

Standards for a results acknowledgement system

RCR Standards

The Royal College of Radiologists (RCR), a registered charity, exists to advance the science and practice of radiology and oncology.

It undertakes to produce standards documents to provide guidance to radiologists and others involved in the delivery of radiological services with the aim of defining good practice, advancing the practice of radiology and improving the service for the benefit of patients.

The standards documents cover a wide range of topics. All have undergone an extensive consultation process to ensure a broad consensus, underpinned by published evidence where applicable. Each is subject to review four years after publication or earlier if appropriate.

The standards are not regulations governing practice but attempt to define the aspects of radiological services and care which promote the provision of a high-quality service to patients.

Current standards documents

Standards for iodinated intravascular contrast agent administration to adult patients, Second edition

Standards for radiofrequency ablation (RFA)

Standards for the introduction of new procedures and new devices

Standards for providing a 24-hour diagnostic radiology service

Standards for patient confidentiality and PACS

Standards for providing a 24-hour interventional radiology service

Standards for the communication of critical, urgent and unexpected significant radiological findings

Standards for Self-assessment of Performance

Standards for Radiology Discrepancy Meetings

Standards in Vascular Radiology

Standards for Ultrasound Equipment

Standards for Patient Consent Particular to Radiology

Standards for the Reporting and Interpretation of Imaging Investigations

Cancer Multidisciplinary Team Meetings – Standards for Clinical Radiologists

360° Appraisal – Good Practice for Radiologists

Individual Responsibilities – A Guide to Medical Practice for Radiologists

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Foreword

Patients can come to serious harm when referrers do not act on the results of image investigations. The same failure can cost the NHS significant amounts of money in litigation. There may be several reasons for a failure to act but one of the most common is a failure to have read the radiologist's report. The Royal College of Radiologists (RCR) has previously published guidelines to its Fellows and members on this issue but technological developments are offering new solutions to the problem. It is for this reason that the RCR is publishing these standards for results acknowledgement systems. We are grateful to Dr Neelam Dugar and the UK PACS and Teleradiology Group as well as Dr Paul Spencer on behalf of the Professional Support and Standards Board for their help in preparing this document.

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Introduction

Patient safety incidents may be caused by a failure to acknowledge and act on radiological imaging reports. This failure of communication is the second most common cause of litigation against radiologists in the USA.¹ In the UK, the National Patient Safety Agency (NPSA) issued Safety Notice 16 in February 2007 following 22 reports where the failure to follow up radiological imaging led to significant patient safety incidents.²

Guidelines for the communication of urgent reports have been published by The Royal College of Radiologists (RCR).³ These are based on the recommendations contained in the above safety notice. This places the responsibility on the radiologist to determine whether imaging findings are 'significant unexpected', 'urgent' and 'critical'. The radiologist should also note the degree of urgency for action by the referring healthcare professional and indicate this on a clinical report management system.

Even with safety net procedures such as copied reports, 'flagging' and/or 'alerting', a written report might not be read.⁴ This clearly applies to all reports whether flagged or not.

It is the responsibility of the referring healthcare professional to view, act upon and record the results of imaging studies that are requested.

There are many reasons why reports might not be read by the referring healthcare professional. Failure to receive the report, failure to recognise a procedure has been requested by another team member, patients being transferred to other units or departments, patient care being transferred to other healthcare professionals are but a few.

The NPSA Safer Practice Notice 16² recommends the use of acknowledgement functions within electronic requesting systems (such as Ordercomms – the electronic ordering and reporting of tests). It also places the responsibility for the development of policies and procedures in the 'management of imaging reports' with medical and nursing directors.

It is the aim of this document:

- To describe the role of results acknowledgement systems (RAS)
- To set standards for their integration into electronic requesting systems
- To identify roles and responsibilities within healthcare organisations to achieve this.

Clinical IT systems

Picture archiving and communications systems (PACS) and radiology information systems (RIS) procurement is progressing throughout the UK but is by no means complete.

Many healthcare organisations are investing in electronic requesting (Ordercomms) and electronic patient record (EPR) systems. At the moment, it is not possible for a single supplier's system to close the loop from requesting to report acknowledgement. Therefore, good data synchronisation between the systems is vital for successful implementation of an electronic workflow.

