

**STUDY ON TURNAROUND TIME OF PATIENTS IN EMERGENCY
DEPARTMENT AT SAI SAWALI MULTISPECIALITY HOSPITAL, AHILYANAGAR**

Dissertation Submitted to



The IIHMR University, Jaipur

for the partial fulfillment for the award of the degree of

Master of Business Administration (MBA)

in

Hospital and Health Management

by

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Under the Supervision and Guidance of

Dr. Anupam Mehrotra

2025



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Date: 01/06/2025

TO WHOMSOEVER IT MAY CONCERN

This is to certify that **Mr. Sumbe Ajit Bhausahab** has successfully completed his **03 months** internship at **Sai Sawali Multispeciality Hospital, Ahilya Nagar** in **Operations Department** from 10th March 2025 to 31st May 2025.

During his tenure, he has been hardworking, sincere, and eager to learn.
We wish him "All the Best" in his future endeavor.

For Sai Sawali Multispeciality Hospital, Ahilya Nagar.


Dr. Khilari Bhausahab Sitaram

Chairman,

Sai Sawali Multispeciality Hospital, Ahilya Nagar.

Sai Sawali Multispeciality Hospital
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CERTIFICATE

This is to certify that dissertation titled **Study on Turnaround Time of patients in Emergency Department at Sai Sawali Multispeciality Hospital, Ahilya Nagar** is a record of the research work undertaken by Sumbe Ajit Bhausahab in partial fulfilment of the requirements for the award of the degree of **MBA in Hospital and Health Management** from the **IIHMR University, Jaipur** under my guidance and supervision and his approach to the research study has been sincere, scientific, and analytical.

A handwritten signature in blue ink, appearing to read 'Anupam'.

Dr. Anupam Mehrotra

IIHMR University, Jaipur

Date: 17/6/2025

A handwritten signature in blue ink, appearing to read 'Sanjay'.

Dr. Sanjay Gupta

IIHMR University, Jaipur

Date:

DECLARATION BY STUDENT

I hereby declare that this dissertation titled **STUDY ON TURNAROUND TIME OF PATIENTS IN EMERGENCY DEPARTMENT** is the bonafide record of my original research work. I declare that it has not been submitted to any other university or institution for the award of any degree or diploma. Information derived from the published or unpublished work of others has been duly acknowledged in the text.



Sumbe Ajit Bhausahab

Date 17/6/2028

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Sincerely,

Sumbe Ajit Bhausaheb

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Abstract

Introduction:

The emergency department (ED) is an essential part of a hospital as it handles critical patients who need prompt attention and is open 24*7. For the smooth working of ED, it is important to develop a proper process and delegate the respective duties to staff. Turnaround Time (TAT) of ED is the time difference between the time when patient enters the department till patient is shifted out. The motive of this study is to assess the variables influencing emergency department turnaround time and investigate improvements. Based on the outcomes of this study, recommendations are developed for enhancing terminal on time is in emergency departments.

Methodology:

The research was conducted in the emergency department of Sai Sawali Multispeciality Hospital, Ahilya Nagar. It was an Observational Study in which all patients arriving ER were recorded from 10th March to 30th May 2025.

Result:

During the research period, 400 patients in the emergency department were observed. The findings revealed that 27% of patients experienced delays in transfer turnaround time (TAT), exceeding three hours. The primary causes identified for these delays included a shortage of nursing and housekeeping staff, unavailability of beds, and delays in receiving diagnostic reports

Conclusion:

Delay in patient turnaround time in the Emergency Room (ER) was primarily caused by factors such as unavailability of beds in wards or ICUs, delays in investigations and laboratory tests, insufficient manpower, overcrowding in the ER, delays in bill payments, and housekeeping-related issues that hinder timely patient transfers. To address these challenges, it is essential to implement continuous quality improvement measures within the department. This includes forming quality improvement teams or committees to identify problem areas, monitor key performance indicators, and apply evidence-based best practices to enhance efficiency.

Key words:

Emergency Department, Turnaround Time, Delays.

Table of contents

Sr no.	Content	Page no.
1	Introduction	10-12
2	Literature Review	13-16
3	Methodology	17-19
4	Result	20-26
5	Interpretation	27-28
6	Conclusion	29-31
7	References	32-33
8	Annexure	34-35

List of figures

4.1	Average TAT a/c to Triage
4.2	Initial assessment TAT
4.3	Pie chart showing duration of Patient's stay in ER
4.4	Showing the major causes for Increased TAT

Abbreviations

ED	Emergency Department
TAT	Turn Around Time
LOS	Length Of Stay
LAMA	Leaving Against Medical Advice
MOD	Manager On Duty

CHAPTER 1

INTRODUCTION

Introduction

The most important part of a hospital is the Emergency Department (ED), dealing with patients that experience a wide range of urgent medical needs (1). The real importance of an emergency department can be reflected by the turnaround time (TAT), which represents the total time the patient has before being brought to the hospital and being ultimately sent back home or admitted.

