

Standards for providing a 24-hour diagnostic radiology service

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 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 Iodinated Intravascular Contrast Agent Administration To Adult Patients

Standards for Patient Consent Particular to Radiology

Standards for the Reporting and Interpretation of Imaging Investigations

Cancer Multidisciplinary Team Meetings – Standards for Clinical Radiologists

Technical Standards for Ultrasound Equipment

360° Appraisal – Good Practice for Radiologists

Individual Responsibilities – A Guide to Medical Practice for Radiologists

Contents

Foreword	4
Principles	5
Requirements for an acute or emergency service	6
Duties of those providing the service	7
Methods of delivery of a 24-hour radiology service	8
Junior staff	9
Resources	9
References	10
Appendix 1. Audit template for the provision of a 24-hour diagnostic radiology service	11

Foreword

Clinical radiology is now so central to the management of so many patients that its delivery can no longer be confined to 'office hours'. This document will be useful to all members and Fellows of The Royal College of Radiologists (RCR) as they strive to provide the high-quality service out of hours which they already provide in hours – while getting on with the rest of their lives. It is intended that this standard should complement the already published *Standards for providing a 24-hour interventional radiology service*, which has been so successful.

I would like to thank all the members of the RCR Standards Sub-Committee for their foresight and hard work in developing this guidance, with particular thanks to Dr Rob Manns (who led on this standard).

Dr Tony Nicholson

Vice-President and Dean
Faculty of Clinical Radiology
The Royal College of Radiologists

Principles

1. Severely and critically ill patients should have immediate access to radiological services to allow timely and accurate diagnosis to enable appropriate treatment.¹
2. A radiologist should be available and readily contactable at all times to support acute service delivery, with no reliance on 'ad hoc' rotas.²
3. Within the UK NHS secondary care system, there is currently full staffing of hospitals during traditional working hours to provide both elective and acute care. Outside these hours, the service relies on smaller teams to deal with urgent cases and the full complement of general, specialist and support staff is not available. Clinical need should determine how these more limited radiological resources are used. The provision of services will require good clinical and radiological dialogue and systems of prioritisation so that immediate care is delivered to those seriously ill and other cases prioritised as appropriate. The urgency of imaging in these patients will depend on the need for clinical decisions related to immediate care and clinical management.
4. There should be clarity in the trust about what services are available on site on a 24-hour basis, and referral protocols agreed.
5. When services cannot be provided on a 24-hour basis despite the radiology department's best efforts, the clinical governance committee of the trust should be aware of the clinical risk and examine other alternatives for providing that service.

Requirements for an acute or emergency service

A radiologist should be immediately contactable at all times on a fixed rota basis when on call. They may be required to do the following:

- Offer advice on the need for imaging, imaging pathways and the timing of any investigations. Except under exceptional circumstances, radiologists should not carry out, on call, an investigation or procedure that they are not trained or retrained to perform and which is not within the remit of their agreed job plan. If a service is required on a reasonably regular basis then individual radiologists must maintain the necessary competencies²
- Review previously obtained images
- Carry out and report on a diagnostic investigation in a timely and appropriately constructed manner^{3,4}
- Discuss the need for invasive procedures and how these can be best carried out within the local or networked arrangements.²

The referral arrangements should be such that the referrer has sufficient knowledge to understand the significance of the imaging findings, and is able to act accordingly in response to these findings.

Dialogue between the referrer and radiologist is essential in order to ensure that the radiological investigation or intervention is necessary, advisable and appropriate to local facilities and requirements.

Wherever possible, there should be local agreements and protocols for the timing of examinations so that seriously ill patients are dealt with immediately and that non-urgent cases do not overwhelm the system. In particular, imaging investigations should not be performed out of hours or at night when they would be better dealt with during the normal working day when all the appropriate staff are available.

Where national imaging standards exist, every effort should be made to comply with these such as the National Stroke Strategy.⁵ If this is not possible, the trust should be made aware of the potential clinical risks involved through its clinical governance arrangements.

If particular radiological services cannot be consistently offered within the local acute hospital NHS trust, there should be clarity about alternative pathways or routes of referral.

Duties of those providing the service

The trust

The trust should be aware of what is not provided and have carried out appropriate risk assessments or made appropriate alternative arrangements where there are gaps in the emergency radiology service. These pathways should be recorded as part of the trust's clinical governance documentation.

There should be trust support to allow full compliance with national guidelines for emergency imaging.^{5,6}

Clinical developments in acute and emergency care should be matched with appropriate investment in radiology. This is likely to be an area of increasing demand as the dependence on imaging information for clinical decision-making increases.

The radiology department

The trust management and those responsible for local clinical governance must be informed where there are concerns about the provision of emergency radiology services.