There will be significant variation in the level of clinical IT systems available in every healthcare organisation. They are likely to include:

1. Patient administration system (PAS) – for demographics and current patient location
2. Electronic requesting system (Ordercomms)
3. RIS – radiology scheduling and report generating system
4. Imaging modalities (image creation)
5. PACS – for image storage and view
6. Results acknowledgement system (RAS).

Good interoperability between the systems is vital for improving patient safety (see Appendix 1).

A full functional/technical specification for a results acknowledgement system is given in Appendix 2.

Standards for a 'results acknowledgement system'

A results acknowledgement system (RAS) is embedded in an electronic requesting (Ordercomms) system, allowing referring clinicians to ensure that requested images have been performed and to then formally acknowledge and record that the results have been read by an appropriate clinician.

Access to the system should be via a unique logon and only designated members of the referral team will have privileges to acknowledge reports. Others may access the report for 'read only'.

The system should supply a reported work list for the referrer, with the reports flagged as 'urgent' at the top.

The system should display a list of the last 20 users who have viewed and/or have acknowledged the report so that the referring healthcare professional can see which other team member has reviewed those reports.

The report acknowledgement system must be 'owned' by the healthcare organisation.

It is the responsibility of the healthcare organisation's patient safety group/clinical governance group to develop policies and procedures to manage the system.

The system should provide an automatic alert for early notification of unread reports after an agreed time period.

Referral groups should run regular audits to identify any reports that remain unacknowledged and notify the relevant consultant. An audit template can be found on page 9.

Ideally, the RAS should link to the PAS to allow accurate tracking of patients, to identify patient location at request and the responsible consultant. This is particularly relevant if the patient has been referred to another team or has moved from a high dependency unit (HDU)/intensive treatment unit (ITU) environment to a ward.

Roles and responsibilities

This section should be read in conjunction with the recommendations given in the following documents:

- NPSA *Safer Practice Notice 16*²
- *Standards for the communication of critical, urgent and unexpected significant radiological findings*.³

With specific reference to closing the loop between reporting and report acknowledgement, roles and responsibilities can be broken down into the following categories.

Radiologists and radiographers

Individual radiologists and reporting radiographers:

- Should ensure all reports issued have been verified⁵
- Should provide an electronic tag or alert where appropriate.³

The department

The radiology department:

- Should ensure systems are in place so that *all* images are on PACS and *all* images have a verified report⁶
- Should ensure there are safety net systems in place for effective communication of the report.³

The organisation

The healthcare organisation:

- Should recognise the benefits of an electronic RAS
- Should support the development and investment in appropriate clinical IT systems to facilitate a report acknowledgement system
- Should ensure referring healthcare professionals understand their responsibility to acknowledge results of investigations requested
- Should ensure policies and procedures are in place for the management of radiological imaging reports
- Should recognise the important role of the organisation's clinical governance team in implementing the system
- Should ensure the right report is in the right place at the right time
- Should ensure healthcare professionals are adequately trained in the use of the clinical IT systems to audit 'acknowledgement' of reports.

Approved by the Board of the Faculty of Clinical Radiology: 19 February 2010

Audit template for 'results acknowledgement system'

Background

The failure to act on radiological imaging reports is a cause of significant patient safety incidents.

It is the responsibility of the referring healthcare professional to view, act upon and record the results of imaging studies that are requested.

The cycle

The standard

- All reports are acknowledged within the agreed time frame by the referrer/clinical team responsible for the care of the patient.
- No patient safety incidents as a result of failure to follow up radiological imaging reports.

Target: 100% compliance

Assessment of local practice

Data collected from the report acknowledgement system.

Annual clinical governance report on incident reporting.

Suggestion for change if target not met

Analysis of the possible causes of failure to meet the target should include:

- Accuracy of inputted data – this may require more training
- The correct procedures/policies are in place
- Evidence that the responsible healthcare professional has been trained and is aware of their responsibilities in the use of the RAS.