TAT is important for many reasons: it affects patient care outcomes, is an influencer of patient satisfaction, and is a determinant of the operability of the department. Several hospitals are starting to get concerned with the increasing TAT at the ED. Long waits have been associated with crowded facilities, long durations, and the deferral of medical procedures (2).

The result can be quite detrimental, particularly for a patient needing immediate medical treatment. The rising volume of inpatient care lengthens treatment times, which can ultimately strain resources, thereby increasing the workload for medical employees and bringing inefficiencies in treatment.

A few factors that lead to high TAT are high patient volumes and staffing difficulties (3). Ineffective workflow streamlining, communication breakdown and delayed diagnostic results are other significant causes. For instance, decision making, and results may lengthen the patients stay in the department

The issue of high TAT in ED requires focused intervention to identify the root cause of it. Hence, the objective of this work is to study the causes of prolonged wait TAT in ED and suggest some measures for improvement (2). Current processes will be evaluated for bottlenecks with alternatives suggested to enhance the efficiency of the department and patient care outcomes (4) .

When TAT is improved patients will receive timely medical attention, better hospital resource management and quality care. This study will examine the TAT in the department

and provide solutions that can shorten the waiting time and improve effectiveness (4).

Purpose of the study:

The primary objective of this study is to evaluate and determine how well patient care is delivered by analyzing turnaround time of emergency department. It involves looking at where delays occur and speedups can be done on processes, hence reducing the waiting time and will enable us to make effective use of resources in providing the best possible service to the patient. The insights gained will help in designing emergency care much quicker and efficiently for better services to the patients.

Context and importance:

The emergency department often handles high patient volumes and plays a critical role in delivering urgent care to individuals with serious health conditions. A key performance indicator in this setting is turnaround time, which refers to the period between a patient's arrival and their subsequent admission or discharge.

Improving turnaround time is essential for better patient outcomes and satisfaction, efficient use of resources, reduced healthcare expenses, and adherence to regulatory standards. During public health crises, smooth functioning of the emergency department becomes even more vital, ensuring timely and effective care for the surge in patient demand.

CHAPTER 2

LITERATURE REVIEW

Table

Study Title	Authors	Year	Study Location	Sample Size	Sampling Techniques	Salient Features
Turnaround time of patients in emergency department at a tertiary care teaching Hospital in Uttarakhand, India (5)	Dinesh Chandra Joshi, Ravinder Singh Saini, Shweta Samant, Nitin Kanchan	A	Himalayan Hospital, Dehradun, Uttarakhand, India	300	Simple random sampling	- Conducted from August 1 to August 31, 2022. - Average length of stay in the ED was 173 minutes. - Radiological investigations accounted for 63% of the total time in the ED. - Shifting patients contributed to 21% of the total time. - Recommendations included increasing staff during peak hours, streamlining the triage process, and improving communication.
Analyzing Factors Affecting Emergency Department Length of Stay- Using a Competing Risk- Accelerated Failure Time Model (6)	Chung Hsien Chaou	2015	Linko Chang Chung Memorial Hospital, Taiwan	149,472	Retrospective study	Results were divided in 3 categories: admission, death and discharge. Factors like age, transfer, in time were assessed, and results showed that LOS was different by various groups

Table continued

Study Title	Authors	Year	Study Location	Sample Size	Sampling Techniques	Salient Features
Emergency department length of stay: accuracy of patient estimates (7)	Brendan T. Parker, MS and Catherine Marco	2012	University of Toledo Medical Center	309	Convenient sampling	Patient estimations of the length of their ED treatment, especially the total LOS is inaccurate. Patients who spend longer time in ED showed lower level of satisfaction
Analyzing Factors Affecting Emergency Department Length of Stay (8)	Ronny Otto	2022	Germany	304,606	Retrospective cohort study	The length of stay depends on the factors that are related to the patients-like age and disease related factors

