OUTSOURCED RADIOLOGY: WILL DOCTORS BE DESKILLED?

Outsourcing of radiology has boomed in recent years as hospitals struggle to keep up with the increased demand for imaging, but how well does it work? Amy Davis reports

The technology available to radiologists has changed dramatically over the past decade. The internet, affordable high performance computers, the wide adoption of digital imaging, and picture archiving and communication systems (PACS) have propelled radiology into the digital era. These changes mean that imaging and interpretation are no longer confined to the one site—an image taken in a UK hospital can be viewed almost immediately somewhere else.

Remote assessment has become embedded in the United States. Even back in 1999, a survey of US radiologists found that 75% of radiology practices with more than one radiologist and 30% of practices with only one radiologist did their on-call work from outside the hospital, using teleradiology.1 Although this technology has undoubtedly benefited for clinicians and patients, the digital revolution has directly led to and accelerated the outsourcing of images. UK trusts, unable to cope with the volume of work, are taking advantage of regulations that allow them to outsource reporting of images within the European Union without patient consent. But critics of outsourcing question its long term effects on radiology—can teleradiologists really maintain the same high standards of quality in their reports as in-house staff? Have the benefits of teleradiology been overhyped, especially its speed and cost effectiveness? And will transferring images of a single type or subspecialty to outside companies threaten to deskill the radiologists and trainee practitioners in our hospitals?

Supply and demand
Demand for radiology has increased because today’s clinicians realise that an objective radiology report is more reliable and informative than a subjective physical examination.2 Gone are the days when patients in accident and emergency departments would have plain radiography and exploratory surgery, or the doctor would observe overnight. Ultrasonography and computed tomography are now widely used to enable a more rapid diagnosis, and these scans are often requested out of hours. Gill Markham, vice president of the Royal College of Radiologists, said: “Almost every emergency now requires imaging before treatment.”

The increased demand coincided with a chronic shortage of trained radiographers. In 2006, there were 206 vacancies for radiologists across the UK (excluding Scotland) including 167 consultant radiologists. In December 2008, all National Health Service trusts in England will have to meet an 18 week target between a patient’s referral and treatment—including a six week deadline for all diagnostic tests to be carried out.3 The pressure to meet this target has seen more radiologists being trained in recent years, but understaffing of in-house services is widespread.

In the US, outsourcing the work of radiologists out of hours is common practice. This “night hawking” has been adopted by many American hospitals to cope with the increased demand for radiology services and a shortage of radiologists.4 It is a pattern starting to appear in the UK and Canada, particularly in magnetic resonance imaging, where both countries face a shortage of expensive equipment as well as trained radiologists to report these scans. Some hospitals have outsourced work to independent providers through fixed site magnetic resonance systems or mobile units.

Stewart Yates, clinical director of radiology at Barnsley Hospital NHS Foundation Trust, was forced to outsource work after only four of the eight consultant radiologist posts were filled. The trust had its own machines but only two radiologists qualified to report on the images.

At first, Dr Yates had difficulty finding an outsourcing company to carry out routine reporting for images requested by general practitioners because most provided only subspecialist reporting. “It was difficult to find people to report plain x rays; they were all specialists in magnetic resonance imaging,” he said. The solution was found in Spain at a telemedicine clinic in Barcelona, although this was not without teething problems. At the start of the contract, general practitioners in the Barnsley area were unhappy that outsourced work was returned late. Today, most (95%) of the radiology department’s outsourced reports are available within 36 hours.

Diagnostic clarity
But can professionals communicate effectively in this way? Discussions between the radiologist and the referring clinician can result in a change of the diagnosis in half of patients and a change of treatment in 60% of cases discussed.5 This clinical interaction may be lost when outsourcing work, says

4. BMJ 2007; 335: 1011–1012
Steve Field, chairman of the Royal College of General Practitioners. He describes the need for a “more mature relationship between the GP and the specialist, where a GP can refer directly to a radiologist, discuss a case, and get advice on the most appropriate test.” He worried that outsourcing this relationship would jeopardise effective communication between specialists—especially if contracts went to countries that did not share the same first language.

