

The effects of a radiographer - led discharge service introduction

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Patient needs are at the core of healthcare settings, making the introduction of new skills and improved systems necessary for the betterment of healthcare services. The present paper discusses the effects of a radiographer-led discharge service based on four studies from 2002 to 2018 in the emergency departments (ED) of the United Kingdom (UK). The contributions of such a service to patient management will be evaluated to understand if its implementation is able to increase cost-effectiveness in trauma settings. A new role for radiographers in patient managementAs the journey through ED is a long one, a four-month pilot project was conducted by Snaith (2007) to determine if radiographers could play a more holistic role in patient management and reduce time delays in ED. The authors found that only 7% of the total 1760 musculoskeletal (MSK) procedures reported by the reporting radiographers were discharged by the radiographers themselves.

The figure, although small, is evidence that the roles of radiographers can be expanded, allowing clinicians additional time for patients who require urgent attention. It was noted, however, that 32% of the 1760 examinations met the criteria for a radiographer-led discharge, but the lack of management plans from the clinician side prevented their inclusion in the pilot study.

Nevertheless, there was a significant reduction in patient recalls by 52% compared to previous years, likely due to a marked decrease in image misinterpretation by the reporting radiographers. In terms of time efficiency, the journey for a patient under radiographer-led discharge from time of arrival to discharge took 52 minutes, which was considerably lesser than that for standard practice. Collectively, these results would suggest that

extending the radiographer's role to include patient discharge duties is a good strategy with increased benefits for patient outcome. Optimizing health services for patients.

With a similar objective to that of Snaith (2007), Henderson et al. (2012) specifically aimed to elucidate, through a two-year audit, if patient waiting time from imaging to discharge could be minimized via a radiographer-led discharge in comparison to ED staff-led discharge. It was determined that under a radiographer-led discharge, the mean time taken from arrival to discharge was 100.9 minutes, which was significantly lesser than the 124.3 minutes taken for all patients in ED. The time taken for completion of X-ray imaging to discharge by the radiographer noted to be 12.9 minutes, however, a comparison could not be made due to a lack of parallel data in the case of standard practice. In terms of patient outcome, the radiographer-led discharge system observed a significantly lower rate of false negative diagnoses at 0.20% as compared to 2.09% in the standard process. This finding suggests that radiographers are more competent than ED staff in image interpretation. Given that the accuracy of diagnoses directly affects patient outcome, this explains the higher rate of patient return in the case of ED staff-led discharge. Overall, the audit identifies benefits in time efficiency and patient outcome for the radiographer-led discharge. Economical aspect of immediate reporting service Given that radiographer-led discharge service could only be performed after the stage of immediate reporting, this following article evaluates its economic aspects. A study was performed by Hardy et al. (2013) on 1502 patients who were randomly grouped into both

immediate and delayed reporting arms respectively. The patients' injury recovery status was assessed using the EQ-5D questionnaires being conducted at the very first and final stage.

The finding suggested that there was no significant difference observed in terms of patient outcomes between the two groups as a higher mean change of 0.005 was identified in the delayed arm which proves that immediate reporting service does not necessarily improve the perceived health gain significantly. Based on this assumption, there was a possibility that it was more reasonable to maintain delayed arm as the health outcome was more favorable than the savings of not maintaining this system. However, it was important to note that such analysis which was derived from only 763 final responses representing the entire sample may not be a good representation. Given that a significant reduction in misinterpretation errors was noted within the immediate reporting arm, there was no significant difference between both arms in terms of hospital admissions (above six days). Nevertheless, an average patient involved in the immediate reporting arm was anticipated to save 23.40 pounds which explains that the implementation of such service does benefit patients financially. Improving patients throughput via redesigned routes.

