The Royal College of Radiologists

Board of the Faculty of Clinical Radiology

Standards and recommendations for the reporting and interpretation of imaging investigations by non-radiologist medically qualified practitioners and teleradiologists

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 the provision of teleradiology within the United Kingdom

Standards for the recording of second opinions or reviews in radiology departments

Standards for a results acknowledgement system

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

Previous standards for the reporting and interpretation of imaging investigations published by The Royal College of Radiologists (RCR) have provided standards for medically qualified doctors who are trained and accredited in radiology and for non-medically qualified role extended practitioners to whom the reporting of specified imaging investigations has been delegated by a radiologist.[1,2]

This publication defines standards and best practice for radiologists, regulatory authorities, hospital managers and individual doctors regarding medically qualified non-radiologists who wish to interpret imaging investigations or who consider 'working impressions' of the same in acute situations. The publication also provides standards that should be considered when imaging investigations are outsourced to teleradiologists employed by off-site teleradiology companies.

The RCR would like to thank its Faculty Board and Patients' Liaison Group for considering these Standards, its Professional Support and Standards Board for developing them and Drs Mark Callaway, Rob Manns, Clive Kay, Paul Allan and Jane Adam for their energy, good advice and major contributions to the project.

These standards apply to all UK countries.

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Dean of the Faculty of Clinical Radiology
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Introduction

In 2006, The Royal College of Radiologists (RCR) published *Standards for the Reporting and Interpretation of Imaging Investigations*.[1] This provides a useful background and explanation of the relevant issues and should be read in conjunction with this document. The standards set in that publication still apply and, although subject to periodic review, are likely to do so for many years.

In 2010, the RCR published *Medical image interpretation by radiographers: Guidance for radiologists and healthcare providers*,[2] which explained further the principles of image interpretation and the role of non-medically qualified role extended practitioners in the reporting of imaging investigations.

Neither of these documents dealt specifically with medically qualified doctors who have not trained as radiologists and their role in image interpretation. Communications between the RCR, other disciplines, professional organisations, hospital trusts, regulatory authorities and health departments in all four UK countries, strongly suggests that this lack of clarity must be addressed.

Where imaging investigations require the use of ionising radiation, these standards are informed by *The Ionising Radiation (Medical Exposure) Regulations 2000 (IR(ME)R)*.[3] The principles underpinning these standards also apply to non-ionising radiation-based imaging investigations.

The General Medical Council's (GMC) position is clear about doctors who wish to practise medicine in the UK.[4] When outsourcing to remote teleradiologists, these standards draw on such GMC statements and the previous RCR teleradiology publication.[5]

Standard 1. Every imaging investigation must be reported within an agreed time by an individual qualified to interpret that particular investigation.

When imaging investigations are requested, they are justified on the basis that the result will aid diagnosis and influence patient management. It follows that in all cases the resulting image is reviewed by an individual qualified to do so in a timely manner so that appropriate medical management is undertaken and delayed diagnosis and treatment avoided. The English National Imaging Board has set best practice guidelines for reporting times[6] to which the RCR has given qualified support.[7]

Standard 2. All imaging investigations must be accompanied by a formal permanently recorded written report.

The report forms the permanent record of the interpretation of that imaging investigation on which management decisions are made and must be available as part of the permanent medical record of the relevant individual. It is best practice that this written report is displayed alongside the relevant image on a picture archiving and communications system (PACS) rather than being stored or recorded separately elsewhere. The content of this report should adhere to the standards laid out in *Standards for the Reporting and Interpretation of Imaging Investigations*.[1]

Standard 3. All imaging investigations are best reported by a radiologist.

