



Evaluation of Hot Reporting of X-Rays in Emergency Department of Milton Keynes University Hospital UK

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Introduction

It is widely recognized that the demand for health and social care services is increasing day by day. This is exerting pressure on all areas of the system, including radiology services, which plays a major role in the diagnosis and treatment of majority of conditions. The current study raised serious concerns about the time it takes for emergency department at Milton Keynes University Hospital to report plain films and the potential risks this poses to patients. The problems found at the trust warranted immediate actions, but have raised broader concerns about delays in reporting across NHS trusts. In UK Emergency department activity continues to increase, with 21.4 million appearances recorded in 2011, an increase of 3.8 percent over the previous year, the vast majority (20.8 million) being new rather than follow up attendances [1].

X- Ray imaging plays a vital role in the diagnosis of number of injuries, with 23-51% of ER patients referred for radiographic examination [2] and a relatively smaller but increasing number of patients sent directly for CT scans. Importantly, these increased demands for both emergency and radiology services are taking place at the same time that UK healthcare departments are being asked to assess the quality of care provided and to reduce service costs. Specifically, the National Health Service's (NHS) Quality, Improvement, Productivity and Prevention strategy and new quality indicators for emergency services require that emphasis be placed on improving patient outcomes and service efficiency [3]. A previously proposed radiological intervention that could support such improvements in trauma care is to provide immediate reports to the emergency department.



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A delay in patients' diagnosis or undiagnosed injuries can expose patients to a long-term morbidity and potential for litigation [4,5]. Thus, radiology department in UK have sought to issue final reports within one working day of patient's appearance in emergency department [6]. Although this has not been universally adopted in all NHS hospitals [7], where it has been implemented, there may still be a delay of at least 72 hours before reports are available to emergency doctors and changes in patient treatment or management are implemented may still occur [8].

The aim of the current study was to assess the proportion of patients with MSK injuries having their x-rays reported before being discharged from ED in Milton Keynes University Hospital UK. Furthermore, what were the consequences of these patients not having their x-rays reported before being discharged? According to the NICE guidelines on Assessment and management of non-complex fractures 17/02/2016 "A radiologist, radiographer or other trained reporter should deliver the definitive written report of emergency department x-rays of suspected fractures before the patient is discharged from the emergency department". This includes patients with or without fractures.

Methods

Objectives

- The present study is conceptualized with following objectives
- To assess how many patients with MSK injuries are discharged home from ED with their x-rays reported.
- To identify consequences of patients being sent home without a definitive written report.
- To suggest possible solutions to increase the number of patients discharged after a definitive written report.

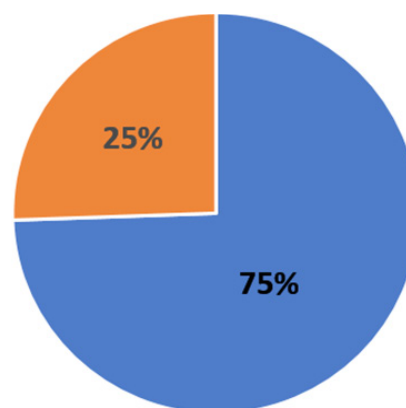
Procedure

This was a retrospective study of 137 patients from July 2021 with ankle X-rays that were taken in ED. Ankle X-rays were selected as focus point in this study as they have a higher turn around in ED and patients present to ED even if they sustain a minor sprain due to the significant swelling. Sample was randomly selected from the database of ED in Milton Keynes University Hospital UK. Data was assessed using eCare and in-Sight software. Discharge time was counted as when the final discharge summary of the patient was signed by ED doctors. If the final discharge letter was available on the system before the X-ray report, it was considered as a failed case. Even if the X-ray report was available mere minutes after the discharge letter it was counted as a failed case. It was also decided to check the exact time of the X-ray requests, was it in hours (Between 0800-1700) or out of hours (Between 1700-0800). This was used to assess if out of hour reporting, when mostly there is no reporting service available, has more significance than in-hour reporting. All the ethical guidelines were followed throughout the study.

Results

Out of a total 137 patients, only 35 patients were discharged with a definitive report. That makes 75% of the patients being sent home without a report and final word from radiology team, and only 25% sent home with a report following the guidelines.

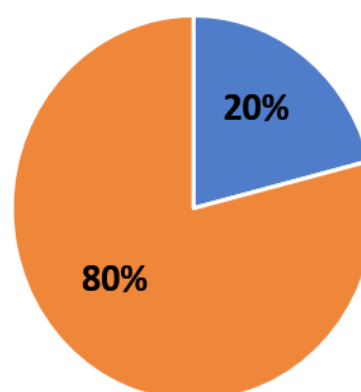
In terms of patients with fractures, 38 had a fracture out of 137 and only 8 of these were reported before discharge. So only 20% of the patients with fractures were reported, while 80% were not. As a consequence, 8 patients were sent to the fracture clinic who did not have a fracture due to delayed reporting. Most of these x-rays were being requested out of hours (1700-0800) when patients are out doing activities, and the hospital does not provide out of hour reporting services of MSK X-rays.



■ discharged without report ■ discharged with report

Figure 1: Statistics of patients discharged before and after the report.

First Pie chart represents the total number of patients with ankle x-rays in ED, which is 137. Out of 137 patients, 102 patients were discharged before the report and only 35 were discharged with report,



■ Fractures discharged with report ■ Fractures discharged without report

Figure 2: Statistics of patients with Fractures.

Second pie chart represents the total patients with Fractures were 38. Out of 38 patients, only 8 were discharged with report and 30 were discharged without report.

Third pie chart represents that out of 137 x-rays, out of hours request x-rays were 84 and in-hours request x-rays were 53.

Conclusion

This study sheds light on the alarmingly high number of patients not having their X-rays reported to meet the NICE guidelines. Ideally, "a radiologist, radiographer or other trained medical practitioners should provide a definitive written report of ED x-rays of suspected fractures before the patient is discharged from ED". Hardy [7] suggested that there is a positive correlation between the availability of patients report at the time of attendance in hospital and patient's treatment plan. He also

found out that immediate provision of reporting removed the need to recall the patient for alteration in treatment plan as a result of wrong diagnosis.

The implications include extra cost for the trust, medico-legal actions and time wastage of patient and trust both. It was recommended that ED discharge summary should include a mandatory tick box for X-ray reported or not. Currently the discharge summary on the system has no confirmation box for reported X-rays. Extra reporting clinicians should be provided. After discussion with the radiology team, it was noted that due to short staffing and the significant number of X-ray requests post pandemic, most of the patient are not getting reported before discharge. Out of hour, reporting should be introduced as a priority. As mentioned, majority of the request are out of hours when there is no definite reporting facility available. This contributed to a significant number of patients failing the criteria. Finally, shifting few hours of reporting time from morning to evening, when most of these x-rays are requested would also greatly increase the number of reported x-rays. In the early hours of morning (0800-1200), the number of MSK X-rays requested is very low compared to the requests made in evening hours (1700-2100). Therefore, shifting few hours of reporting time should greatly improve the reporting numbers. NHS trust boards should ensure that the risk factors are fully assessed and managed. Medical staff members and other resources should be used efficiently to ensure that the examinations are reported in a proper timeframe to improve the overall care and efficiency of system.

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