

**Study on the Quality Indicators & identify process gaps in
Accident & Emergency Department at The Tertiary care
Hospital, Durgapur.**

Dissertation Submitted to



The IIHMR University, Jaipur

For the partial fulfillment

For the award of degree of Master of Business Administration
(MBA)

in

Hospital and Health Management

Academic year, 2019-2021

By

Dr. ANAM SOHAIL

Under the Supervision and Guidance of

Mr. Dhirendra Kumar

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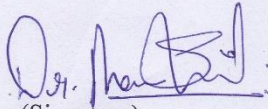
Dr. ANAM SOHAIL

Under the Supervision and Guidance of

Mr. Dhirendra Kumar

DECLARATION BY STUDENT

I hereby declare that this dissertation titled **“To study the Quality Indicators & identify process gaps in Accident & Emergency Department at the tertiary care hospital, Durgapur”** 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 Information derived from the published or unpublished work of others has been duly acknowledged in the text.



(Signature)

Dr. Anam Sohail

Date: 19/6/21



Ref: TMH/HRD/OG/June -21/ 21

Date: 21.06.2021

To Whom It May Concern

This is to certify that **Dr. Anam Sohail** has done her three months dissertation on "To study the Quality Indicators & identify process gaps in Emergency Department at The Mission Hospital, Durgapur" from 22.03.2021 to 21.06.2021.

During the period of dissertation she has been found sincere.

We wish her a successful future and career ahead.

Ramesh Lall
VP – HR

Dr. Partha Pal
Chief Medical Superintendent

Dr. Partha Pal
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CERTIFICATE

This is to certify that dissertation titled 'Study on the Quality Indicators & identify process gaps in Accident & Emergency Department at The Tertiary care Hospital, Durgapur is a record of the research work undertaken by Dr. Anam Sohail in partial fulfillment of the requirements for the award of the degree of MBA (Hospital and Health Management) from the IIHMR University, Jaipur under my guidance and supervision and his/her approach to the research study has been sincere, scientific, and analytical.

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Abbreviations

ED- Emergency Department

ADW- Admission Disposition to Ward

CTVS- Cardio Thoracic Vascular Surgery

DIS- Discharge Disposition

ED- Emergency Department

ED LOS- Emergency Department Length of Stay

GDA- Group-D Assistant

ICU- Intensive Care Unit

ICCU- Intensive Coronary Care Unit

LAMA- Left against Medical Advice

LWBS- Left Without Being Seen

LOS- Length of Stay

MRD- Medical Records Department

NABH- National Accreditation Board for Hospital & Healthcare Providers

OPD- Out-Patient Department

PDCA- Plan-Do-Check-Act

RTA- Road Traffic Accident

TAT- Turnaround Time

TOM- Total Quality Management

TMH- The Mission Hospital

WHO- World Health Organization

Acknowledgements

The opportunity provided to do dissertation at The Mission Hospital, Durgapur was an enriching and valuable experience. I am highly obliged to have met so many experienced professionals who led me throughout my study period. I am sincerely grateful to them for sharing their truthful and illuminating views on several issues related to the project.

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I recognize this opportunity as a big milestone in the development of my career, I will strive to use the knowledge and skills gained in the best possible way.

Lastly, I want to express my respects and love to my parents, my siblings and my friends for constant encouragement and motivation in my higher studies.

Sincerely,

Dr. Anam Sohail

1. INTRODUCTION-

Hospitals, according to the World Health Organization, "complement and amplify the efficiency of many other aspects of the healthy system" by offering ongoing access to care for acute and complex diseases. To respond efficiently to public health demands, hospitals concentrate scarce resources within well-planned referral networks. They are a necessary component of universal health coverage and will be crucial in the future.

A multispecialty hospital is one that offers a wide range of medical treatments, such as general medicine, ENT, Ophthalmology, Cardiology, Pulmonology, Nephrology, and so on. A hospital offers a wide range of services, including outpatient and inpatient medical treatment, prevention diagnostic services, rehabilitation services, education, and research.

In the hospital and health-care system, the emergency department performs a critical function. The emergency department acts as the hospital's major diagnostic center and is responsible for more than half of the hospital's admissions. To deliver patient-centered treatment and enhanced patient satisfaction, quality improvement and sustaining standards are now of vital importance in the emergency department and emergency team. People from all walks of life want to get treated for their illness as soon as possible. They do not like to be kept waiting. People are impatient all the time. Even after the term "patient" has been defined, those who are in agony have little patience.

Increased waiting times, overcrowding of the ED, increased length of stay, increased medical errors, increased patient mortality, and revenue loss are all problems caused by a lack of awareness of quality and clinical indicators in the emergency department.

Emergency patients who are cared for by the organisation are subjected to a pre-determined initial evaluation, according to NABH chapter no. 1 (patient centric Access), Assessment and Information (AAI) Standard no.6. The objective elements are as follows:

- a. The organization establishes and documents the substance of the emergency patient's initial assessment.
- b. The company decides who will conduct the initial assessment.
- c. Based on the patient's needs; the organization determines the time range for completing the initial assessment.

d. For emergency patients, the initial assessment is documented according to the patient's state and as directed.

Because the emergency department sees more than two-thirds of inpatients, an efficient ED workflow sets the tone for the rest of the patient's stay. Patients will be loyal to hospitals and health systems that have strong support from administration, physicians, and ancillary staff for efficient and patient friendly EDs.

