The availability of diagnostic imaging in primary care was seen as a key enabler for reducing the total number of secondary care referrals, as well as expediting referrals for those patients who needed orthopaedic intervention. To prevent the misuse of these resources, the Royal College of General Practitioners and the Royal College of Radiologists developed a new framework for primary care access to diagnostic imaging with focused guidance for the use of the most common tests. Consequently, most PCTs signed contracts with third party providers of diagnostic imaging services to avoid overwhelming diagnostic imaging services in local hospitals. However, these investigations are not routinely available on the picture archiving and communication system (PACS) at the first outpatient appointment. Most clinicians therefore rely on images being brought in by the patient or being sent by the GP along with the referral letter.

Any delay in this process means that treatment cannot be initiated until the imaging has been retrieved or repeated. Not only is this costly to the trust but it is extremely inconvenient for the patient. A retrospective analysis was performed to assess how many pre-referral diagnostic images (not including plain x-rays) were actually available at the first elective orthopaedic outpatient appointment.

Methods
We analysed the notes of all new patients seen in the senior author’s elective orthopaedic clinic from January 2010 (which coincided with the national rollout of the Image Exchange Portal [IEP]) to January 2011. We looked for evidence of pre-referral imaging in the GP clinic letter, whether it was actually available at the first outpatient appointment and if so, whether it was available in the form of a written report or CD-ROM in the clinician’s letter.

Results
A total of 196 new elective referrals were made to the senior author’s clinic between January 2010 and January 2011. Of these, 22 patients (11%) had pre-referral imaging (either computed tomography or magnetic resonance imaging), all carried out by InHealth. Only 5 of the 22 referrals (23%) had a CD-ROM (which was either sent in by the GP with the referral letter or brought in by the patient). Ten referrals (45%) only had a written report by a radiologist of unknown standing who did not work in the hospital trust. Seven referrals (32%) had no written report or CD-ROM available at the first outpatient appointment. The 17 patients who did not have a CD-ROM were asked to retrieve their imaging and to come back to the clinic two weeks later. Three of the seventeen patients could not retrieve their imaging and were sent for repeat investigations.

Discussion
Only a small proportion of patients have pre-referral imaging organised in primary care. (Whether the availability of diagnostic services in the community has actually changed referral patterns is beyond the scope of this study). The majority of these were either not available at the first outpatient appointment or simply available in the form of a written report by a radiologist of unknown standing not working in our...
of local web and application traffic. This service is being provided at no cost to 120 trusts via Department of Health funding. It enables speedier access to images and reports, and can improve the patient experience owing to the streamlined exchange of diagnostic results. It is also a more efficient use of staff time. It eliminates the use of CD-ROMs, which can be lost or sent to the wrong location. Furthermore, many CDs may have poor image quality and the report cannot be burned onto the CD with the images. Many third party diagnostic imaging service providers are also signed up to the IEP.

Clinicians should ask their PACS manager or musculoskeletal radiologist whether they have access to the IEP. If so, their radiology department will have access to all pre-referral imaging. In our unit we have implemented a system to make sure these images are obtained: when referral letters are triaged by consultants or their clinic clerks/secretaries, any mention of pre-referral imaging in the GP letter automatically triggers a request to PACS for these images. The IEP allows PACS to interface with most third-party providers of imaging but also has the advantage of networking images with an automated process, with the reduced risk of lost requests and images. Although this system has been established for some time across many trusts in the UK, our study highlights that hospital clinicians still have difficulty accessing pre-referral imaging, which is costly and time consuming. However, this seems to be a problem of awareness of available methods rather than lack of infrastructure. We therefore propose improving awareness of the IEP and its capabilities among clinical staff.

A major limitation of our small study was its retrospective nature, which meant that our results were only as accurate as the GP referral letters. In some cases the letters were only one line long and did not allude to the fact that the patient may have had pre-referral imaging in the community. It was therefore assumed that the patient had not had any pre-referral imaging, making it possible that some cases were missed. A prospective design may have provided more accurate capture of the necessary data.

Conclusions
Since departments have converted to digital imaging, there are now a number of methods for transferring images between different independent healthcare providers. The IEP allows PACS to interface with most third-party providers of imaging but also has the advantage of networking images with an automated process, with the reduced risk of lost requests and images. Although this system has been established for some time across many trusts in the UK, our study highlights that hospital clinicians still have difficulty accessing pre-referral imaging, which is costly and time consuming. However, this seems to be a problem of awareness of available methods rather than lack of infrastructure. We therefore propose improving awareness of the IEP and its capabilities among clinical staff.

References