There must be clarity about what is and what is not available on a 24-hour basis, and referrers should know what is available and when. The core imaging services that are provided out of normal working hours should be clearly defined and written down. This information should be made available for on-call clinical staff within the trust. A trust intranet facility is a useful tool for such information to be kept within and regularly updated. Anaesthetic requirements for the radiology department must be included in the detailed planning of the radiology service.⁷

Staff should be encouraged to maintain the core competencies required to provide an emergency service by continued professional development (CPD) and appropriate work or job planning.

Service development, including continued staff training and professional development, should be planned and implemented to match the reasonable needs of the acute or emergency service. There should be no reliance on 'ad hoc' rotas'. Radiologists have responsibilities for optimising patient safety while on call and also for the next day. Predictably, onerous on-call duties may require prospective scheduling of a morning off or late start after a night on call. Similarly, after an on-call weekend with predictably onerous working, the following Monday might be taken as leave in lieu of this activity. Such arrangements require clinical leadership and direction for effective work or job planning, implementation and subsequent interval service review.

Individual radiologists

Individuals have a duty to maintain the core competencies appropriate to local facilities and requirements that they would expect to need to provide emergency care through CPD and routine daytime working in their local environment.^{2,8}

When unsure, or faced with something outside a radiologist's normal area of expertise, this should be made clear to the referrer and a further expert opinion should be sought or recommended as soon as is feasible.

Methods of delivery of a 24-hour radiology service

There is no single solution which will deliver 24-hour radiological services in all types of hospital trusts. Collaboration with a variety of local, subregional, regional or supraregional arrangements has been suggested for interventional radiological services.^{2,9} Diagnostic radiological services should also consider such arrangements as are appropriate for local requirements.

Unrealistic demands should not be placed on staff to provide 24-hour services¹⁰ and there should be full compliance with appropriate legislation related to employment and health and safety. The Working Time Regulations (1998)¹¹ implement the European Working Time Directive (1993)¹² into UK law.

Article 10(1) states that, 'An adult worker is entitled to a rest period of not less than 11 consecutive hours in each 24-hour period during which he/she works for his/her employer'.¹¹

Article 11(1) states that, 'An adult worker is entitled to an uninterrupted rest period of not less than 24 hours in each seven-day period during which he/she works for his/her employer'.¹¹

Radiologists and the other staff required for the 24-hour provision of radiological services must have adequate rest periods to assure patient safety during on-call hours and for the subsequent normal working day's activities.

Depending on the numbers of radiologists and local circumstances, there are various potential models of provision of services. These include:

- Traditional local rotas involving sufficient numbers of radiologists
- Use of skill mix
- Seven-day working
- Extended-day working
- Hub and spoke or network arrangements
- Outsourcing
- A combination of the above.

Junior staff

Junior radiological staff should have ready access to a consultant radiologist for advice and second opinion at all times while on call for imaging departments.

The important training responsibility of the need to make on-call decisions should be recognised, but there should be senior review of out-of-hours work carried out by junior staff, with appropriate feedback to ensure that maximal educational benefit is obtained and patient safety is ensured.

Resources

Financial resources are limited. For the provision of 24-hour services, the main expenditure is related to staff costs.

The most economically efficient way of providing services is to match the staffing with demand. As acute and emergency need is not predictable, in order to cope with peaks in demand there may be times when staffing is perceived to be underutilised. Therefore, the provision of these services is likely to be expensive on a unit cost basis.

Efficient methods of working may reduce these costs, and demand management also has a role; however, suitable financial investment has to be made for the service to be provided effectively.

References

1. National Confidential Enquiry into Patient Outcome and Death. *Emergency Admissions: A journey in the right direction?* London: NCEPOD, 2007. <http://www.ncepod.org.uk/2007ea.htm> (last accessed 6/3/09)
2. The Royal College of Radiologists. *Standards for providing a 24-hour interventional radiology service.* London: The Royal College of Radiologists, 2008. <http://www.rcr.ac.uk/publications.aspx?PageID=310&PublicationID=288> (last accessed 6/3/09)
3. National Diagnostic Imaging Board. *Radiology Reporting Times Best Practice Guidance.* London: NDIB, 2008.
4. The Royal College of Radiologists. *Standards for the Reporting and Interpretation of Imaging Investigations.* London: The Royal College of Radiologists, 2006. <http://www.rcr.ac.uk/publications.aspx?PageID=310&PublicationID=225> (last accessed 6/3/09)
5. Department of Health. *Implementing the National Stroke Strategy – an imaging guide.* London: Department of Health, 2008. http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_085146
6. National Confidential Enquiry into Patient Outcome and Death. *Trauma: Who cares?* London: NCEPOD, 2007. <http://www.ncepod.org.uk/2007t.htm> (last accessed 6/3/09)
7. The Royal College of Radiologists. *Safe Sedation, Analgesia and Anaesthesia within the Radiology Department.* London: The Royal College of Radiologists, 2003. <http://www.rcr.ac.uk/publications.aspx?PageID=310&PublicationID=186> (last accessed 6/3/09)
8. General Medical Council. *Good Medical Practice.* London: GMC, 2006. http://www.gmc-uk.org/guidance/good_medical_practice/GMC_GMP.pdf (last accessed 6/3/09)
9. National Leadership Network. *Strengthening Local Services: The Future of the Acute Hospital. The Report of the National Leadership Network Local Hospitals Project.* London: National Leadership Network, 2006. <http://www.nationalleadershipnetwork.org/public/NLN-StrengtheningLocalServicesMain-170306.pdf> (last accessed 6/3/09)
10. Berlin L. Liability of the sleep deprived resident. *AJR Am J Roentgenol* 2008; **190**: 845–851.
11. *The Working Time Regulations 1998. Statutory Instrument 1998 No. 1833.* <http://www.opsi.gov.uk/si/si1998/19981833.htm> (last accessed 6/3/09)
12. Council of the European Union. Council directive 93/104/EC.1993. <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:31993L0104:EN:HTML> (last accessed 6/3/09)