Radiologists are medically qualified, have undergone a two-year minimum period in postgraduate medicine and surgery and have undergone a further minimum period of five years' postgraduate training in imaging science, theory and interpretation. They are, therefore, the best qualified to provide clinically relevant radiological reports themselves or, when appropriate, by delegation to role-extended practitioners working in teams with radiologists.[1,2] Other professional groups do not share this depth and breadth of experience and training in clinical imaging. The National Patient Safety Agency has highlighted the need for an integrated system of reporting, centred on radiology and not a fragmented unstructured system relying on variable individual competencies and diligence.[8]

Standard 4. Health boards, commissioners of healthcare and hospital trusts must provide the resource, in terms of numbers of radiologists, IT provision and infrastructure to achieve the above standards.

This follows logically from Standards 1, 2 and 3.

The role of medically qualified non-radiologists in image interpretation

UK radiology departments should strive to achieve the above standards. However, while the number of UK radiologists per head of population has increased since 2001, it is recognised that currently there are still fewer UK consultant radiologists than in many other comparable European nations.[9,10] The actual figure varies from centre to centre and from nation to nation but averages 43 per million. As a result, in many healthcare organisations, these standards cannot be achieved at present.

In this setting, the RCR considers that the most appropriate solution is the provision of additional resources or service improvement measures to provide patients with timely reporting or reporting supervision of all imaging investigations by radiologists.

In the interim, IR(MER) 2000[3] provides for medically qualified non-radiologists to interpret imaging investigations relating to their field of expertise, as long as their employer has determined that the training of these individuals has included relevant image interpretation, and as long as such individuals agree to make a written record of each investigation which contains their name and status. Such practitioners must work in an environment where they have access to high-quality image display monitors that allow accurate reporting as per the radiology department reporting environment.

The responsibility for ensuring such individuals are sufficiently expert to interpret imaging investigations and agree to record the results of their interpretation rests with the hospital's management and radiology leadership.

Standard 5. Where image interpretation is delegated to non-radiologist medically qualified practitioners, hospitals (through their medical directors) and clinical radiology directors are jointly responsible for ensuring the expertise of the practitioner and obtaining their agreement that they will provide a written record of the result of each investigation they interpret.

Standard 6. All practitioners who interpret imaging investigations must identify their name, status and position when making a written record of an imaging investigation.

In most UK healthcare organisations, PACS is not linked to radiology information systems (RIS) outside radiology departments. Therefore, *Standard 2* cannot be complied with where medically qualified non-radiologists have agreed to undertake the task of image interpretation. The recording of results in clinical notes or letters is acceptable under IR(ME)R 2000[3] and is an alternative to RIS–PACS reporting. However, this option makes auditing compliance and discrepancy very expensive and labour intensive. If no audits are carried out, experience has shown that situations develop within organisations where non-radiologists fail to provide a written report. It may appear, therefore, that an imaging investigation has not been viewed if there is no record. Furthermore, when such imaging investigations contain significant findings, there may be very expensive and damaging medico-legal and patient care consequences.

Recommendation 1

To achieve *Standard 2*, where image interpretation has been delegated to medically qualified non-radiologists, information systems used for report recording outside radiology departments must interface with the hospital's RIS to allow linking of the report and image(s) to support patient care and audit.

Standard 7. There should be regular audit (at least once a year) of unreported imaging investigations.

This must form part of best practice within all radiology departments as an element of a patient safety programme. Such audit will determine whose responsibility it was to record a report for each unreported image and institute appropriate action to minimise the number of unreported examinations. Similarly, if there are delays in reporting of images, this must be remedied.

Interim reports by doctors in training and other non-radiologist consultants

When a patient is seen in outpatients or acutely on the ward or in the emergency department, imaging investigations are often initially seen and interpreted by non-radiologist doctors in training or consultants whose interpretive expertise does not lie specifically in the imaging they have requested. Although radiologists must always be available to give an urgent opinion when required clinically, there will be occasions when others will provide interim reports and a definitive radiologist report may be issued after an interval.[6]

Specialist trainee doctors undergo examination and assessment of skills at regular intervals in their training. This will include elementary but escalating training in relevant image interpretation. It is for the relevant medical Royal Colleges to accredit their trainees and for their employing healthcare organisations to agree their right to consider diagnoses in emergency situations based on imaging and to what level. Such considerations do not constitute the final or authorised report but are a 'working impression' of the examination, which will subsequently be reviewed by a suitably qualified individual who will provide a formal report.

