the Northern Health and Social Care Trust (Northern Trust) took place on 11 March 2011.

RQIA is grateful to all trust staff who were involved in the provision of written material, at short notice, to inform the review process and who met with the review team to provide clarification on the delivery of radiology services within the trust.

## Section 2: Findings of the Review Team

### 2.1 Description of the Systems for Handling and Reporting of Plain X-rays in the Northern Health and Social Care Trust

- 2.1.1 The radiology service in the Northern Trust operates as an integrated service across the whole trust area with a single set of policies and procedures. Plain x-ray reporting is provided as a trust wide service with x-rays reported from a shared workload pool. There are six radiology departments where plain x-rays are taken comprising Antrim Area Hospital, Causeway Hospital, Braid Valley Hospital, Moyle Hospital, Mid Ulster Hospital and Whiteabbey Hospital.
- 2.1.2 No plain x-ray reporting is currently being outsourced by the Northern Trust to other trusts or to the independent sector.
- 2.1.3 There is a Radiologist of the Day (ROD) system providing cover for all radiology departments in the Northern Trust to provide opinion/report on plain x-rays if required.
- 2.1.4 The majority of radiologists work on the Antrim Hospital site with sessions being provided in Mid Ulster and Whiteabbey Hospitals. The Moyle and Braid Valley Hospitals have no on site radiologists. In Causeway there are four radiologists employed on site. The trust has dynamic work lists and these are organised by speciality/area and prioritised as appropriate.

### Staffing

- 2.1.5 Radiology reporting is pooled across the Northern Trust therefore the figures below represent the staffing compliment across the trust as a whole and not by individual radiology department. There were no consultant vacancies at the time of the review visit.

<b>Radiology Department</b>	<b>Number of consultants in post</b>	<b>Number of vacancies</b>	<b>Number of locums in post</b>
<b>NHSCT</b>	17.11 WTE	0	0

(WTE: whole time equivalent)

- 2.1.6 At the time of the review visit, the trust had 7.19 WTE vacancies in radiographer staffing at Antrim Area Hospital (with 42.98 WTE in post). There were no radiography vacancies at other departments.

## **Picture Archiving and Communication System (PACS) and Radiology Information System (RIS)**

- 2.1.7 PACS, in conjunction with RIS, is an electronic system which enables radiology departments to store, rapidly retrieve and share digital x-rays, and their reports, within and between hospitals. Development of PACS has revolutionised the way in which radiology departments work. PACS enables the electronic storage and organisation of x-rays, removing the need to retain large numbers of hard copy plain x-ray films. PACS can enable new systems of reporting to be put in place and new arrangements to monitor the timeliness of reporting.
- 2.1.8 In Northern Ireland a major project has been taking place to establish an integrated RIS/PACS (NIPACS) to enable x-rays and reports to be viewed by appropriate health professionals across the health care network.
- 2.1.9 Within the Northern Trust, the current arrangements for RIS/PACS are trust wide with all hospitals having access to the regional NIPACS. The Northern Trust was the second trust to have NIPACS installed which went live in November 2009.
- 2.1.10 Voice recognition is the exclusive means of reporting for all plain x-ray examinations within the Northern Trust radiology service.

### **Booking Arrangements**

- 2.1.11 For plain x-rays, the Northern Trust operates a walk-in service, alternatively patients can be booked into the next available slot in the most conveniently located radiology department. The only exceptions are routine out-patient referrals to the Antrim Area Hospital radiology department which may be booked at the Braid Valley Hospital x-ray department if there is insufficient capacity on the Antrim site.

