CHAPTER-09

STUDY ON TURNAROUND TIME OF PATIENTS UNDERGOING MRI EXAMINATION

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DOI: https://doi.org/10.52458/9788197040856.2024.eb.ch-09
Ch.Id:- IIHMR/GRF/EB/BPHHM/2024/Ch-09

INTRODUCTION

Turnaround time in MRI refers to the duration from the patient's entry into the department, preparation, scanning, and up to the reporting of findings. There is an increasing emphasis within hospital healthcare systems, particularly in the field of radiology, to enhance efficiency and minimize wastage through the adoption of advanced radiological investigations like MRI.

MRI, or Magnetic Resonance Imaging, is a non-invasive imaging technology known for generating detailed three-dimensional anatomical images without employing harmful radiation. Widely utilized for disease detection, diagnosis, and treatment monitoring, MRI relies on sophisticated technology that stimulates and detects changes in the rotational axis of protons present in the body's water content. This imaging technique utilizes powerful magnets to create a robust magnetic field, aligning protons within the body.

Efficient time management poses a significant challenge in numerous hospital radiology departments [1]. Research exploring the optimal utilization of time in radiology departments has been conducted, emphasizing the importance of addressing this issue. Various approaches to enhance efficiency in radiology, including alternative methods, have been evaluated [2][3]. A two-step strategy has been proposed to optimize patient flow within radiology, aiming to reduce delays in healthcare delivery. Another comprehensive three-phase approach has been suggested to enhance radiology efficiency by addressing both overtime and waiting times while striving to improve departmental operations A textbook on healthcare operations management authored by Daniel B. McLaughlin and John R. Olsan also provides insights into this topic [4][5].

RESEARCH AIM

1. To investigate the Turnaround Time (TAT) of patients undergoing MRI at Medica Super Specialty Hospital, Kolkata, with the goal of enhancing TAT.

RESEARCH OBJECTIVES

1. To determine the duration of each step in the MRI Department process.
2. To examine and evaluate the factors influencing the Turnaround Time for patients undergoing different MRI procedures.
3. To analyze deficiencies in various processes and offer recommendations for departmental improvement based on the findings.

RESEARCH METHODOLOGY

The research focused on evaluating the Turnaround Time (TAT) of patients undergoing MRI examinations at Medica Super Specialty Hospital (MSH) in Kolkata. Conducted within the hospital's MRI department, the study employed an Observational Cross-sectional Descriptive Study Design. The sampling plan utilized a convenient sampling method, selecting 10 patients per day from an average daily flow of 15 patients during the working hours of 8 am to 8 pm. A total of 150 samples were randomly chosen over the one-month study duration. The inclusion criteria considered only Outpatients, excluding Inpatients and emergency cases from the study. The comprehensive approach aimed to provide insights into the time efficiency of MRI processes at MSH and offer recommendations for potential improvements.

RESULTS AND FINDINGS

The focus was on data compilation, analysis, and presenting results from the MRI department of Medica Super Specialty Hospital (MSH) in Kolkata. The distribution of patients based on Turnaround Time (TAT), involving 150 outpatients in the study. The hospital's benchmark for MRI TAT is set at 2 hours. Out of the total patients, 82 (41%) had a TAT within 2 hours, while 118 (59%) experienced a TAT above 2 hours. The average TAT for all 150 patients was found to be 2 hours and 57 minutes, with a median time of 3 hours and 90 minutes.

The time from a patient's entry into the department to the billing process (T1) was 20 minutes, the waiting time outside the procedure

room (T2) was 80 minutes, the time taken to conduct a specific scan (T3) was 40 minutes, and the time to generate the scan report (T4) was 35 minutes. Consequently, the overall average Turnaround Time for MRI was determined to be 2 hours and 55 minutes.

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CONCLUSION

In conclusion, the research aimed to evaluate the Turnaround Time (TAT) for MRI at Medica Super Specialty Hospital in Kolkata, where the benchmark is set at 2 hours. The study involved 200 patients, with 118 cases (59%) experiencing TAT exceeding 2 hours, and 82 cases (41%) having TAT within the stipulated 2 hours. The overall average TAT was recorded at 2 hours and 59 minutes. This indicates an extended TAT compared to the hospital benchmark, attributed to factors like claustrophobia and delayed reporting. Implementing appropriate recommendations has the potential to reduce TAT and enhance the utilization of the MRI machine.

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