Table continued

Study Title	Authors	Year	Study Location	Sample Size	Sampling Techniques	Salient Features
Factors influencing door-to-triage- and triage-to-patient administration-time (9)	Kienbacher CL, Steinacher A, Fuhrmann V, Herkner H, Laggner AN, Roth D	2022	Austria	360	Convenience sampling	- Longer door-to-triage time associated with ambulance arrivals and high-acuity triage (ESI 2). - Weekend arrivals showed shorter triage times. - Median door-to-triage time: 6 min (IQR 3–11); triage-to-administration: 5 min (IQR 3–8).
Reducing emergency department crowding evidence-based strategies (10)	Mohammed Khalifa	2016	Saudi Arabia	Not specified	Qualitative survey method	It identified strategies to reduce crowding in ED, like physical and technological improvements to be done

CHAPTER 3

METHODOLOGY

Aim:

This study aims to know the factors associated with turnaround time in the emergency department at Sai Sawali Multispeciality Hospital, Ahilya Nagar.

Key research question:

- What are the factors that contribute to delay in turnaround time in the emergency department, and how can these be reduced to improve the efficiency and patient outcomes?

Objectives:

- To identify average of Turn Around Time for each triage category wise.
- To identify initial assessment time in each triage category wise.
- To identify factor which cause delay in initial assessment of TAT in emergency department.

Research design:

- Observational study

Study setting:

- This study is conducted in Sai Sawali Multispeciality Hospital, Ahilya Nagar.

Study population:

- Patients who came to emergency department between 8 am to 5 pm

Sample size:

- 400

Sampling technique:

- A convenience sampling technique was used to select participants

Method of data collection:

- Data was collected using a checklist, which was created for tracking the TAT of the patients, and then it was manually entered into Excel. A total of 400 patients

were tracked from 10th March 2025 to 30th May 2025.

Process flow of ED at Sai Sawali Multispeciality Hospital:

- When a patient arrives in the department, they undergo triage and the nurses quickly assesses their condition to determine the severity of the disease.
- Initial assessment of the patient is done by a medical professional to establish preliminary diagnosis and plan for treatment
- Patients then go through the admission process, wherein the admission staff collects the patient's information, explains them the bed charges and ensure necessary documentation is done.
- Subsequently they are sent for financial counselling where they are informed about the cost of their treatment
- At this point, there are several outcomes. Some may decide to Leave Against Medical Advice (LAMA) while others may require admission for further treatment. In such cases, the patient is shifted to inpatient unit once bed is allotted to them.
- And for those patients whose treatment is done in the department itself, the discharge process involves providing patients with follow up instructions, prescription and any other information needed to be provided.
- This process ensures that timely care is provided to the patients.

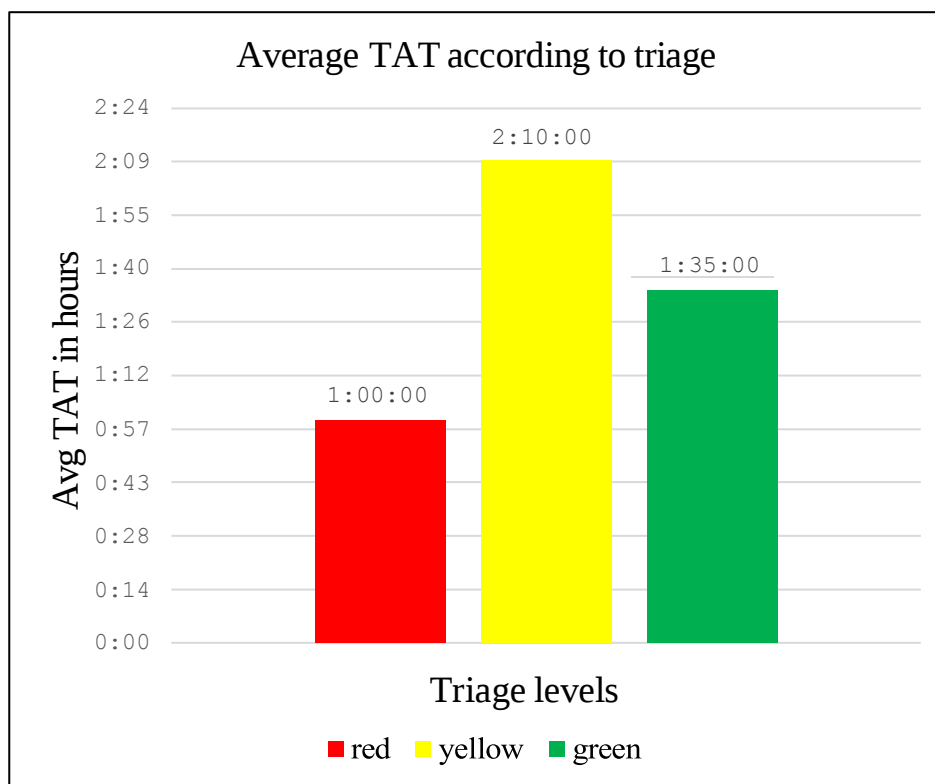
Ethical considerations:

- Obtained ethical approval from the hospital to conduct the study
- Patient's privacy is protected by anonymizing data

CHAPTER 4

RESULTS

Figure 4.1 Graph showing average turnaround time according to different triage levels



Result:

The average turnaround time for triage- red is 1 hour

The average turnaround time for triage- yellow is 2 hour 10 minutes

The average turnaround time for triage- green is 1 hour 35 minutes

Interpretation:

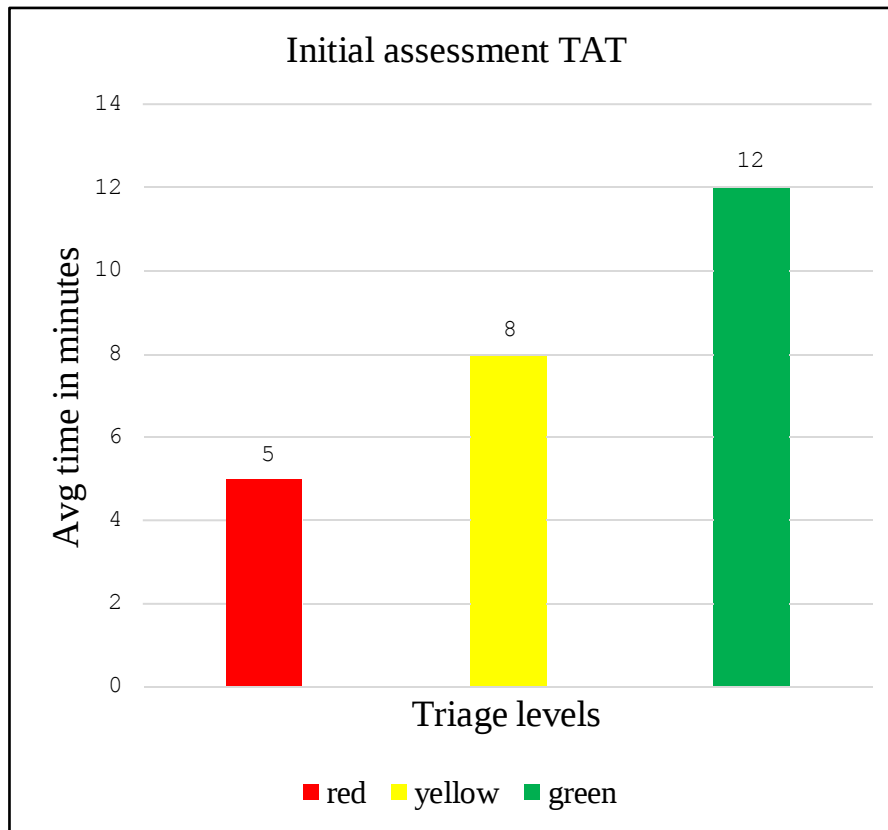
According to fig 4.1

For patients classified under red triage, who are usually severe cases which require immediate attention have turnaround time of 1 hour. This quick TAT indicates that the staff are prioritizing and addressing these cases on priority basis and taking quick action to deliver quality services.

For patients classified under yellow triage, who are usually urgent cases but are not life threatening have turnaround time of 2 hour 10 minutes. This duration is still within acceptable limits, but it can be decreased by streamlining the process.

For patients classified under green triage, who are usually non urgent cases have turnaround time of 1 hour 35 minutes. This shows that even less urgent cases are managed efficiently in ER. In this level about 20% of the patients are for IV injection which required approximately 30 minutes for their treatment.

