



**ASSESSING RADIOLOGY DEPARTMENT
EFFICIENCY AND ANALYSING OUTLIERS
TO IMPROVE ITS PERFORMANCE AT
DHARAMSHILA NARAYANA SUPER-
SPECIALTY HOSPITAL, NEW DELHI**

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INTRODUCTION

Radiology assumes a crucial role in the management of illnesses, offering an extensive array of tools and procedures for detection, staging, and therapy. Diagnostic imaging provides detailed insights into structural or disease-related alterations. Early treatment can be lifesaving, underscoring the indispensable nature of a proper diagnosis. Quality management aims for treatment efficacy. Past studies have suggested that the Turnaround Time (TAT) for an inpatient radiology report should ideally be less than 8 hours. Similar benefits are observed with shorter TATs in both emergency department and outpatient settings [1,2].

Diagnostic errors, a frequently overlooked patient safety risk, stand out as a leading cause of medical malpractice. Moreover, in recent decades, these errors have significantly contributed to the health burden. Between 1990 and 2018, an estimated 94,000 to 142,000 individuals worldwide lost their lives due to diagnostic errors. Approximately 850,000 diagnostic errors occur in affluent countries [3]. The pursuit of the quickest Turnaround Time (TAT) is not a recent phenomenon; in many ways, it has been the sought-after objective in radiology for over a decade. Achieving a swift report turnaround time requires the utilization of an efficient RIS/PACS solution. A metric frequently employed as an optimal marker for radiology efficiency is the radiology report turnaround time. Early detection and accurate diagnosis contribute to reducing the impact of the disease [4].

RESEARCH QUESTIONS

1. What was the level of conformity with NABH standards for various quality indicators used to evaluate the efficiency of the Radiology Department and to ensure ongoing quality improvement?
2. What were the major reasons for outliers of efficiency in radiology department?

RESEARCH OBJECTIVES

1. To examine different important performance quality indicators according to the NABH standard.
2. To determine outliers and the primary causes of deviations and discrepancies.
3. To determine the relationship between the various variables studied for Radiology Department efficacy.

RESEARCH METHODOLOGY

A descriptive and observational study was chosen as the design for this research to assess the efficiency of Radiology Department in Dharamshila Narayana Super Specialty Hospital, New Delhi. Secondary data came from the Radiology department's HMIS system (MOKSHYA), as well as their capture sheets and record registers. The received raw data was then compared to the formula and indicator definitions provided by NABH in their book. The numerator and denominator definition and capture processes for each indicator were then reviewed to ensure there were no gaps or discrepancies in the back-end process. Incorrect sample size adherence, as well as misinterpretations or defaulted computations, were fixed in the department as well as in the Quality Department's master record. The processed data was then collated according to a predetermined format, which was utilised to tabulate the data for the previous six months, from December 2020 to May 2021. The obtained data's numerator and denominator were cross-checked and assessed using a formula. The research was carried out in the Radiology Department of Dharamshila Narayana Superspeciality Hospital, New Delhi, a modern super-specialty hospital covering 3.5 acres in a delightful landscape, equipped with a 350-bed capacity. The study spanned a 15-month duration, commencing from January 2020 and concluding in March 2021.

RESULTS & DISCUSSION

A line chart was employed for trend analysis, depicting the rate of redo's per 1000 investigations in the Radiology department over a 15-month period. The objective was to understand the pattern of redo procedures, as a higher number of redos can lead to resource wastage, impact patient service experience, and compromise overall departmental efficiency. The Spearman's correlation coefficient for the number of redos and the total footfalls in the Radiology department was calculated to be 0.391, indicating a positive association between the two variables.

Significant errors in the Radiology department often stem from inadequate workforce planning, particularly when dealing with overcrowding situations. Workflow process gaps caused by staff negligence led to resource wastage. The pressure to reduce Turnaround Time (TAT) often results in redos and errors. Delays and errors in the Health Management Information System (HMIS) contribute to further delays. The lack of staff motivation to enhance departmental quality exacerbates these challenges.

CONCLUSION

All the indicators were steadily showing improvement. The mean rate of redos in the radiology department stands at 3.98 per 1000 investigations, while the average rate of reporting errors was 1.2 per 1000 investigations. The average percentage of clinical correlation of diagnostic reports in the radiology department was 91%, and the average Turnaround Time (TAT) for In-Patient Department (IPD) patients in the radiology department was 23 hours. Additionally, a notable correlation was identified between the rate of redos, reporting errors, and the total footfall in the radiology department. We examined this association using Spearman's correlation coefficient, revealing a value of $\rho = 0.397$ for redos and $\rho = 0.707$ for reporting error.

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