

Medical image interpretation by radiographers

Guidance for radiologists and healthcare providers

Board of the Faculty of Clinical Radiology
The Royal College of Radiologists

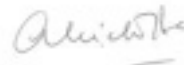
Foreword

Medical image interpretation by radiographers in healthcare delivery is not used to a significant extent in any developed country other than the United Kingdom. It was introduced in the NHS because of the shortage of radiologists in the 1990s and has made a contribution to the provision of medical imaging services, particularly in ultrasonography. Cost-effectiveness and safety remain unproven outside the area of breast screening. The Royal College of Radiologists (RCR) has supported the extension of the role of radiographers into this field as a pragmatic way of dealing with workforce problems and has collaborated with the Society and College of Radiographers to promote team working where radiographers work in extended roles. Initially, the areas in which radiographers undertook image interpretation were defined clearly and were in keeping with the standards of the RCR.¹ However, more recently, some radiographers have extended their role in image interpretation beyond these standards, raising questions regarding the responsibilities of radiologists, radiology departments and the hospital trusts in which this work is being undertaken.

In response to questions raised by Fellows of the College, members of other Colleges and enquiries from patients concerning consent and safety, the RCR convened a working party to consider the relevant regulatory and medico-legal issues, in order to enable it to provide information and to issue guidance to its Fellows and to healthcare providers in relation to their responsibilities in this area. The working party included representatives from the health departments of the four countries of the UK, The Royal College of Surgeons of England, the Royal College of Physicians of London, the General Medical Council, the Care Quality Commission, the Clinical Radiology Patients' Liaison Group of the RCR, the English National Imaging Board and the Society and College of Radiographers. We are very grateful to all the members of the working party for their invaluable contribution and help in considering the issues. However, we wish to emphasise that this guidance is the official view of the RCR alone, and not an amalgam of the views of the organisations represented in the working party.



Professor Andy Adam
President



Dr Tony Nicholson
Dean of the Faculty of Clinical Radiology

Information for healthcare providers

How do radiologists interpret images? The science and art of diagnosis

The process of making a radiological diagnosis is often misunderstood by those not trained in medicine. There are some who believe that an imaging diagnosis is reached by pattern recognition and that image interpretation is a skill that can be learned by those without medical training. In fact, radiologists make diagnoses in exactly the same way as other doctors, combining information from the patient's clinical history with clinical signs and the results of laboratory tests and other investigations. The only difference is that the signs are inside the patient and are elicited using radiological imaging techniques. The process may involve communication and discussion with referring doctors, consideration of biochemistry and other laboratory results, and the interpretation and synthesis of other imaging examinations.

The descriptive medical image report

The term medical image interpretation needs to be defined. Any medical image to which the process of diagnosis, described above, is applied is covered by this term. A purely descriptive report does not amount to 'interpretation'. The value of such a descriptive report is limited and there is no evidence that it is cost-effective, as referrers would then require a radiologist to examine the relevant images in order to issue a clinically relevant report. Measurements and factual observations based on pattern recognition do not constitute medical image interpretation. However, in some situations, these can provide referrers with useful information and can answer important questions such as:

- Is there a fracture or not on a plain radiograph?
- Has an ultrasound study revealed stones in the gall bladder?
- Has a mammogram demonstrated a cancer?

The importance of medical training

Radiographers undergo training to degree level in their field and study descriptive and technical aspects of imaging for a part of their degree course. Some opt to study such matters in greater detail in postgraduate courses. However, they do not undergo medical training and do not study in-depth the nature of disease. Radiographic training does not equip radiographers with the knowledge and skills to offer a differential diagnosis, which is a major component of medical image interpretation, or to offer guidance to the referring doctor regarding further investigations based on the likely pathology.

Various universities and other organisations run courses for radiographers, providing training in the reporting of medical imaging investigations. Such courses may be helpful in increasing the confidence of radiologists in the expertise of an individual radiographer to whom they are considering delegating medical image reporting. Such training may also be taken into account by a hospital trust or another organisation wishing to use radiographers as reporters of medical images. However, certificates provided after the successful completion of such courses are not accredited medical qualifications that enable radiographers to interpret medical images independently.

The deployment of suitably trained radiographers and other non-medical healthcare professionals in the reporting of medical images can be a pragmatic solution to workforce problems. However, it is important that when radiographers undertake this task, at whatever level, this is done as safely as possible.

Identification

It is imperative that radiographers undertaking imaging procedures identify themselves to patients and explain their status, in the same way that radiologists identify themselves as consultants or trainees as required by the GMC's *Good Medical Practice*.² Radiographers must also clearly identify themselves on all typed reports.

The regulatory situation

It is important that the regulatory implications for individual radiologists, clinical directors, medical directors and chief executives are clearly understood.

Radiographers can undertake medical image reporting as an extended role in the following two situations.

1. *When the task of medical image interpretation is delegated by a named radiologist, or another doctor responsible for the interpretation of medical images, to a named radiographer, in keeping with the guidelines set by the GMC in Good Medical Practice.*²

When radiographers undertake such work within departments of radiology, the responsibility is borne by a named person in that department. If this is not done formally, the responsibility is borne by the person in clinical charge of the department, usually the clinical director. Team working has many advantages and is one of the defining characteristics of radiology departments, in which radiologists and radiographers work together in harmony. However, the law does not recognise team responsibility in these circumstances and 'the department' as an organisation cannot undertake this role. Furthermore, the competence of each radiographer involved in this work must be scrutinised individually, in order to ensure that he/she is able to undertake the tasks assigned to him or her.

When delegating medical image interpretation to radiographers, radiologists are urged to do so in line with the guidelines included in *Standards for the Reporting and Interpretation of Imaging Investigations*,¹ which states *The types of investigation which may be suitable for primary reporting by healthcare professionals without the benefit of a medical degree are those where there is a single organ investigation, with a single suspected pathology and a yes/no answer.* An exception to this is ultrasonography, in which specially trained radiographers (ultrasonographers) undertake medical image interpretation across a number of organ systems, working to locally agreed protocols and always in teams with radiologists.

2. *When an NHS trust, or another organisation responsible for the provision of medical services, formally issues a contract empowering a radiographer or a group of radiographers to undertake medical image interpretation.*

In such circumstances, a named individual, such as the medical director within the organisation is legally responsible for the safe provision of this service. In the event of patients being harmed, the organisation, through the chief executive or medical director, would have to demonstrate that the radiographer issuing the relevant report had the expertise, experience and qualifications to undertake the relevant task. Of course, the use of unsupervised professionals without medical qualifications in the practice of medicine, which includes radiological diagnosis, carries substantially greater risks for healthcare organisations than employing radiologists. Such risks are even greater when the images interpreted by radiographers are not in keeping with the guidance contained in *Standards for the Reporting and Interpretation of Imaging Investigations*.¹

References

1. The Royal College of Radiologists. *Standards for the Reporting and Interpretation of Imaging Investigations*. London: The Royal College of Radiologists, 2006.
2. General Medical Council. *Good Medical Practice*. London: General Medical Council, 2006.

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