Overcrowding is a problem in the ED, as is exit blockage, which leads to a patient's length of stay being extended, resulting in discontent. The following are the major quality indicators that should be monitored for the emergency department's efficiency and patient satisfaction:

- Time taken for initial assessment of emergency patient and outliers (1 min as per organization's standard)
- Length of stay in ED (less than 1 hour)
- Patients returning to emergency within 72 hours with similar complaints Incidence of medication errors, adverse drug reactions:
- Patients receiving high risk medicines and developing adverse drug reaction.
- Transfusion reaction
- Near miss events
- Incidence of patient falls
- Non-compliance observed related to infection control practices Procedure complication rate.
- Documentation completeness rate
- ED conversion
- Number of ED LAMA cases
- Number of ED deaths
- Ambulance response time (less than 10 min)

This study will aid in identifying and correcting the gaps that lead to increased emergency department (ED) turnaround times of more than 1 hour as per hospital protocol, as well as non-fulfillment of quality indicators, so that corrective and preventive measures can be taken to smoothen and re-engineer the process flow in the ED.

The research will also help to reduce the time spent in the emergency room to under four hours. For the hospital to provide patient-centered care while following to NABH guidelines.

Increased waiting times, ambulance diversion, length of stay, medical errors, patient death, and financial impact to hospitals are all concerns caused by failure of quality and clinical indicators in emergency departments.

The efficiency and preparedness of the emergency department will be assessed based on the compliance with selected KPIs. Only complete data on key performance metrics that can be collected daily under direct observation will be used.

- Time spent on initial evaluation of emergency patients and outliers (1 minute, as per organization policy)

- Time spent in the emergency room (less than 1 hour, as required by the organization) With identical concerns, patients go to the emergency room within 72 hours.

- ER incidents

- The patient was not seen in the ED. Conversion to the ED format

- The number of LAMA cases at the Emergency Department

- Deaths in the emergency room.

- Response time for ambulances (less than 10 min)

1. REVIEW OF LITRATURE

If you are a hospital or department executive responsible for overseeing performance across multiple dimensions, there are several reasons why managing emergency department (ED) crowding should be at the forefront of your organization's improvement efforts.

In this paper, we look at the history of ED quality measurement and make some predictions for the future. We analyze how measurement can promote significant progress in the quality of ED care using historical and global examples, and we present lessons learned from successful and failed ED quality measures. After that, we look for policy levers that can be used to create new ED care measurement schemes. Finally, we propose a research and policy agenda for ED performance measurement, with the

objective of capturing the key function of time-critical care performed by EDs, and we identify the areas where the most room for improvement exists.

Measurement is an important technique for finding and eliminating variation in healthcare processes. Data can also be used to show that ED overcrowding is a hospital-wide problem that needs to be addressed. Currently, hospitals are required to report a variety of ED quality metrics—for example, the core measures—and in 2013 and beyond, new measures will begin to effect hospital reimbursement (e.g., median time from ED arrival to ED departure). We recommend that all hospitals immediately begin collecting data on such indicators.

An emergency department (ED) is a facility that treats injured or seriously ill patients with 24-hour emergency care. In any health-care system, these units are critical. EDs encounter a variety of issues around the world, including the inability to treat patients in a timely manner and a shortage of specialists, to name a few. In Chile, emergency rooms are no exception; the medical network infrastructure is dysfunctional. The goal of this research is to develop a management tool for emergency departments based on KPIs (KPIs). KPIs will aid decision-makers in monitoring the overall performance of EDs by giving timely information for better management and operation.

Quality indicators, also known as performance measures, are used by policymakers, researchers, and health-care professionals to assess and improve the quality of treatment provided to patients. Quality indicators and performance monitoring have been found to improve health care outcomes in previous study and experience. The first step in enhancing pain therapy for ED patients is to evaluate the current care correctly and systematically. Relevant, evidence-based performance indicators are required to identify gaps in the assessment and treatment of pain and to improve patient outcomes.

Quality indicators have been established and applied to a variety of clinical illnesses and health care settings in the past, including asthma management in the emergency department, acute myocardial infarction, and pneumonia. The goal of this study was to conduct a systematic evaluation of the literature to establish quality indicators for the assessment and management of pain in the emergency department. An accurate overview of existing performance measurements is required to make health care system improvements in the ED that address the needs of patients with presenting (e.g., sickness or injury-related) and procedural (e.g., medical test or other procedure-related) pain.

Determining what constitutes good quality for many years, physicians, researchers, managers, and regulators have struggled with ED treatment. Our area of expertise deals with a wide range of

presentations in a variety of formats, as well as a wide range of practice scopes. In the United Kingdom, emergency department care is evaluated using time-based indicators, such as the 4-hour access standard. While these are straightforward to quantify, they only reflect one aspect of quality. Quality, according to the US Institute of Medicine, has six domains: safe, effective, timely, efficient, equitable, and people centered.

Evidence suggests that pain in the emergency department is undertreated (ED). The first step in enhancing the pain experience for ED patients is to correctly and systematically assess the actual care that is being provided. Relevant, evidence-based performance indicators are required to identify gaps in the assessment and treatment of pain and to improve patient outcomes.

By shortening the time between arrival and seeing a qualified medical expert, health systems can have a direct impact on the quality of emergency department (ED) care. Patient satisfaction can suffer because of long ED wait times, and patients may be put at risk.

Patients in Mission Health's ED waited an average of more than 50 minutes for qualified medical care. The hospital system intended to optimize its ED patient flow in order to reduce the wait time. Mission was able to visualize each portion of the ED patient flow using data-driven insights given by its analytics platform, allowing the improvement team to identify and respond to possibilities for process improvement.