Performance in acknowledging reports can be part of the annual appraisal/performance review.

References

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4. Singh H, Thomas EJ, Mani S *et al*. Timely follow-up of abnormal diagnostic imaging test results in an outpatient setting: are electronic medical records achieving their potential? *Arch Intern Med* 2009; **169**: 1578–1586.
5. The Royal College of Radiologists. *Standards for the Reporting and Interpretation of Imaging Investigations*. London: The Royal College of Radiologists, 2006.
6. The Royal College of Radiologists. *Standards for patient confidentiality and PACS*. London: The Royal College of Radiologists, 2008.

Appendix 1. Interoperability standards

Adoption of interoperability standards between systems is vital to ensure there is no ambiguity among users and suppliers regarding the level of clinical functionality provided.

CCOW*

HL7 standard for front-end integration between RIS, PACS and Ordercomms.

Scheduled workflow profile of IHE*

To allow for synchronization of scheduling information (including status updates) between Ordercomms, RAS, RIS, PACS and modality.

Patient information reconciliation of IHE

Synchronization of any demographic updates between all of the above six systems.

XDS* profile of IHE

Allow for consistent sharing of clinical documents between multiple systems. The radiology report as a document is displayed within multiple systems – RIS, PACS and RAS.

*see Glossary of terms

Appendix 2. Functional/technical specifications for results acknowledgement systems (RAS)

These may be stand alone, part of Ordercomms or part of hospital information systems (HIS)/electronic patient records (EPR).

Single-sign on (SSO)

It is important that Windows login must allow for logon to the RAS. Additional password and login *must not* be required as this will reduce clinical usage and also encourage password sharing (due to forgotten passwords).

Two-part authentication

Additional security could be introduced by introducing two-part authentication; that is, the use of smartcards/fingerprint etc. However, this should supplement SSO so as to improve the user experience of the authentication process (should not be introduced in isolation). *Two-part authentication is too complicated.*

Session persistence

When a smartcard is removed, the session should remain in a suspended state so that the user can come back to the session at the same point at which they left it.

Status synchronization

The following status for all the radiology exams *must* be synchronised between RIS, Ordercomms, PACS and RAS.

- Requested (ORDERCOMMS)
- Request vetted (RIS)
- Request on hold/deferred, with reason (RIS)
- Scheduled or appointment given (RIS)
- Cancelled, with reason (RIS/ORDERCOMMS)
- Arrived/attended (RIS)
- Did not attend (RIS)
- Exam performed (RIS)
- Exam not performed, with reason (RIS)
- Report dictated (RIS)
- Unauthorised report (RIS)
- Authorised/verified report (RIS)
- Amended report (RIS)
- Report acknowledged (ORDERCOMMS/RAS)
- Review requested (ORDERCOMMS).

The following statuses *need to be acknowledged*:

- a. Cancelled
- b. Did not attend
- c. Exam not performed
- d. Authorised/verified report
- e. Amended report.

Final status

The final status for all examinations must be *acknowledged*.

Alerts

At the time of dictation/verification/authorisation of reports (on RIS/PACS/speech recognition), radiologists should be able to use a single mouse click from within their normal reporting workflow (which may be the RIS or PACS or speech recognition screen as appropriate) to 'alert' for significant unexpected/urgent/critical reports. These alerts *must* be passed onto the results reporting system/Ordercomms as 'electronic alerts'.

Further dispersal of alerts

The clinician may wish to have imaging reports and alert tags also sent to their email and PDA and the system should be able to do this. There must be a way of recalling the alerts if the status of the report changes to 'acknowledged'.

Priority

On the requesting system (part of Ordercomms), there must be a field to indicate urgency/priority – 'urgent' or 'routine'. This must be synchronized electronically with the scheduling/report generating systems (RIS) and also to the RAS (part of Ordercomms). It should be possible to change priority at any stage of the process (from requesting to reporting) within any of the systems (synchronization of the priority level).

Front page on login

The default results acknowledgement system/Ordercomms/EPR should display the results acknowledgement work list as the front page on login by users.

