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A STUDY ON OPTIMIZING BED MANAGEMENT STRATEGIES FOR EFFICIENT PATIENT FLOW IN ADMISSION DEPARTMENT AT A SUPER SPECIALITY HOSPITAL IN BANGALORE

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Abstract—This is the study about optimizing bed management strategies for efficient patient flow in Admission department of a hospital at Bangalore , India. It focuses on bed occupancy rate, bed turnover rate, reasons for delay in admission and discharge, average length of stay of the patients in the hospital. The findings highlight the areas that needs to be improved,which helps in efficient bed management and enhanced patient satisfaction.

***Key Words*:** Bed occupancy, Bed turnover, Average length of Stay , Patient Satisfaction, Bed management Strategy

1. INTRODUCTION

Optimizing bed management techniques is essential to guarantee effective patient flow within the admission department. Patient care, hospital productivity, and total operating expenses are all directly impacted by bed management optimization. In hospitals, bed management is allocating available beds to new patients in a way that maximizes hospital resources while promptly attending to patients who require care. Effective bed management is crucial for reducing wait times, enhancing patient satisfaction, and making the most use of available resources, including medical equipment and nursing staff. This study explores the reasons for delay and bed management strategies which helps to identify areas for enhancement.

2. OBJECTIVES

- To analyze the current bed allocating strategies in admission department.
- To identify the reason for delay in allocating bed and to evaluate the turnover rate.
- To suggest measures for efficient bed management.

3. LITERATURE REVIEW

According to Cook, R. L., & Hamilton, M. A. in their study " A data-driven approach to improving hospital bed management efficiency," emphasize the role of data analytics, predictive modeling, and real-time monitoring in optimizing bed allocation and patient flow. By leveraging quantitative methods, proposed strategies to reduce delays, improve resource utilization, and enhance overall hospital operations. The research provides valuable insights for healthcare administrators seeking to implement evidence-based bed management solutions.

According to Gupta, R., & Kessler, R., in their study "Enhancing hospital bed management systems for improving patient care" emphasize the role of technology-driven solutions, including real-time bed tracking, predictive analytics, and automated scheduling, in optimizing resource allocation. By improving bed management efficiency, hospitals can reduce overcrowding, minimize patient wait times, and enhance overall healthcare delivery. Their research provides practical insights for administrators seeking to streamline hospital operations. This review examines the qualitative literature on effective bed management strategies.

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4. METHODOLOGY

The research methodology used in the report is as follows:

RESEARCH DESIGN

The research design used in the study is Descriptive research design. A quantitative research technique called descriptive research design is used to methodically characterize traits, actions, patterns, or connections within a particular population or phenomenon without changing any of the variables.

DATA COLLECTION

The data collected for this study is Primary data.The primary data is the one which is collected as a fresh data for the first time and they are original in character.

SAMPLE POPULATION

The target population consists of all the inpatients who have admitted in the hospital.

SAMPLING TECHNIQUE

The sampling technique for the study is Simple random sampling.

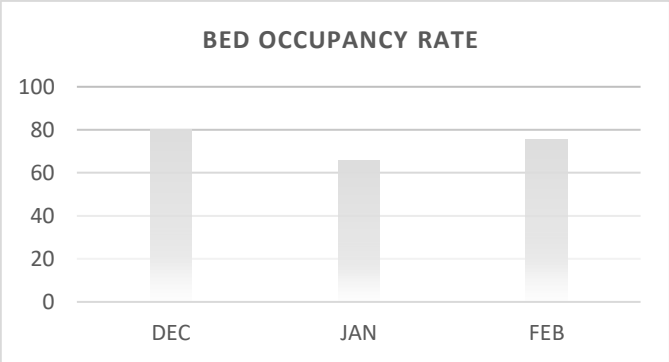
TOOLS AND ANALYSIS

The analysis which is used for the study is Simple Percentage Analysis

5. ANALYSIS

A) AVERAGE BED OCCUPANCY RATE

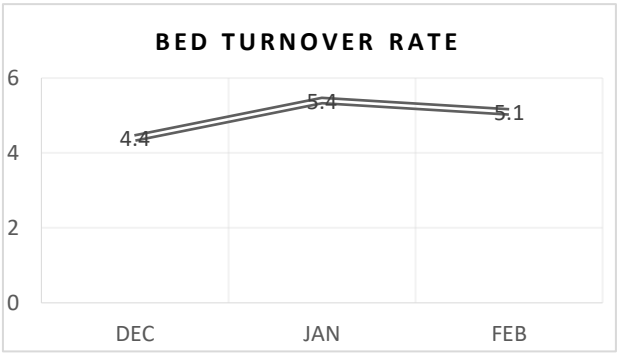
MONTH	AVERAGE OCCUPANCY RATE
DEC	80
JAN	65.6
FEB	75.7



The above table shows that the average bed occupancy rate in the month of December is 80% which is greater than all the other months.

B) BED TURNOVER RATE

MONTH	TOTAL ADMISSION	TOTAL DISCHARGE	DEATH	BED TURNOVER RATE
DEC	577	606	20	4.4
JAN	771	750	15	5.4
FEB	686	695	23	5.1



The above table shows Bed turnover rate has increased from 4.4 in December to 5.4 in January which indicates improved efficiency in Patient discharge But , turnover rate has decreased from 5.4 in January to 5.1 in February which means the patient discharge process should be more efficient and consistent.