Determining what constitutes good quality for many years, physicians, researchers, managers, and regulators have struggled with ED treatment. In the United Kingdom, emergency department care is evaluated using time-based indicators, such as the 4-hour access standard. While these are straightforward to quantify, they only reflect one aspect of quality. Quality, according to the US Institute of Medicine, has six domains: safe, effective, timely, efficient, equitable, and people centered. Emergency managers are increasingly confronted with issues that extend beyond standard clinical practice and department personnel.

Executives in the Emergency Department (ED) must have a thorough understanding of quality improvement principles and benchmarking to provide patient-centered care, improve customer satisfaction, and evaluate service initiatives. In addition to effectively treating emergent conditions, emergency physicians are also required to provide safe, rapid, efficient, and cost-effective care. The major performance measurements, which include both clinical and quality measures, are as follows:

- Patients seen and discharged within X hours (hospital to determine their standard) Patients admitted from ED.
- Time to treatment
- Patient satisfaction Standard of care treatment
- Correct diagnosis
- ED occupancy/crowding
- Time to treatment ED LOS (length of stay)/wait
- ED returns
- Left without Being Seen Time
- to diagnosis Effectiveness
- Mortality
- Time to pain management Rate of complaints.
- Provider satisfaction
- Waiting time diagnostics to treatment
- Time to diagnosis
- Patient participation in own care
- Satisfaction: pain control Satisfaction: hygiene
- Triage vs. time to see provider.
- Staff safety

It is critical to develop measurable key performance indicators that may be used to manage and improve performance. These must be comprehensive, including all aspects of the emergency department, from admission to discharge or admission, as well as other supportive services. Although hospitals and ER departments may be able to measure a range of indicators, they may not fully appreciate or utilize their strategic and/or operational value.

More research and studies are needed to determine how such KPIs can control and reflect performance improvement across different dimensions, such as safety, effectiveness, efficiency, patient centeredness, timeliness, and equity, which are the six main domains of healthcare and performance quality identified by the Institute of Medicine.

The average length of stay (LOS) per patient in an emergency department (ED) has been promoted as an alternative indication of crowding due to the lack of a uniform or universal definition of crowding. It

is also commonly employed as a crucial process indicator for improving clinical and operational efficiency and performance. From the patient's perspective, total LOS, and lengthy wait periods to see a physician or obtain test results provide the impression that the ED is crowded and congested.

Working toward a consensus of performance measurements that represent an ED's overall performance and whether certain quality improvement activities are effective is necessary. A thorough understanding of performance measures, both internally and externally, will enable continual quality improvements and benchmarking opportunities throughout time. Few performance measurements provide a fast overview and so are unable to account for a wide range of factors.

1.1 RESEARCH QUESTION:

What influences the quality indicators and process gaps of accident & emergency department at the Mission Hospital?

2.2 OBJECTIVES:

- To assess the selected quality indicator in accident & emergency department
- To identify the gaps in process flow of emergency department

3. RESEARCH METHODOLOGY:

3.1 STUDY DESIGN: Observational cross-sectional study

3.2 SETTING: Accident and Emergency Department, the Mission Hospital, West Durgapur, Bengal

3.3 STUDY POPULATION: patients coming in the emergency department.

- **Inclusion criteria:** All patients visiting emergency department.
- **Exclusion criteria:** Patients not admitted in emergency department (i.e., Patients who visited ED for injection, vaccination, suture removal etc.) and patients with incomplete data.

3.6 DURATION OF STUDY: 22nd March 2021 to 19th June 2021

3.7 METHODOLOGICAL APPROACH:

Quality indicators included in study are as follow:

1. Length of stay of the patient in ED (less than hour)
2. Time taken to start initial assessment (1 min)
3. Patients who left ED without being seen
4. ED return within 72 hours
5. ED conversion
6. Number of ED LAMA cases
7. Number of ED deaths
8. Ambulance Response Time (10 min)
9. Incident occurred in ED.

To determine the length of stay in the ED, convenience sampling was used to collect data on 10 patients every day during working hours, i.e., 9 a.m. to 6 p.m. ED LAMA is used to determine if an ED conversion complies. ED deaths, ED incident returns, ambulance response time, and patient departed ED without being examined were all considered, as well as secondary data on the total number of patients that visited the ED. The total number of ambulance calls throughout the study period was considered for calculating ambulance response time.

Second, daily convenience sampling was used to obtain data for the gap analysis. Patients were tracked throughout the procedure, from the time they entered the emergency department until they left, and the time it took for each step was recorded. Informal discussion with ED employees about delays and gaps in the process flow, as well as the causes for the delays. This data was also used to determine the amount of time it takes to begin the initial examination. Because it is a necessary component of the process.

SAMPLE SIZE:

- For ED conversion, ED LAMA, ED deaths, ED incidents, ED return, patient left ED without being seen total no of patients (3285) who visited Accident and Emergency dept. during the study period was taken. For ambulance response time total no of calls 163 during the study period were considered.
- For length of stay of patient in ED total sample of 494 patients were taken through convenience sampling 10 patients daily during the study period through direct observation.

- For Gap in process of the ED sample of 494 patients were taken and that patients were followed throughout the process to find out the gaps.