### **Reporting Arrangements for Plain X-rays**

- 2.1.12 In the Northern Trust, with the exception of a defined list of x-rays, plain x-rays are reported by radiologists. The list of plain x-ray examinations where reporting is the responsibility of other clinicians includes:
- approximately 11,500 plain x-rays per annum which are evaluated by specialist reporting radiographers
  - follow up fracture clinic x-rays
  - orthopaedic clinic x-rays
  - dental and orthodontic clinic x-rays

- 2.1.13 Non-radiological clinicians have access to a radiologist for a second opinion at all times if required and a formal radiology report will be provided for any examination, if requested by the clinician.
- 2.1.14 When x-rays are evaluated by clinicians other than radiologists or reporting radiographers, a report is not recorded on RIS/PACS across the trust. For orthopaedic surgeons, reports are generally typed and placed into patient notes (case notes); for dentists they are hand written into the case notes. However this has not been audited to date.
- 2.1.15 The trust has advised the review team that, if all x-rays currently delegated to other clinicians were to be reported by consultant radiologists, the trust would require to appoint an additional 0.82 WTE radiologists.
- 2.1.16 The Northern Trust is the only trust in Northern Ireland to have introduced communal, trust wide reporting work lists on their implementation of NIPACS, so that the same plain x-ray work lists are seen at all hospitals within the Northern Trust.

### **Delays in Reporting**

- 2.1.17 At the time of the review visit, the Northern Trust advised the review team that there were no significant delays in the reporting of plain x-rays at any of the hospitals within the trust. As at 1 March 2011 the longest wait for a routine x-ray to be reported was 11 days.
- 2.1.18 All urgent and red flag x-rays are reported on a daily basis by the Radiologist of the Day.
- 2.1.19 Prior to the introduction of NIPACS in November 2009, there was a delay of up to an estimated six weeks in the reporting of plain x-rays. Reasons contributing to the delay included:
- Delays in the retrieval and transfer of hard copy films
  - Delays in the transcription of dictated reports
  - Delays in the verification of reports
  - Delays due to postage of hard copy radiology reports
  - Delays in the retrieval of previous reports and films
  - Increased reporting times compared with a PACS filmless environment
  - Lack of consultant radiology staff to provide sufficient reporting capacity.
- 2.1.20 Actions taken to reduce the delay included additional flexible out of hour sessions, the implementation of NIPACS across the trust, capital investment to convert analogue to digital technology and the introduction of trust wide pooling of reporting workloads for plain x-rays. Voice recognition software was introduced and new arrangements put in place



for having a trust wide Radiologist of the Day working from the common NIPACS work lists.

## **2.2 Governance Arrangements to Assure Patient Safety and Protection with Regard to Handling and Reporting on Radiological Investigations**

- 2.2.1 The Northern Trust has a corporate governance framework within which governance arrangements for diagnostic imaging are placed. The governance processes for imaging are based on regulatory and professional standards and guidelines including IR(ME)R, and those produced by Royal College of Radiologists and the Health Professions Council.
- 2.2.2 There are established reporting mechanisms both within the trust and externally, for example to RQIA in respect of IR(ME)R.
- 2.2.3 Radiology holds monthly Radiology Directorate meetings which include all consultant radiologists, the radiology manager and the trust radiography manager. Governance issues are discussed as a standing item on the agenda. There are also monthly governance meetings held within the radiology department.
- 2.2.4 There is an annual programme of governance activities including multidisciplinary audit, reviews of radiological errors and complications, and complaint and incident review.
- 2.2.5 All imaging departments are required to report clinical incidents through the trust reporting arrangements which are managed using a clinical incident framework.
- 2.2.6 There are separate reporting arrangements external to the trust, including reporting of radiation incidents to the Medical Physics Agency, reporting to RQIA under IR(ME)R and Serious Adverse Incident reporting to the HSC Board. All such incidents are reviewed at the Trust Radiation Safety Committee meetings
- 2.2.7 The trust has a programme of clinical audits. Audits related to plain x-ray reporting have included the reporting turnaround time in Causeway Hospital, red flag reporting and radiographer reporting.
- 2.2.8 The Radiology Department holds quarterly film review meetings at which discrepancies in reporting are considered, to determine if there are lessons to be learned. X-rays are considered on an anonymous basis and specialist registrars are invited to attend. Minutes and attendance are recorded. Any errors identified are classified as for example perceptive errors, interpretative errors or communication errors (according to the Royal College of Radiologists' guidelines).

