

# Imaging in primary care

GPs who have access to diagnostic testing from primary care, and clear referral guidelines to follow will utilise these resources as efficiently as hospital doctors.<sup>1,2</sup> Yet many GPs in the UK still feel constrained by local limitations on direct access to imaging tests, especially to the more complex investigations such as magnetic resonance imaging (MRI) and X-ray computed tomography (CT).

This should change. In England the NHS is committed to providing more diagnostic testing in primary care.<sup>3</sup> This is seen as a key enabler for reducing the total number of secondary care referrals. In addition, it is hoped that when secondary care referral is still required, pre-referral testing will speed up the patient journey ensuring, for example in England, a maximum wait of 18 weeks between referral and treatment.

GPs will rightly welcome improved and often more local access to diagnostic testing. For them there will be the challenge to make the best use of this resource. In future, GP's will need to be comfortable with the use of a greater range of diagnostic tests and confident that better direct access to testing will not lead to a reduction in patient care and outcome.

GPs and GP educators must ensure that primary care is armed with the appropriate knowledge and tools to take advantage of the impending imaging revolution. GP commissioners must ensure that clinical and quality standards are met. Better primary care commissioning with auditable standards for waiting times and turnaround times should lead to electronic messaging between practice and provider to allow follow-up examinations to be booked at the time of the first consultation, with the radiological report available in a timely fashion. This will considerably reduce GP frustration and patient delay.

Digital image acquisition, computer-based image and information management are the new prerequisites to the all-digital practice of radiology. The national rollout of picture archiving and storage systems (PACS) to link to a

national data spine will eventually mean images and reports can be viewed anywhere within the NHS.

Most GPs currently express little desire to see their patients' medical images. This is beginning to change, especially with the development of special interests and primary-to-primary referrals. Such a development is timely. Already the ability of the physician to peer into the interior of the living human body has revolutionised our concepts of health and disease. On any scale it is hard to over-estimate the beneficial impact medical imaging has had on patient care.

Most disciplines of contemporary hospital practice would be almost unrecognisable in the absence of modern imaging. Yet, for all that medical imaging reveals, something else will be concealed. As the availability and power of imaging grows, skills in history taking and physical examination decline. In secondary care admitted emergency patients often move directly to radiology, before being seen by the receiving doctor. Taking a full history and performing a detailed physical examination feels somehow inefficient to many hospital doctors when the CT scan is expected to reveal all.

In this issue, Speets *et al* report a change in proposed management for 60% of patients referred for chest X-ray from primary care.<sup>4</sup> Benefits to the referring practice included streamlined referrals to secondary care (first-time referral to the appropriate specialty); an overall reduction in secondary care referrals; and improved prescribing.

The authors also review the clinical indications for the examination. They make no reference to the use of agreed referral guidelines and do not speculate on whether the proportion of patients found to have a clinically relevant abnormality (25%) may be improved upon.<sup>5</sup>

Speets *et al* highlight some of the difficulties in translating any benefit from a normal examination into patient reassurance. Only 50% of their patients felt reassured by having had the test and 25% recorded the test was of little value to

them because no referral or treatment followed the radiological investigation.

Decision making in primary care, especially in patients with chronic conditions, is less often influenced by the radiological report. Morgan *et al* found in a study of 1153 primary care referrals that 87% of knee examinations did not lead to management change and noted that 50% of referrals fell outside contemporary Royal College of Radiologists guidance.<sup>6</sup>

Two further papers in this Journal demonstrate some of the impact direct access to the chest X-ray has on primary care patients with a final diagnosis of lung cancer. It is well-known from screening studies that small bronchial neoplasms may be overlooked on chest X-ray, creating a significant false-negative rate. The sensitivity of chest X-ray for diagnosing asymptomatic lung cancer is only 26% with a positive predictive value of an abnormal chest X-ray as low as 10%.<sup>7</sup> In symptomatic patients malignancies may not only also be missed, but visualised abnormalities such as pneumonia may also be wrongly interpreted as benign. The management in primary care of patients with negative chest X-ray reports requires robust clinical and radiological follow-up strategies to be implemented.