Teleradiology and outsourcing does not come without risks. Giles Maskell, registrar of the faculty of clinical radiology at the Royal College of Radiologists, said a key problem was the lack of integration of teleradiology into hospital systems. “A radiology report is much more than simply the result of a test. It is not analogous to the print out of a biochemistry analyser but should be a fully informed clinical decision,” he said. The difficulty is that teleradiologists are not always fully informed, he added, and would not have access to previous images or the results of other investigations, which can be invaluable in reaching the correct diagnosis. This goes against standards for best reporting in practice.5

Mr Maskell’s comments are echoed by Giles Boland, who trained as a radiologist in the UK but now works at Massachusetts General Hospital in Boston. Mr Boland has had 15 years’ experience of teleradiology in the US and now provides an outsourcing service. “The biggest obstacle [in teleradiology] is not having free access to old scans, blood tests, past medical history, and discharge summaries,” he said. “[Radiologists] cannot claim teleradiology reports are similar quality to those of in-house radiologists if they don’t have access to the rest of the information.”

**Questionable cost effectiveness**

The lack of integration also means that teleradiology can be time consuming and more expensive than it appears. Administration staff may be left to send the digital images to the teleradiologist. They must then also fax the request form, which means that the receiving radiologist is given only what someone at the sending site thinks is necessary and appropriate. Any additional information needed must then be requested by the teleradiologist. The process of sending the reports back has much the same drawbacks.

Dr Yates went further: “For every one hour of a doctor’s time saved, you needed two hours of clerical time to support the service.” There is typically no way to integrate the computerised report from the teleradiologist into the system of the initiating site. In practice this means another set of emails or faxes, which must then be transcribed or copied into the system electronically—with the added disadvantage that the interpreting radiologist is unable to see and therefore approve the final copy.6

The legal aspects of teleradiology can also cause headaches. These include complying with the European Working Time Directive, patient confidentiality, and liability.7 Because of the legal issues surrounding digital images, including the Data Protection Act, work from the UK is not allowed to be outsourced beyond Europe without a signed patient consent form. Currently patients do not need to be made aware if their images are transferred within the European Union.8 The reporting staff in the Barcelona clinic used by Barnsley were required to be on the UK specialist register and have fellowship of the Royal College of Radiology or an equivalent qualification.2 The US faces similar restrictions. All radiologists must be licensed to practise in the state where the image has been taken as well as in the state in which the interpretation takes place.

The deskillng of the profession by tele-radiology is a concern. Transferring all images of one type or within a subspecialty to an outsourcing company will inevitably result in the loss of local skills and potentially the closure of radiology departments.7 There is concern that outsourcing may affect those training in radiology because trainees might not be seeing all types of images. Gill Markham is aware of these concerns, and although she denies that it is a current problem, she says the royal college is monitoring the situation. The college has produced a document to guide clinical radiologists in the use of teleradiology. Teleradiology, it suggests, should not replace radiology departments but enhance them. Paul Dubbins, dean of the faculty of clinical radiology, writes in the document’s forward: “The College remains of the view that clinical radiology services are best provided by properly staffed and properly equipped departments . . . serving local communities. The value of teleradiology could then be exploited to provide rapid expert review and advice where appropriate.”9 It is hard to argue against the potential offered by teleradiology for rapid image transfer between specialist centres and peripheral units, for second opinions on complex cases, and for shared learning.

It seems teleradiology and outsourcing is here to stay. What we need to do now is ensure that it is used for the benefit of patient care without compromising quality or becoming a low cost alternative to the gold standard.

Amy Davis editorial registrar BMJ adavis@bmj.com

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3 NHS 18 weeks. www.18weeks.nhs.uk.


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