SAMPLING TECHNIQUE: Convenience sampling

3.8 DATA COLLECTION PROCEDURE:

- Primary data - Collected through TAT form (see annexure-1), process gap by direct observation. For length of stay of the patients in ED, time taken for initial assessment.
- Secondary data- Collected from the Master register of emergency department, Procedure register and Ambulance register. For ED return within 72 hours, ED conversion, ED LAMA, Ed deaths, Ambulance response time, and incident occurred in ED.

DATA ANALYSIS: Data is analyzed with the help of advanced Microsoft Excel function.

ETHICAL CONSIDERATION: Appropriate safeguards were put in place to protect the patients' and the organization's data, privacy, and confidentiality.

LIMITATIONS: Due to a time restriction, more time is required to complete this study and determine the fulfilment of all quality indicators related to the emergency department, as well as to determine the efficiency of the ED and to conduct a more thorough gap analysis.

4. RESULTS

Quality indicators:

1.Length of stay of the patient in ED: For this measure, a total of 494 patients were sampled in March (247) and April (247) to determine the ED turnaround time. Only prospective footfall was included for this indicator, which was calculated from the patient's arrival time in the department until the patient leaving the department (ED discharge, shift out to other departments, LAMA). According to the protocol of the organization, the standard time is one hour. In March, it was 5 hours 24 minutes, and in April, it was 6 hours 20 minutes. TAT sheet was used to keep track of the information.

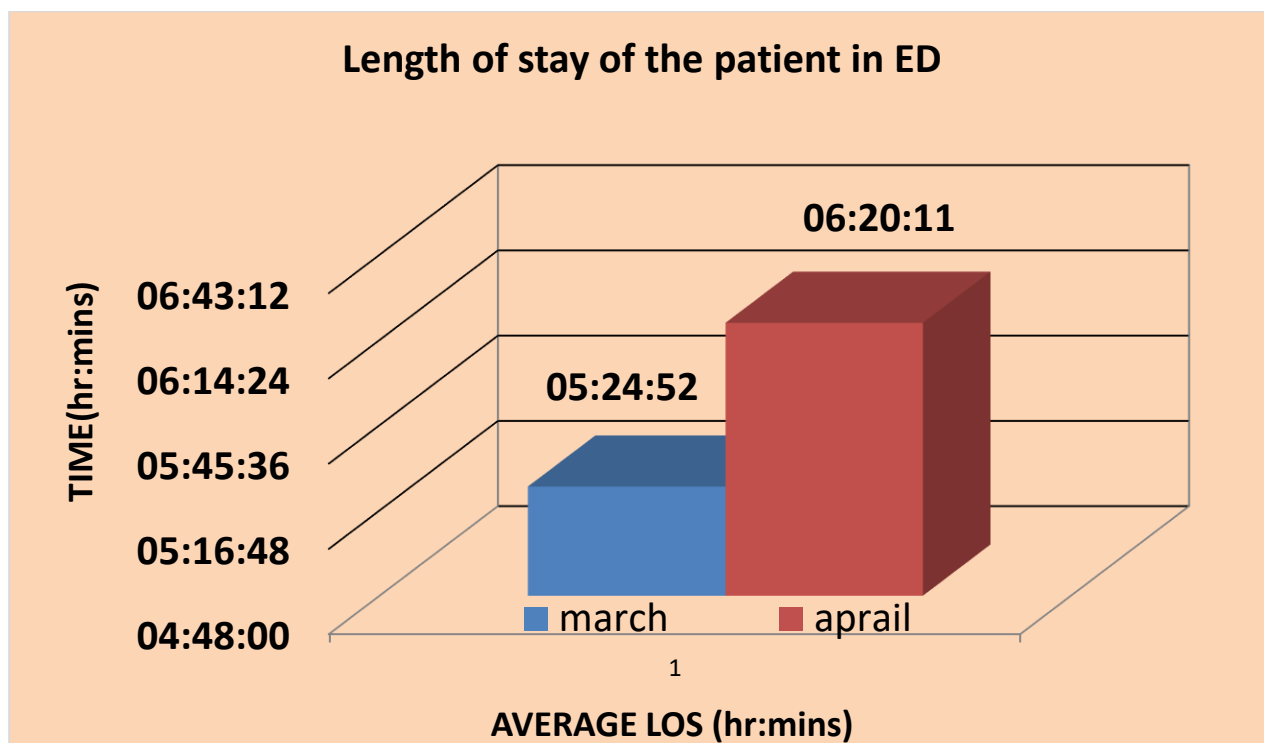


Figure 1: In the months of March and April, the average length of stay in the emergency department was about two hours. In the months of March and April, the average LOS was more than 4-hours per organization. N=494

2. Time taken for initial assessment: The data for this indicator came from a sample of 247 patients and the turnaround time format. Time taken by the doctor to begin the initial assessment and primary survey. The standard time for beginning the initial assessment, according to the organization's procedure, is less than one minute