Bjerager *et al*, report the causes for a delay in the referral of patients with lung cancer from primary to secondary care.<sup>8</sup> They found a negative X-ray report was the most significant factor. In their study a negative chest X-ray report led to a median delay of 161 days (interquartile range [IQR] = 128–203) compared with an overall delay of 27 days (IQR = 10–42) for all other patients. A delay of this magnitude is significant in the context of cancer waiting-time targets that, in England, require a maximum 62-day wait from urgent GP referral for suspected cancer to first definitive treatment. In addition, the authors report that when the chest X-ray was helpful in determining the need for prompt referral, additional systemic delays in local access to imaging and the radiologist's reports

were factors in delay. They identified as a further risk for delay the lack of prospective care pathways for patients with abnormal, but not suspicious chest X-ray findings.

Stapeley *et al* focused more specifically on the incidence of negative chest X-ray reports in primary care patients subsequently diagnosed with lung cancer.<sup>9</sup> They found that 23% of GP chest X-ray requests in patients with symptoms eventually attributed to lung cancer, were reported as non-suspicious for malignancy. The authors report that the proportion of normal reports increases when there is a gap of more than 6 months between examination and subsequent referral; but even within the immediately prior 90-day period 10% of chest X-ray reports on their symptomatic patients were not suspicious for cancer.

These two papers remind GPs to be aware of the false-negative imaging report and to ensure through patient follow-up, and if necessary repeat radiography, that patient care is not compromised through false reassurance.

For a GP, confidence in dealing with false-positive imaging results is also required. False-positive imaging findings can lead to over-investigation and inappropriate patient management. MRI and CT can provide detailed anatomic information at sub-centimetre resolution. GPs will need to remember that not every abnormality detected, described and reported will be causative. For example, MRI of the spine frequently shows abnormality, even in asymptomatic individuals.<sup>10</sup> There is good evidence that the over-reliance on MRI in the management of patients with low back pain and radiculopathy is counter-productive. Modic *et al*, in a study of both physical and psychological health, concluded that: 'In typical patients with low back pain or radiculopathy, MR imaging does not appear to have a measurable value in terms of planning conservative care'.<sup>11</sup> It is of significance that they did not find any patient benefit from referral for 'reassurance' scans.

Sharing and communicating with patients the outcome of their imaging investigations will be another challenge. As a starting point the reporting radiologist

will have to write a report that is meaningful not only to the referring GP, but also to their patient and to any other healthcare professional involved in the further patient management. This requires clear and open lines of communication between the GP and the reporting radiologist with optimal referral information available to the radiologist at the time of justifying, protocolling and reporting the images.

Local patient pathways backed up by national models and guidelines will be the key to delivering coherent patient care.

To stimulate and support the development of local pathways the Royal College of General Practitioners and the Royal College of Radiologists have jointly developed a new framework for primary care access to imaging entitled *Right Test, Right Time, Right Place* with focused guidance for the use of over 60 common diagnostic imaging tests including ultrasound, MRI and CT.<sup>12</sup> This agreed guidance is based on previous published guidance, including the Royal College of Radiologists' guidance for hospital doctors *Making the Best Use of a Department of Radiology* and the NICE guidance *Referral of Patients with Suspected Cancer* and will be available from the Colleges later this year in both electronic and paper formats.<sup>13,14</sup>

GPs must acknowledge that modern imaging is very seductive and in future great care will be required to ensure primary care doesn't move from addressing the needs of the patient in front of you to answering the siren cry of the image.

#### Graham Cherryman

Professor of Radiology, University Hospitals of Leicester NHS Trust, Leicester

#### Competing interests

The author was the lead contributor of the report: Royal College of Radiologists & Royal College of General Practitioners. *Framework for Primary Care Access to Imaging 'Right Test, Right Time, Right Place'*. London: RCR & RCGP, 2006 (in press).

#### Disclaimer

The views expressed are those of the author and not necessarily those of the Royal College of Radiologists or of the Royal College of General Practitioners.

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## ADDRESS FOR CORRESPONDENCE

### Graham Cherryman

Department of Radiology, Leicester General Hospital, Gwendolen Road, Leicester LE5 4PW.  
E-mail: grc1@le.ac.uk