As radiographer-led discharge service in ED was identified to have an impact towards patient length of stay (LOS) in ED from previous articles, this following research conducted by Rachuba et al. (2018) took a step further using the discrete event simulation (DES) pathway modeling and process mapping. Five stages of phased-approach were conducted at a medium-

sized hospital from the first step of collecting data of previous two years for needs analysis till the final stage where the experimentation of the redesigned pathways which comprises a radiographer-led option were implemented after understanding the current practice from ED clinicians. The result has shown that all radiographer-led discharged patients spent 25 minutes lesser in ED which was due to the effectively shortened stage between imaging and discharging.

Also, the findings had shown that the average length of stay for patient decreases respectively with increasing frequency of radiographer-led discharge. It was noteworthy that the benefit aforementioned solely depends on the availability of highly skilled reporting radiographers which stemmed from the particular hospital's budget allocated for manpower cost. To acquire the most influential impact of radiographer-led discharge service based on a tight budget situation, Rachuba et al. (2018) initiated a step further and identified that weekends would lead to the highest benefits gained due to a higher volume of patients. Also, other ED staffs will be in an advantage as evidenced by the decrease in total clinical assessment required, hence improving the management workload overall. Discussion As noted previously, it appears that a radiographer-led discharge service promotes better patient management, particularly in preventing potential delays in ED. Henderson et al. (2012) found that with such implementation; patients' overall mean journey time was significantly reduced by 24 minutes. While most studies supported this account, little was revealed of the time reduction in relation specifically to the stages of imaging to discharge. The

difference in journey times for patients under the radiographer-led discharge scheme compared to standard practice was also reported by Snaith (2007) to be small, and the issue of unspecific time frames measured limits meaningful analysis due to several other factors that could have contributed to the journey times outside of the radiographers' intervention given that the entire patient journey comprises numerous stages. It was also observed that under a radiographer-led discharge system, a significant improvement was demonstrated in the accuracy of diagnosis when immediate reporting was performed. This proves that radiographers are competent in image interpretation, as further evidenced by a drop of 52% in total patient returns reported by Snaith (2007). In contrast, however, Hardy et al. (2013) opposed this as their study indicated no significant difference in patient-perceived health gain between patients of the immediate and delayed reporting groups.

Given that reporting radiographers possess a bigger repertoire of skills and expertise, it would be expected that their services would be of higher quality. Their remuneration would be higher than the average radiographer's, and discharging patients would also require additional training. For hospitals with a restricted budget, the financial feasibility of a radiographer-led discharge may be questionable. Furthermore, Snaith (2007) noted that only 7% of patients were discharged by radiographers, and while this was in part due to a lack of management protocols, it may not be cost-effective to increase the number of reporting radiographers and expend resources to train them if only a small proportion of the patient population would benefit from the

service. In this respect, additional studies with better management policies would be required.

The criteria set by Snaith (2007) for patients who could be discharged by radiographers was limited to only minor MSK injuries, which meant that clinicians could afford additional time for managing more complex injuries. Such a distribution of workload reflects an efficient utilization of manpower in hospital trauma settings, which could potentially increase overall productivity. This is supported by Rachuba et al. (2018), where a decrease in the number of clinical assessments was noted, demonstrating an improvement in workload management among ED staff. The same study also identified that the highest attendees were present on weekends. In this case, a possible action that hospitals with limited budgets could undertake would be to implement radiographer-led discharge services on weekends only to garner maximum efficiency without the financial strain. To gain a better idea of the cost and benefits of a radiographer-led discharge, a longitudinal study could be performed for the purpose of understanding if the benefits of productivity of such a service would outweigh the costs of employing and training radiographers to lead patient discharge.

Conclusion

In conclusion, a radiographer-led discharge system has the potential to provide better patient management, and this shows that radiographers are capable of extending their expertise into roles outside image acquisition. While the studies discussed in this paper suggest that the quality of healthcare services can be enhanced and that workload distribution and

management could be improved with such an implementation, it is important that more studies, including longitudinal ones, be conducted to ensure that the service would be feasible and economical in the long run.