It is for the same healthcare organisations to make sure there are enough consultant radiologists to provide a timely expert written report and for radiology departments to make sure that this can be delivered at all times.

Standard 8. Radiologists must be available to provide definitive reports on urgent imaging at all times. Similarly consultant radiologists should be available to provide their expert opinion on imaging investigations at all times.

Previous RCR standards publications[1,2] have explained the role of non-medically qualified role extended practitioners in this regard. Where radiologists have delegated image interpretation to this group, the same radiologists are responsible for the supervision and regular independent audit of reporting and recording.

Use of teleradiology

To comply with *Standards 1 to 3*, healthcare organisations may choose to send imaging investigations to an outside facility for interpretation by radiologists off-site and employed by private teleradiology companies. The RCR does not consider this best practice but understands the pressures many UK radiology departments are working under in delivering a timely reporting service.

Where training departments outsource imaging in this way, the impact that outsourcing will have on training and teaching of trainee radiologists must be considered and assessed. If there is any doubt about the impact on training, they should contact the RCR Department of Specialty Training (Clinical Radiology) for advice.

The RCR has previously published *Standards for the provision of teleradiology within the United Kingdom*.[5] It cannot be overemphasised that in the interests of patient care and safety, when such decisions to outsource are made, hospitals, their medical directors and radiologists must ensure that the hospital employs reporting teleradiologists who have medico-legal responsibility for their image interpretations and written reports and can be held to account in the UK for the quality of their work. Specifically, the RCR considers that such teleradiologists must be individually identifiable, licensed and revalidated by the GMC. The GMC Medical Register states that, 'Doctors must be registered with a licence to practise with the General Medical Council (GMC) to practise medicine in the UK' (sic) and 'Doctors work in many different environments. Those who treat patients must be registered with a licence to practise. This applies to all doctors irrespective of whether they practise full-time, part-time, as a locum, privately or in the NHS, or whether they are employed or self-employed.'[4]

Furthermore, if teleradiologists are not on the GMC Specialist Register, the outsourcing trust will effectively employ doctors who practise medicine on patients in their hospital who cannot be regulated by the Responsible Officer unlike every other doctor employed by the hospital.

Standard 9. Where reporting of imaging investigations is outsourced to off-site radiologists not working in the healthcare facility where the imaging investigations are performed, the healthcare facility management, medical director and radiologists must ensure that the previously published RCR standards[5] are met.

Standard 10. Where reporting of imaging investigations is outsourced to off-site radiologists not working in the healthcare facility where the imaging investigations are performed, the healthcare facility management, medical director and radiologists must ensure the reporting teleradiologists fulfil the GMC requirements to practise medicine in the UK.

In addition, outsourcing radiology departments should make sure that patients know who their imaging investigation will be interpreted by and obtain their agreement that their image can be outsourced. The use of teleradiology services must also be clearly signposted by notices in the department, with leaflets providing further information, especially in waiting areas, so that patients, carers and advocates can query the reason, or voice any concerns to the radiographic staff at the time of the investigation.

Standard 11. Patients or their carers/advocates must be made aware when images are to be interpreted off-site by an outsourced provider and assurances obtained that this is acceptable.

Further recommendations

The RCR recommends that future commissioners of healthcare promote the development and use of local imaging networks which involve local hospital clusters and integrated IT and teleradiology solutions. This may involve partnership with teleradiology companies. In this way, larger groups of specialist radiologists with established effective working relationships with their local hospitals can be created and utilised to provide improved and sustainable specialist radiology reporting services across several hospitals. Education and training of future specialist radiologists would be best served in this way.

Recommendation 2

All future PACS procurements should ensure functionality is provided for efficient interhospital transfer of images and reports – fully utilising common data sharing protocols and standards such as XDSi and DICOM.

Approved by the Board of the Faculty of Clinical Radiology: 25 February 2011

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