Figure 4.2 Graph showing average time taken for initial assessment of patients



Result:

Average time taken for triage- red is 5 mins

Average time taken for triage- yellow is 8 mins

Average time taken for triage- green is 12 mins

Interpretation:

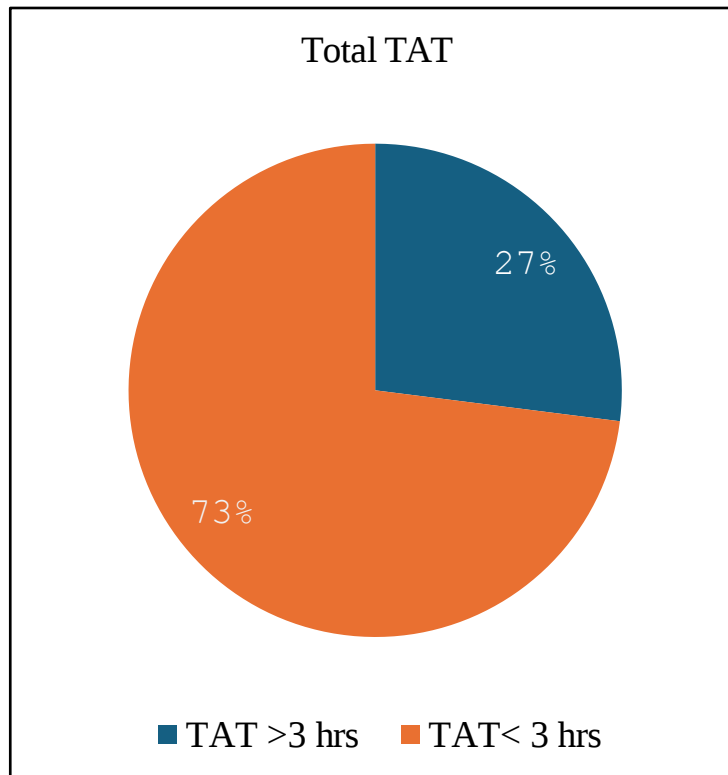
According to fig 4.2

Patients in the green triage level have the longest duration for initial assessment as compared to other two categories but it still is brief.

It shows that even though these patients are not critical, proper care is given to these patients and thorough initial evaluation is done

The minimal difference in assessment times between yellow and green level suggests there is consistent approach in evaluation of patients regardless of urgency.

Figure 4.3 Pie chart showing duration of patients in ER



Result:

27% of patients in ED stay for more than 3 hours

73% of patients in ED stay for less than 3 hours

Interpretation:

According to fig 4.3

27% of patients stay in ED for more than 3 hours. There are several factors that causes longer turnaround time in the department:

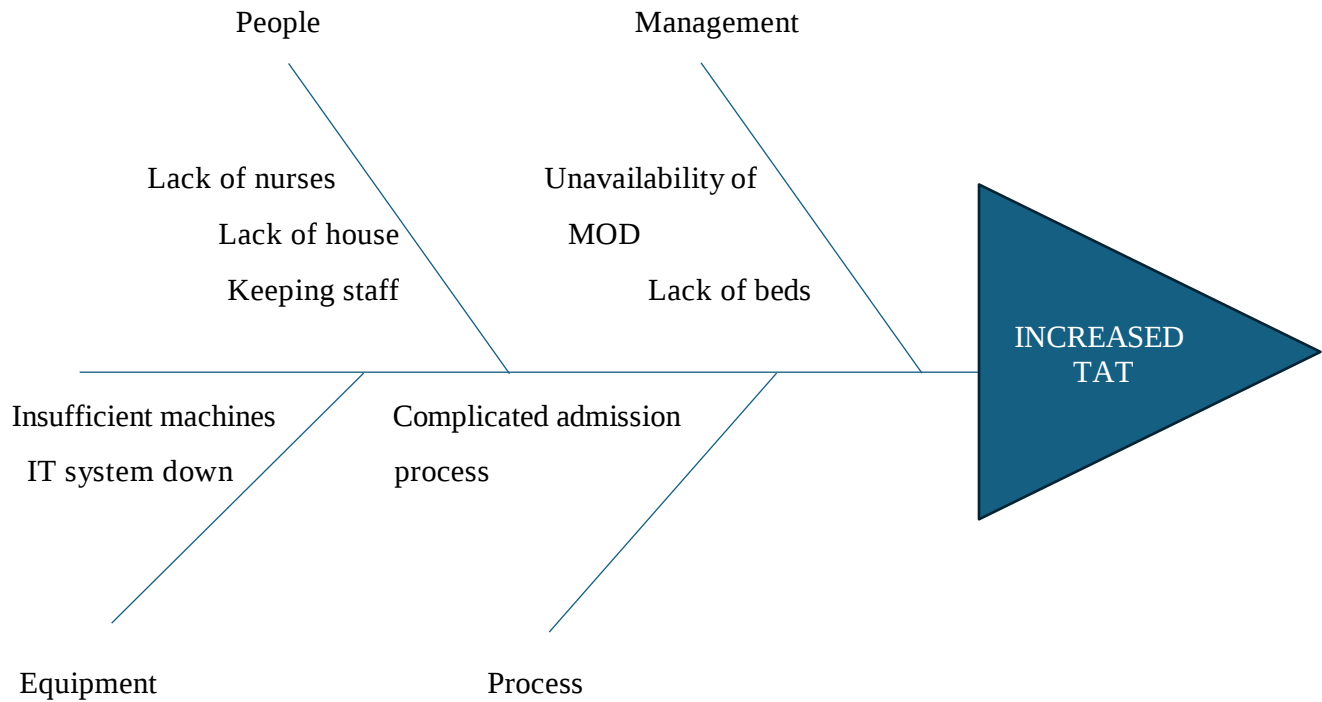
1. Shortage of nursing staff especially during peak hours, as it causes delay in taking initial assessment, treatment and follow-up.
2. Due to unavailability of beds, patients are made to wait in the department longer than necessary
3. As there is no separate admission counter for ED, there is a long queue in the counter due to which the patient's admission is delayed
4. Prolonged wait to see the financial councilor delays the admission process as the patients need to understand and arrange payment accordingly before proceeding with