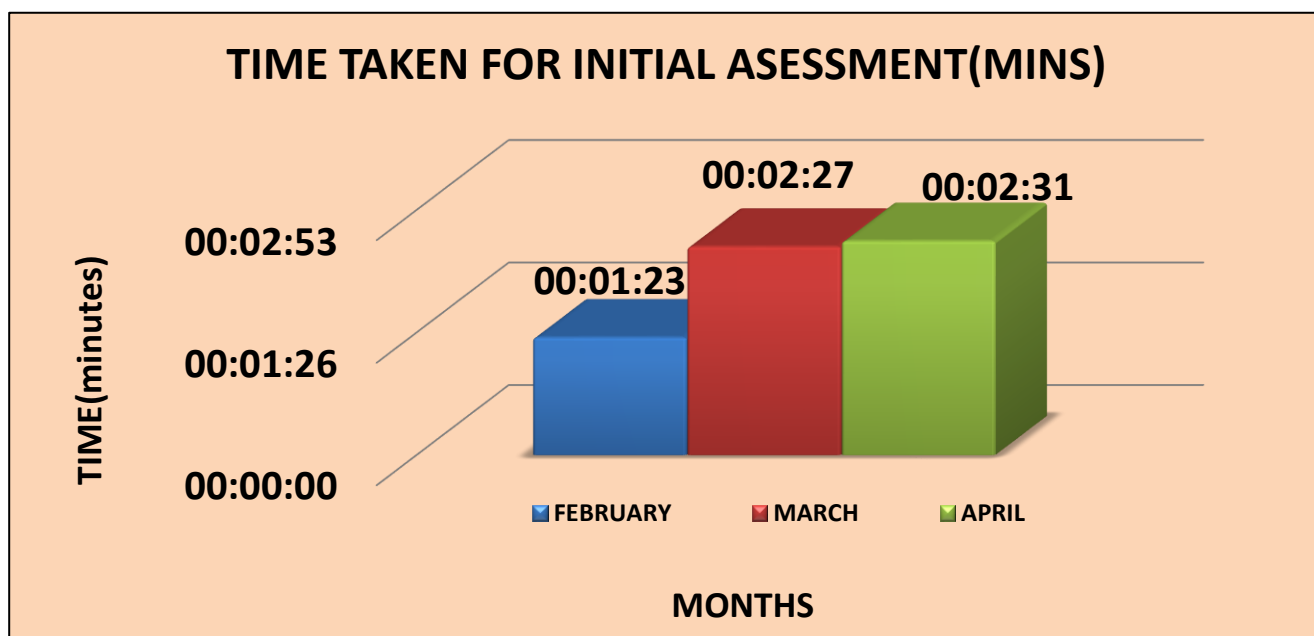


Figure 2: In the months of February, March, and April, the average time spent in the emergency department for an initial assessment. In the months of February, March, and April, the organization set a time limit of 1 minute.

3. Patients who left ED without being seen: During the study period, no case of someone leaving the emergency room without receiving any form of assessment was seen or observed. Because most of the patients who came to E were recommended by other corporate hospitals. The fact that not all cases, such as patients arriving after working hours, could be observed was a major drawback of this indicator.

4. ED return within 72 hours: There were only four such instances during the study period, all of which returned to the ED within 72 hours with the same symptoms after being treated for the same. There were no such incidents registered and seen in the months of February, March, and April.

5. ED conversion: During the study period, 3285 people walked through the doors, with 1871 of them being hospitalized patients. There were 1132 emergency OPD discharges, 167 LAMA, I brought dead, 36 emergency deaths, and two additional instances (DORB). A quality indicators sheet was used to record the information.

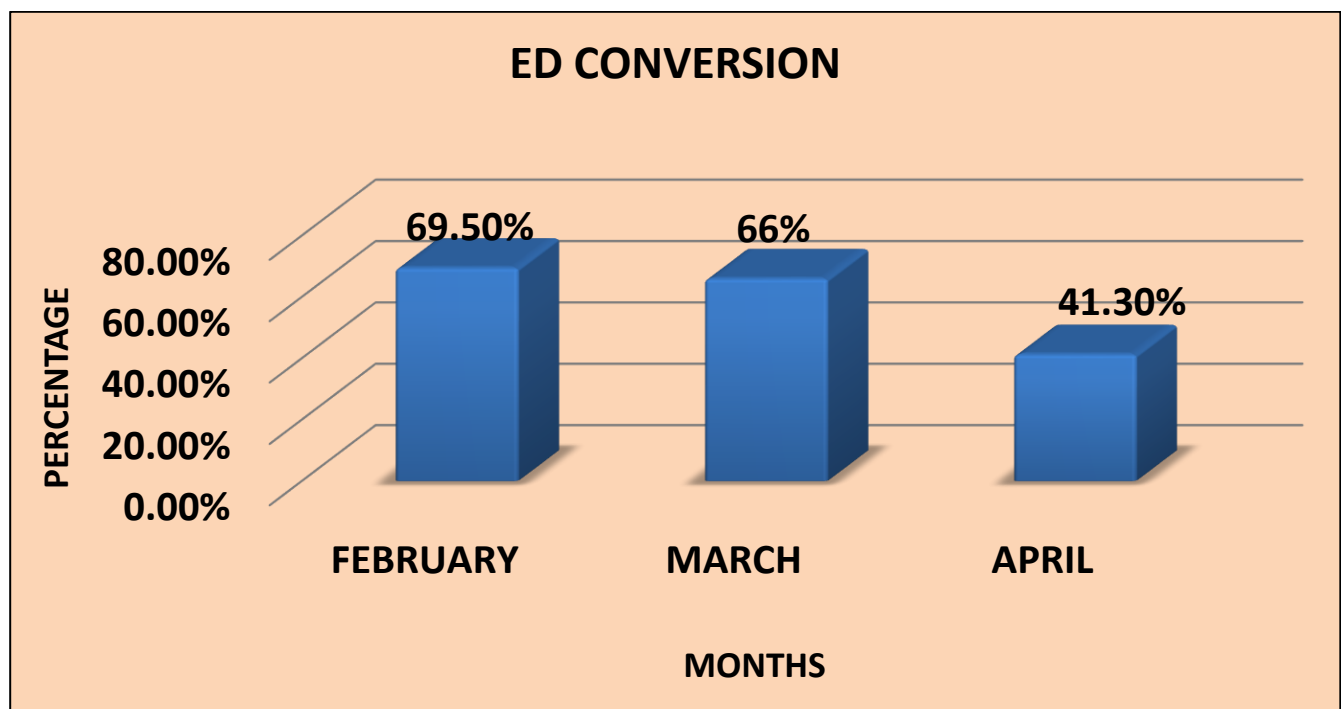


Figure 3: In the months of February, March, and April, there was an ED conversion. The month of February is the highest, and the month of April is the lowest. N=3285