C) REASONS FOR DELAY IN ADMISSION

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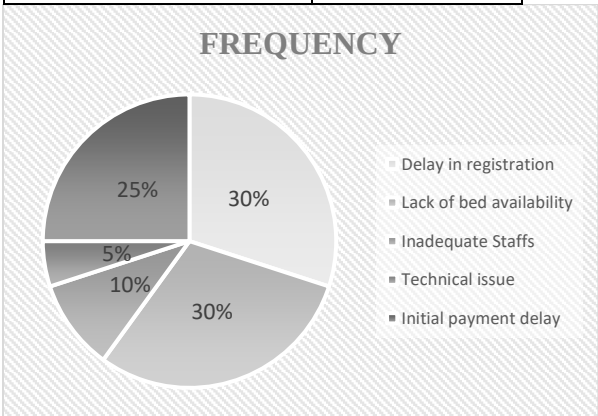
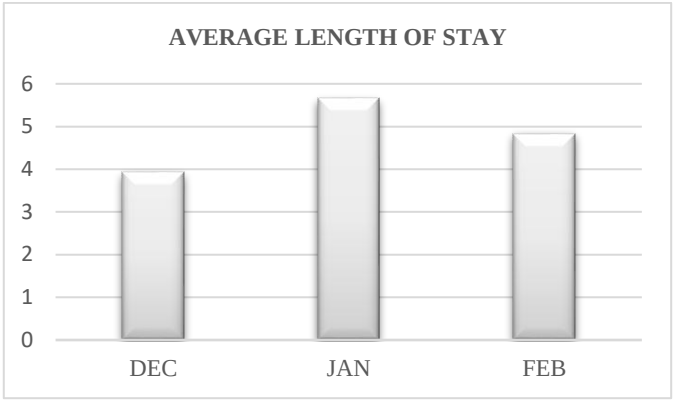
REASONS	FREQUENCY
Delay in registration	30
Lack of bed availability	30
Inadequate Staffs	10
Technical issue	5
Initial payment delay	25



The above chart shows most of the delays are due to lack of bed availability and delay in registration with 30%. Initial payment delay is the next reason for the delay with 25%

D) AVERAGE LENGTH OF STAY

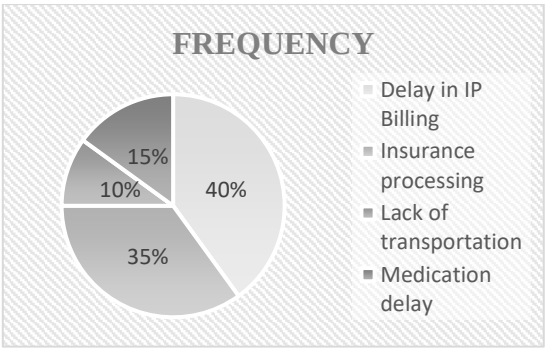
MONTH	AVERAGE LENGTH OF STAY
DEC	3.92
JAN	5.65
FEB	4.83



The above chart shows the Average Length of Stay for the month of January which is highest of the rest of all other months. Average Length of Stay for the month of February has reduced from 5.65 days to 4.83 days.

E) REASONS FOR DELAY IN DISCHARGE

REASONS	FREQUENCY
Delay in IP Billing	40
Insurance processing	35
Lack of transportation	10
Medication delay	15



The above chart show most of the delays are due delay in IP Billing with 40%.Insurance processing is the next reason for the delay with 35%

6. FINDINGS AND RECOMMENDATIONS

- Average bed occupancy rate in the month of December is 80%
- Average bed occupancy rate in the month of January is 65.6%
- Average bed occupancy rate in the month of February is 75.7%
- Bed turnover rate for the month of December is 4.4
- Bed turnover rate for the month of January is 5.4
- Bed turnover rate for the month of February is 5.1
- Delay in admission are due to lack of bed availability, registration, inadequate staffs, technical issues, initial payment delay.
- Delay in discharge are due to Insurance processing, lack of transportation, medication delay and delay in IP billing.
- Average Length of stay for the month of December is 3.92 days
- Average Length of stay for the month of January is 5.65 days
- Average Length of stay for the month of February is 4.83 days

RECOMMENDATIONS

- The delay in bed allocation can be decreased by regularly updating the software with the bed status.
- One or more employees can be hired which helps to speed up IP billing.
- When a patient is released, set up automated notifications for the housekeeping crew.
- Move stable patients to step-down units to make room for high-dependency or intensive care unit beds.
- Early discharge of stable patients with tele health follow-up can be recommended
- Create a discharge lounge where patients can wait to be picked up.
- Transportation can be improved by alloting atleast one person in each floor.

7. CONCLUSION

This study provides valuable insights into the Efficient Bed Management project effectively illustrates how critical it is to maximize bed usage and allocation in medical facilities. The study has demonstrated that healthcare providers can greatly enhance patient flow, reduce wait times, and guarantee prompt access to care by implementing tactics like real-time tracking, predictive analytics, and improved departmental communication into practice. Improved patient satisfaction, reduced operating expenses, and better resource utilization are further benefits of a more effective bed management system. This strategy benefits patients and healthcare professionals by improving clinical results and fostering a more sustainable hospital environment.

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