- 2.2.9 Risk management arrangements are in place. Risks are assessed, managed and mitigated using corporate, directorate and departmental risk registers.
- 2.2.10 Radiologists participate in multidisciplinary meetings on a regular (generally weekly) basis.
- 2.2.11 There is active monitoring of reporting performance in relation to plain x-ray examinations within the trust by the radiology department. This is facilitated by the RIS. If there is an identified increase in demand, that demonstrates that reporting time is increasing, there are arrangements in place to consider using additional in-house reporting capacity using additional sessions of consultant reporting time. This can be provided by consultants across the trust using the shared NIPACS reporting work list arrangements and is on a voluntary basis.
- 2.2.12 The trust has developed an annual business planning approach to radiological reporting and advised the review team that they can predict to 95% accuracy the numbers of plain x-rays to be reported for the next year. The required amount of reporting time is assessed, based for plain x-rays at 80 x-rays per session, and the amount of sessional time allocated. There is a recognised capacity gap in relation to the amount of consultant time for reporting, so additional sessional capacity is contracted on a non-recurrent basis.
- 2.2.9 Arrangements for the delegation of responsibility for the reporting of plain x-rays by non-radiologists are specified in the Employers Procedures (Procedure J) for the Northern Trust as required by IR(ME)R. There are no written agreements with individual clinicians in relation to this reporting role.

### **2.3 Arrangements for Communication of the Reports of X-rays to Patients and Practitioners**

- 2.3.1 Patients are advised verbally of when and how they will get their results. Different advice is given depending on the origin of the referral. An information leaflet 'Waiting on the results of an x-ray scan?' is also given to the patient.
- 2.3.2 The trust stated that plain x-ray reports are returned electronically to GPs through the RIS.
- 2.3.3 Within each hospital, paper copies of reports are printed and forwarded to the referring clinician. Paper reports have not been withdrawn, as no electronic feedback of results informatics system has been implemented. Without it, non-radiological clinicians are continuing to use the paper reports sent to them rather than accessing the reports of their requested studies on PACS.

- 2.3.4 If a radiologist identifies a suspected cancer during reporting it is reported as urgent in the RIS and this is electronically communicated to the referring clinician's secretary. Suspected cancers are also reported to cancer trackers within the trust for follow up. An auditable record is kept of this on the RIS.
- 2.3.5 Suspected cancers are automatically red flagged by the referring clinician and are then prioritised and reported urgently by radiologists.
- 2.3.6 The trust advised that the Radiology Management Team assessed the impact of the NPSA Safer Practice Notice 16 on Early Identification of Failure to Act on Radiology Imaging Reports and a protocol was subsequently developed and implemented in February 2007. On 27 February 2007 a covering letter and copy of Safer Practice Notice 16 was then sent by the Medical Director to all clinical directors. In February 2007, April 2007, December 2007 and September 2008 follow up letters were sent by the clinical director to all consultant radiologists, underlining radiology reporting policy.
- 2.3.7 In relation to the Royal College of Radiologists Standards for the Communication of Critical, Urgent and Unexpected Findings (August 2008), the trust advised the review team that since April 2010, there is an electronic process within NIPACS to highlight priority reports and to directly communicate these to the referrer and cancer trackers. If there are significant findings for an inpatient the radiologist will print a paper report and get it delivered urgently to the ward. In relation to GPs results are communicated by telephone and the report is also faxed to the GP as a failsafe.