ED Conversion in the month of February, march, and April

MONTHS	TOTAL FOOTFALL	TOTAL ADMISSIONS	TOTAL GENERAL WARD TRANSFER	TOTAL CRITICAL CARE TRANSFER
FEBRUARY	949	657	217	426
MARCH	1102	727	276	443
APRIL	1234	487	183	287
TOTAL	3285	1871	676	1156

Table 1: Consist of total footfalls, total admissions, total general ward transfer and critical care transfer.

6. Number of ED LAMA cases: In the months of February, March, and April, there were 167 LAMA cases out of 3285 total emergency room visits.

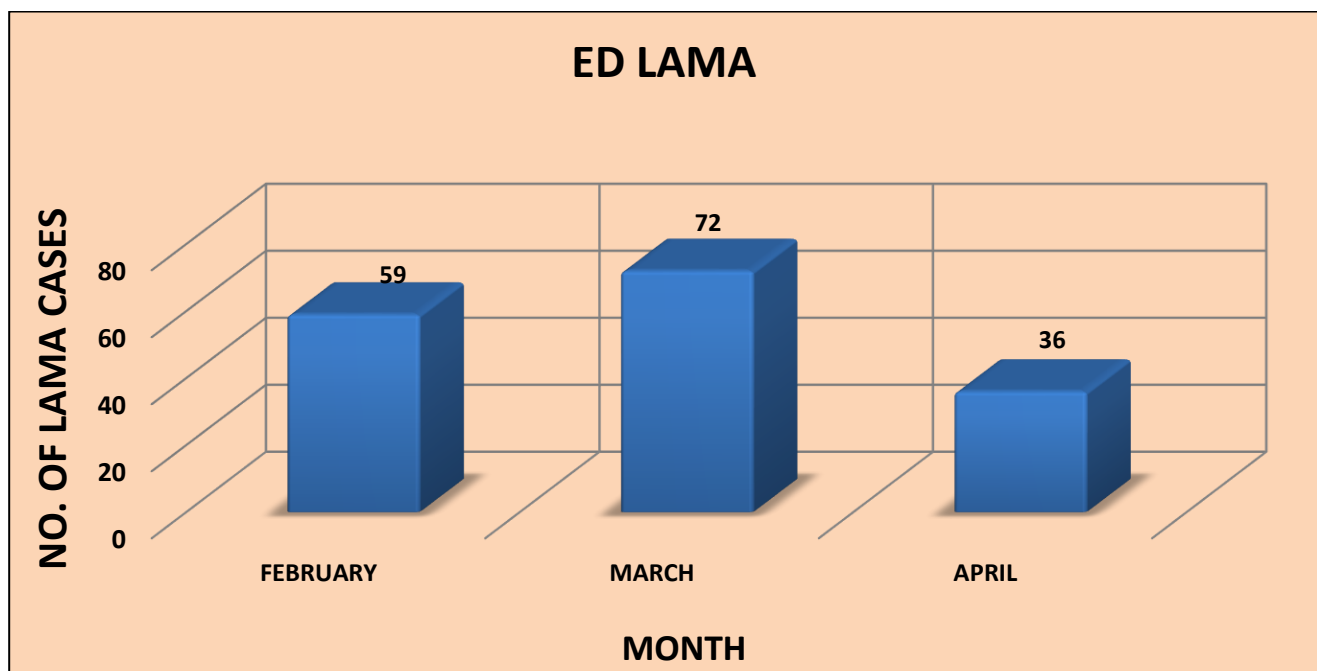


Figure 4: ED LAMA in the month of February, March, and April. n=3285 out of this there were 167 LAMA cases.

7.Number of ED deaths: In the months of February, March, and April, 36 people died in emergency rooms. A total of 3285 people walked through the door.