their admission

5. Non availability of runner delays shifting of patients and shifting of samples
6. Delay in availability of diagnostic reports hinders the staff's ability to make timely decisions regarding the treatment.

FISHBONE DIAGRAM

Figure 4.4: Showing the major causes for Increased TAT



CHAPTER 5

DISCUSSION

The study aimed at identifying the cause of delay for the turnaround time of patients in ER, particularly focusing on those cases where patients had to wait in ER for more than 3 hours.

As per the findings, 27% of the patients had experienced delay in their shifting as their TAT extended beyond the 3-hour mark. This percentage shows that there are major issues in the system that cause longer stay of patients in ER.

Several factors were identified which contributed to the delays, primarily the non-availability of beds was the most highlighted factor as it prevented the shifting out of patients from ED promptly.

The absence of admission counter for emergency caused further delays as the relatives had to wait for the admission to be done. Additionally, the admission process itself is quite tedious due to lengthy paperwork and slow processing time contributed to delay in shifting of patients.

Shortage of nursing staff is also one of the factors for delay as during peak hours reduced availability leads to increased waiting time for assessment of patients and subsequent decisions for treatment.

Additionally, due to an insufficient number of housekeeping staff, there is a delay in transferring patients as nurses must wait for the available personnel. Also delay in cleaning and preparing beds for new patients caused further waiting time.

CHAPTER 6

CONCLUSION

The study on TAT in the emergency department has revealed several areas that need improvement to enhance the patient flow, reduce waiting time of patients. The primary cause of the higher TAT has been identified as unavailability of beds, inefficient admissions, slow diagnostic results and less housekeeping staff. It delays more due to the unavailability of adequate staff during peak hours and no counter intended for emergency admissions specifically.

There is a need to enhance administrative processes, personnel, and resource allocation in making patient care within the ED more effective.

A multifaceted approach is needed to ensure that the TAT has come down significantly. It involves increasing the number of personnel and beds, along with streamlining of the admitting process. Delays can be minimized by opening a separate counter solely for emergency admissions. With high priority placed on these areas, the ED will be more efficient, which in turn will lead to better outcomes in patients and a successful health delivery system.

Recommendations:

Effective patient flow management in the emergency department is essential for guaranteeing prompt care and enhancing overall healthcare results. Nonetheless, the department has numerous difficulties, including insufficient staffing, lengthy admissions processing, and ineffective bed management.

The suggestions made not only seek to shorten wait times but also improve the general standard of emergency care provision.

1. Implementation of a separate admission counter dedicated to the Emergency Department (ED) to expedite the admission process.
2. Development of streamlined bed management processes to mitigate delays caused by late bed availability for patients.
3. Provision of additional staff during peak hours to enhance efficiency.
4. Dedicated runners to be present to transfer patients and deliver samples to the lab promptly, ensuring timely processing and diagnosis.
5. Introducing automated reporting systems to streamline the generation and delivery of diagnostic reports.

CHAPTER 7

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CHAPTER 8

ANNEXURE

ANNEXURE

S.No.	Content
1	Date
2	Name
3	Chief Complaints
4	Source
5	Triage
6	In-Time
7	Initial Assessment
8	Investigation
9	Consultant Response
10	Result
11	Out-Time
12	LOS (In Time – Out Time)
13	Remarks