## Section 3: Conclusions and recommendations

### 3.1 Conclusions

- 3.1.1 The Northern Trust advised the RQIA review team that there were no significant delays in plain x-ray reporting at the time of the review visit. The review team found no evidence of issues requiring immediate action to protect patient safety in the Northern Trust at the time of the review.
- 3.1.2 The trust has established a framework of corporate governance with governance structures for imaging services integrated within the overall structures. There are arrangements in place for incident reporting, risk management, clinical audit and consideration of discrepancies in x-ray reporting.
- 3.1.3 The trust has established an integrated trust wide approach to the provision of radiology services with common policies and procedures. In relation to plain x-ray reporting there is a shared communal work list for reporting across the trust enabled by the NIPACS. The review team considers that this approach has greatly facilitated the trust in its approach to workload management.
- 3.1.4 There is an annual cycle of business planning for radiology with an assessment carried out of the projected demand for plain x-ray reporting which enable discussions to be had within the trust and with the commissioner as to how to meet the demand. The trust has invested non recurrent funding to ensure that delays do not arise in reporting. Some additional funding has also been provided by the commissioner.
- 3.1.5 The trust has arrangements in place for the reporting of some plain x-rays by non-radiologists in a number of defined areas and these are specified in the trust's employers procedures under IR(ME)R. There are no written agreements in place with all of the relevant departments nor with the individual clinicians in relation to these delegated responsibilities. The review team advises that these should be put in place to meet IR(ME)R requirements. The trust advised the review team that it would require an increase of 0.82 WTE consultant radiologists if all plain x-rays were to be reported by consultant radiologists in line with best practice guidelines as stated by the Royal College of Radiologists<sup>1</sup>.
- 3.1.6 Under IR(ME)R, a written evaluation is required for every x-ray taken. There are no current systems in place within the trust to record the evaluations of x-rays reported by clinicians, other than radiologists or

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<sup>1</sup> 'Standards and Recommendations for the Reporting and Interpretation of Imaging Investigations by Medically Qualified Non-Radiologists and Teleradiologists (Royal College of Radiologists) March 2011' (to be published).

reporting radiographers, on the trust RIS/PACS. The review team recommends that, in the absence of the preferred practice of recording a report on RIS/PACS so that the imaging study and its report are stored together, the trust should establish a programme of planned audits of the case notes (patient charts) to provide assurance that requirements under IR(ME)R are being met.

- 3.1.7 The review team recognises the major benefits for imaging services in Northern Ireland from having a regional approach to provision of RIS/PACS and from having a single unique patient identifier. The Northern Trust now has the same NIPACS available across the trust. The review team recommends that the trust continues to examine how best to fully exploit the benefits of this major investment in technology for example, exploring the potential for a move to paperless reporting by ceasing to print paper copies of the reports, and the training of non-radiological clinicians how best to use NIPACS to access reports on their patients' x-rays.
- 3.1.8 The trust does have systems in place to identify at an early stage the potential that a delay could emerge in plain x-ray reporting. The review team recommends that the trust establishes a written escalation procedure to reduce the risk of delays emerging which sets out triggers for intervention and actions to be taken at clinician, departmental and organisational level as required.
- 3.1.9 At present patients, across the trust, are advised verbally as to when and how the report of their plain x-ray will be available. The review team welcomes the provision within the trust of a trust wide leaflet which is given to patient to support the verbal communication.

## **3.2 Recommendations**

- 1. The Northern Trust should put in place written agreements with all departments in which there are arrangements for the reporting of plain x-rays by clinicians other than radiologists. There should be individually signed agreements with each individual clinician in relation to this function.
- 2. The Northern Trust should establish a programme of planned audits on the recording of a written evaluation of x-ray examinations, where these are not available on the trust RIS/PACS to provide assurance that requirements under IR(ME)R are being met.
- 3. The Northern Trust should continue to examine how best to fully exploit the benefits of the provision of RIS/PACS across the trust, as part of an integrated system for Northern Ireland.
- 4. The Northern Trust should establish a written escalation procedure to reduce the risk of delays in plain x-ray reporting, setting out triggers and

actions to be taken at clinician, departmental and organisational level, as required.





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