Appendix 1. Audit template for the provision of a 24-hour diagnostic radiology service

Background

The demand for all types of radiological imaging on a 24-hour, seven day a week basis has increased significantly in recent years. Imaging has a key role in the initial investigation and management of severely ill patients. Every acute trust has a fundamental duty of care to ensure that adequate and robust arrangements are available for such patients admitted under the care of its clinicians.

The Cycle

The standard

- The radiological service should be available on a formal rota basis 24 hours of the day, every day of the year.
- The service should be led by a named radiologist(s) as part of a formal rota basis and supported by a team of radiographic and technical staff. Full and appropriate staffing is required for all aspects of the diagnostic radiological service which are detailed as available to the medical teams working within the acute trust on a 24-hour basis.
- All modalities including CT, ultrasound and MRI require specific attention as to the availability of individuals who will provide the imaging and reporting of examinations on a 24-hour rota basis for the trust.
- Formal arrangements for sedation, analgesia and anaesthesia are integral aspects of a safe 24-hour clinical radiological service.

Target

100% compliance in all areas.

Assessment of local practice

The indicator(s)

Affirmative answer to each question.

Data items to be collected

- a. Questionnaire to be completed for each aspect of the radiological service offered; eg, plain films, fluoroscopy, CT, ultrasound and MRI.
- b. Multisource feedback obtained from the service users as to the consistent availability of the diagnostic service available.

Suggestions for change if target is not met

Any deficiency in the diagnostic service provision should be brought to the attention of the trust management by the radiological management team. The reason(s) for the failure of the diagnostic service provision should be outlined and highlighted. Mechanisms for appropriate improvements in service provision should be undertaken by the trust and immediate contingency arrangements put in place by the trust. Formal contracts with other trusts may be required to support good medical practice if appropriate facilities are not routinely available within the local acute trust.

- Clinical teams should be made explicitly aware as to what diagnostic services are, and are not, available within the trust at a given point in time
- Locally agreed protocols have the potential to avoid confusion in individual cases. These protocols should be evidence-based and formally agreed with relevant clinical teams.
- Individual radiologists should keep their range of skills and routine practice under review. Maintenance of clinical competencies is an essential requirement for providing a trust-wide diagnostic radiological service. Subspecialty skills may be required for specific subspecialty diagnostic rotas as determined by the size of the acute trust and the variety of clinical specialties provided within the trust.

Resources

The clinical lead for the radiological department or a nominated deputy should complete the relevant questionnaires and obtain multisource feedback from clinical service users. The information from these sources should be fed back to the trust via its clinical governance management team.

Diagnostic radiology is a dynamic interactive clinical specialty and the radiological team should be prepared to change their practice to improve clinical care as evidence to support service changes is accumulated. At a minimum, an annual review of the diagnostic radiological service provided is suggested. Clinical governance considerations and audit-derived data will facilitate discussion with other clinicians and trust management. Changes in practice will inevitably require alterations in the resources made available to the radiology department by trust management.

Citation details:

The Royal College of Radiologists. *Standards for providing a 24-hour diagnostic radiology service*. London: The Royal College of Radiologists, 2009.

ISBN: 978-1-905034-38-3 Ref No. BFCR(09)3 © The Royal College of Radiologists, April 2009

For permission to reproduce any of the content contained herein, please email: permissions@rcr.ac.uk

This material has been produced by The Royal College of Radiologists (RCR) for use internally within the National Health Service in the United Kingdom. It is provided for use by appropriately qualified professionals, and the making of any decision regarding the applicability and suitability of the material in any particular circumstance is subject to the user's professional judgement.

While every reasonable care has been taken to ensure the accuracy of the material, RCR cannot accept any responsibility for any action taken, or not taken, on the basis of it. As publisher, RCR shall not be liable to any person for any loss or damage, which may arise from the use of any of the material. The RCR does not exclude or limit liability for death or personal injury to the extent only that the same arises as a result of the negligence of RCR, its employees, Officers, members and Fellows, or any other person contributing to the formulation of the material.

Design by innov8 graphic design: www.innov8gd.com. Printed by Gallpen Colour Print.