Default work list for results acknowledgement

This will have the following filters applied: referrer (for junior doctors, nurses or other healthcare professionals), consultant code (for consultants) and specialty (for departmental manager) and will include the following status:

- a. Request cancelled with reason
- b. Did not attend
- c. Exam not performed, with reason
- d. Authorised report
- e. Amended report.

Display of the results acknowledgement work list

This *must* include 'alerts' at the top, followed by urgent and then non-urgent.

Criteria for drawing up a results acknowledgement work list

This *must* be flexible for the user combining any or multiple combinations of the following:

- a. Referrer
- b. Consultant/GP code
- c. Patient location at request (ward/clinic code)
- d. Current patient location
- e. Specialty.

For example, consultants/junior doctors/GPs within a team *must* be able to draw up a results acknowledgement work list based on the following criteria:

- List of all the patients within their care (consultant code/GP code filter)
- List of patients in a particular requested location: ward/accident and emergency (A&E)/outpatient department/outreach clinic/GP surgery
- List of patients in a particular current location/ward (via current location feed from PAS).

View log

The system *must* display a log (which is recorded on the system and is auditable) of the last 20 users that have viewed/acknowledged that report. This is vital for informing the consultants (team leaders), regarding which other team members have reviewed those reports.

There *must* be a distinction between 'viewed' and 'acknowledged' (a two-step process).

The system *must* also permanently log who has acknowledged the report. This will close the loop and provide accountability in the system. (Ideally, this should feed back to RIS/EPR.)

The clinical team *must* take responsibility to review and acknowledge *all* these reports within reasonable time frames, as agreed locally and clearly specified. Normally, the requesting team will be expected to acknowledge a report. Exceptions are as follows:

- The wrong consultant code may be specified at the time of request
- The patient may have been moved to another consultant team.

Requesting consultant and current responsible consultant

There needs to be a distinction between requesting consultant and current responsible consultant. Often a patient may be initially registered within A&E under an A&E consultant and then transferred to the ward under a different consultant – this information should be registered on PAS as the current responsible consultant. The information of the current responsible consultant must be visible on the RAS and it should be possible to change the consultant team required to acknowledge a report from the 'requesting consultant' to the 'current responsible consultant'.

Patient location

The system must make a distinction between *patient location at request* and **current patient location**. This will allow for doctors on the ward to acknowledge reports for all patients located within a particular ward.

Integration with PAS

There *must* be synchronization with PAS and RAS:

- a. Demographics
- b. Current patient location
- c. Current responsible consultant
- d. Current specialty department.

Integration with PACS

There must be a way to enable the launch of PACS images to review the images for that report via a 'show images' icon on Ordercomms (via electronic integration, preferably by using the CCOW standard).

User privileges

Consultants as team leaders *must* be able to identify members within their team who will have privileges to 'acknowledge' reports. Other junior team members will be able to 'view' reports but will not be able to 'acknowledge'.

Alert for unacknowledged reports

After an agreed time period if results remain unacknowledged, the system should send an alert to a single point of contact within the healthcare organisation. The RAS needs to be configurable such that clinical teams can generate, electronically store and print lists of unacknowledged reports as required.

For further information and updates, the RCR recommends the PACS and Teleradiology Group website:
<http://www.pacsgroup.org.uk/forum/messages/2/41117.html?1259184637>

Glossary of terms

- CCOW** Clinical Context Object Workgroup is an HL7 primary standard protocol in healthcare designed to enable the user, the patient and/or any 'clinical encounter' to 'virtually' link disparate applications so that the end user sees them operate in a unified, cohesive way. It is vendor independent and allows applications to present information at the desktop level in a unified way.
- IHE** Integrating the Healthcare Enterprise. This is an initiative by healthcare professionals and industry to improve the way computer systems in healthcare share information. IHE aims to create a process through which interoperability can be implemented. The group gathers case requirements, identifies available standards and develops technical guidelines that manufacturers can implement.
- XDS** Cross-enterprise document sharing. This facilitates the registration, distribution and access of patient electronic health records across health enterprises by providing a standards-based specification for managing the sharing of documents through document repositories and a document registry. This creates a longitudinal record of information about a patient within a given clinical affinity domain.

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