Audit of waiting time for imaging investigations ordered from a rheumatology outpatient department

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Aims and objectives

Timely access to a wide variety of imaging modalities is essential for diagnosis and management. It is useful to be able to predict the length of time a patient will be awaiting a particular scan, as some treatments may be delayed until after a radiological diagnosis has been made. We hypothesized that certain forms of imaging would be completed more promptly when compared with other imaging modalities, as a result of supply and demand. We also wanted to compare the performance of our institute with regard to waiting times for imaging modalities, when compared with published guidelines [1,2].

Rheumatology is a specialty in which imaging investigations play an important part in diagnosis and management. It was decided to draw our sample from an outpatient rheumatology department, to represent a general medical specialty. This study aimed to investigate the mean wait times for magnetic resonance imaging (MRI), computed tomography (CT), dual energy X-ray absorptiometry (DEXA), ultrasound (US) and plain radiograph (X-Ray) investigations requested by the rheumatology out-patient department at our institution over a three year period.

By investigating the waiting times for imaging modalities, it is possible to determine the average waiting times for different types of radiology. This information may help physicians in their clinical practices [3]. Information on imaging waiting times may also allow for more appropriate allocation of resources, which is especially important in a value-conscious health care model [4].
Methods and materials

Data was collected using the computerised database at our institution. Wait time was defined as the length in days between the scan being requested and the scan being completed. A dataset was created, and the details and waiting times of 1230 requested scans (MRI, CT, X-ray, DEXA and US) from an outpatient rheumatology clinic, during the three year period from 2011-2014 were analysed. The mean wait times were compared using ANOVA and paired student’s t-tests. MRI wait times were further broken down by type of MRI based on body part.

A literature review was performed to look at target maximum wait times for imaging modalities in other countries, including the UK and Canada [1,2]. The target wait times vary. Following the literature review and local consultation, a standard target maximum wait time was decided upon; These targets were 60 days for non-urgent MRI, CT and DEXA scan and 30 days for non-urgent X-Ray and US.

In the UK, they aim for 99% of scans to be completed within their target wait times [2]. The percentage of scans that were performed within this target wait time was calculated, to compare with the aim of 99%. This methodology aimed to provide an informative overview of current wait times for imaging modalities for an outpatient department in our institution.
Results

For rheumatology outpatients awaiting imaging, wait times were longest for MRI scans, with a mean wait of 306 days (approximately 10 months). This was followed by DEXA (mean 155 days), CT (mean 89 days), ultrasound (mean 66 days) and X-Ray (mean 7 days). The difference between the wait times between modalities were statistically significant (p<0.001). Fig. 1 on page 5 demonstrates the comparison of waiting times between the different imaging modalities.

Among MRI scanning, the shortest mean waiting periods were for whole-body MRIs (63 days), while the longest mean waiting periods were for knee MRIs (592 days) and foot and hand MRIs (408 days). The longest individual wait was for a lumbar spine MRI, which took 814 days (approximately 2 years and 3 months) to be performed. Fig. 2 on page 5 demonstrates the breakdown of MRI waiting times.

The decided upon target maximum wait time was 60 days for non-urgent MRI, CT and DEXA scans and 30 days for non-urgent X-Ray and US. It was found that 9% of DEXAs, 10% of MRIs and 46% of CTs were completed within the target period of 60 days. Furthermore, 33% of ultrasounds and 98% of X-rays were completed within the target period of 30 days. All modalities investigated fell short of a potential aim for 99% of scans to be completed within their target wait times [2]. Fig. 3 on page 5 demonstrates the percentage of scans performed within the target waiting periods.

In summary, the waiting times were longest for MRI and DEXA and shortest for ultrasound and X-rays. A low proportion of DEXA, MRI, CT and ultrasound scans were performed within the target wait times.
Images for this section:

**Fig. 1**

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**Fig. 2**

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Fig. 3

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Conclusion

Imaging studies play a crucial role in the diagnosis of rheumatic disease. This study has shown that for the majority of patients in our service, the outpatient wait times for radiological investigation is in excess of internationally recommended targets [1,2]. This delay in imaging, particularly for MRI and DEXA scans, may delay the initiation of treatment, to the detriment of patient care.

This research has demonstrated the need for the ongoing audit of wait times, both at a local and national level. These should be used to inform wait time targets, and be regularly updated to ensure that they are appropriate. To meet these targets, the institutions may need extra resources, including increases in equipment, radiographers, radiologists and ancillary staff.

In a value conscious health care model, appropriate resource allocation is required with regard to imaging modalities [4]. Improved monitoring of wait times, and access to imaging modalities, will hopefully lead to improvement in patient care.
References