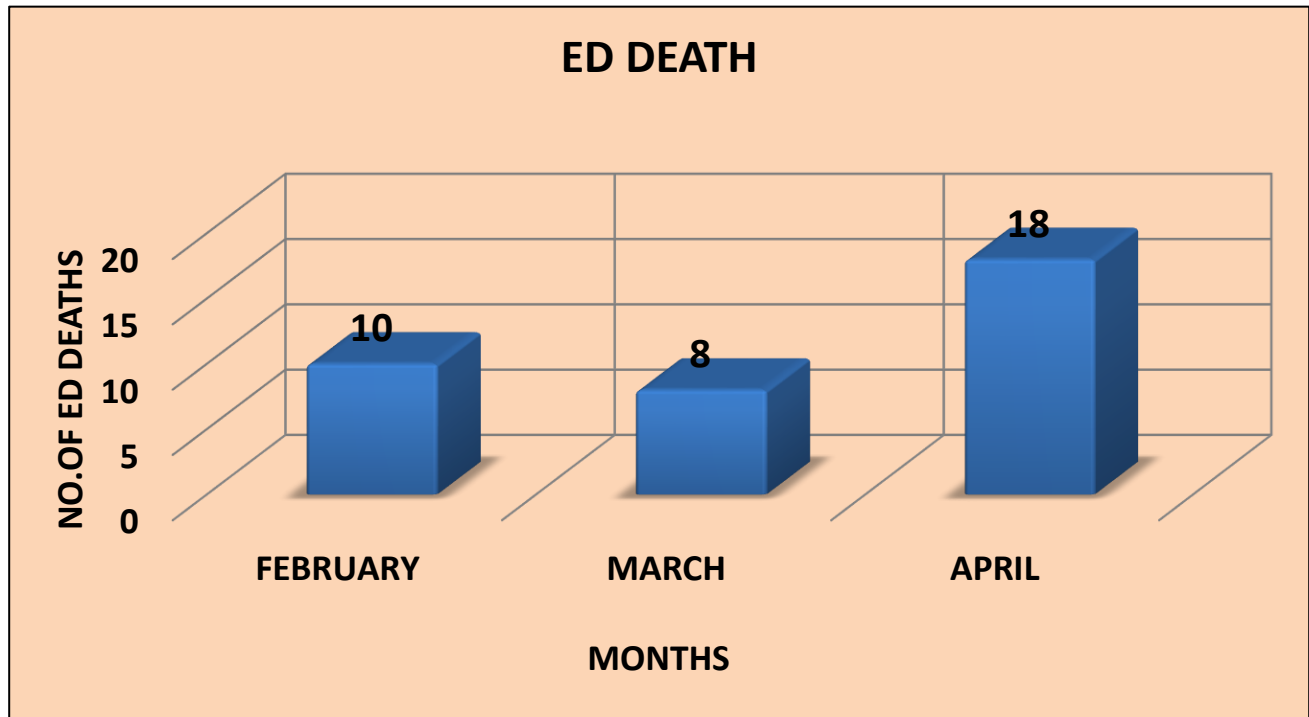


Figure 5: The total number of deaths in emergency departments in February, March, and April. Total number of deaths as a percentage of total patient footfall. N=3285

8.AVERAGE CALL RESPONSE TIME:

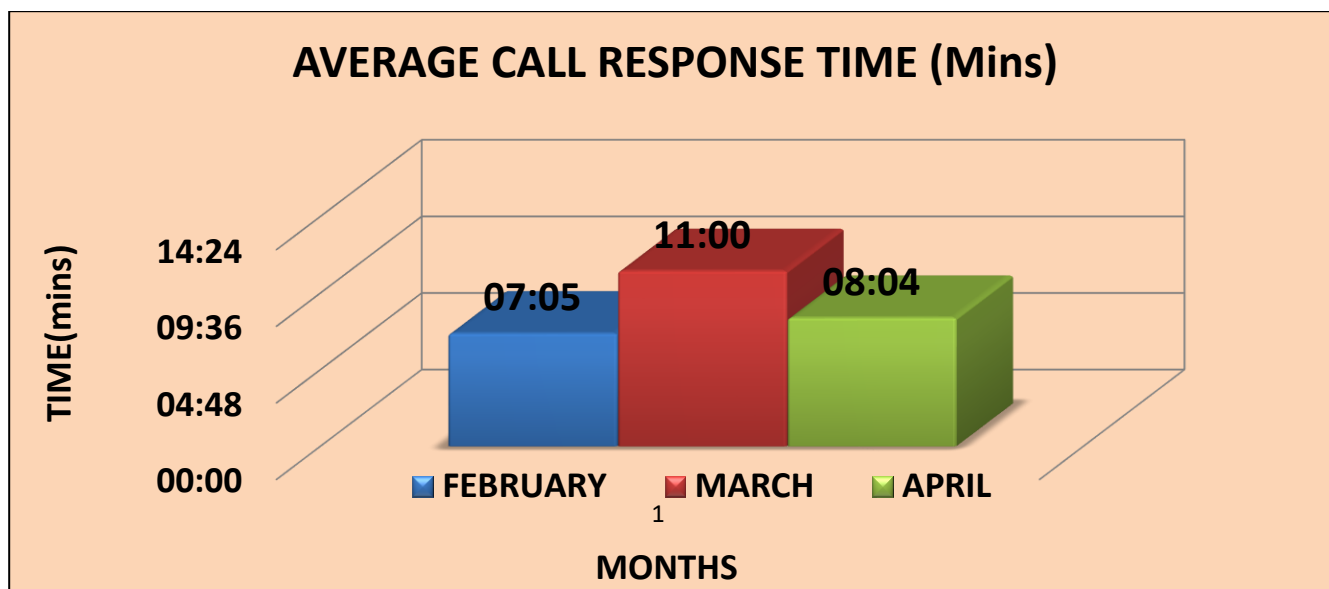
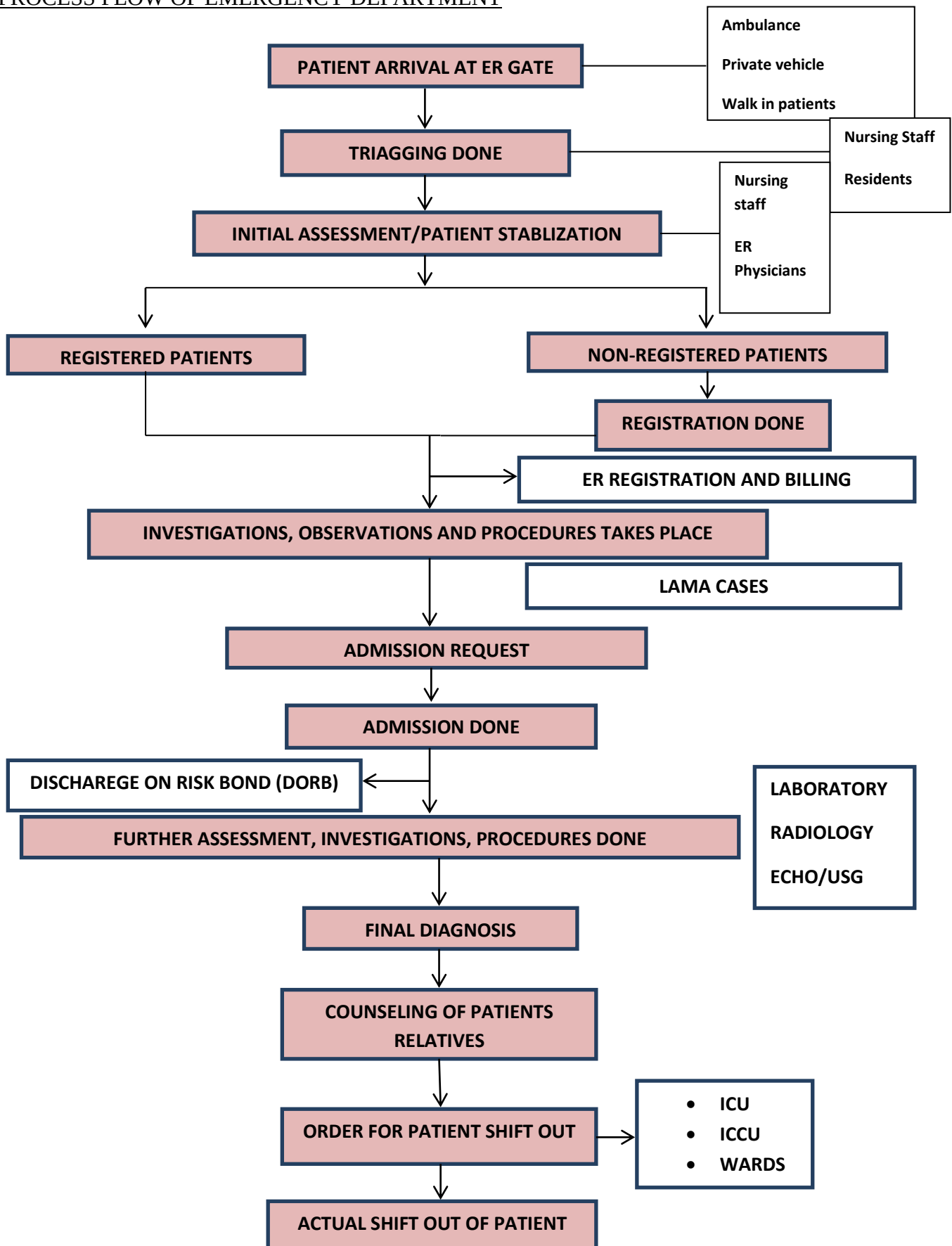


Figure 6: the average response time for ambulance calls in the months of February, March, and April. In the months of February and April, it is within the organization's norm of 10 minutes. It is more than regular time in March.

9.Incident occurred in ED: During the research period, just two instances were recorded. None of it has anything to do with the patients. One was an equipment-related near-miss event: an oxygen cylinder fell from the oxygen cylinder carrying trolley while being paused for moving a patient from the emergency room to the intensive care unit, causing oxygen leakage. This occurred in March 2021. Another was an adverse occurrence due to equipment, in which a patient's blood sample got jammed in a Pneumatic chute and caused a delay in laboratory testing and reports.

PROCESS FLOW OF EMERGENCY DEPARTMENT



PROCESS FLOW

When a patient arrives at the Accident & Emergency Department, he or she is assessed by the department's emergency workers, and triaging is done on the bedside due to space constraints. Within one minute of the patient's arrival, the initial assessment begins. If resuscitation is required, the patient is transported to the resuscitation bay before the triage procedure begins to stabilize the patient's life-threatening condition. The patient is largely surveyed and assessed by the Emergency Doctor after triage and resuscitation.

Any patient stabilization and point-of-care tests (such as Acid-Base Gas Analysis, Random Blood Sugar, USG, and ECG) that are required are completed at this time. Doctors may request admission after assessing the patient, or they may continue to assess and hold the patient for observation. If an investigation is required, they will send an investigation request and ask the patient's relative to pay for the investigation. Patients who have never been registered (those who are visiting the hospital for the first time) are sent for registration first, after which OP registration is completed and an admission request is sent.

Following the patient's admission, additional assessments are performed, necessary care is provided, and significant investigations such as laboratory investigations, radiology investigations, and echocardiograms are sent. After receiving the patient's report, the emergency doctors make a diagnosis of the situation and, after consulting with the senior consultant, transfer the patient to ICCUACU/Ward. The attending Emergency Doctor counsels the patient's relative and discusses the patient's current state with them. After completing all the pre-requisite measures, the patient is now ready to be transferred to the ICCU/ICU/Ward.

5.DISCUSSION

1.Average length of stay in the ED:

In the months of March and April, the average LOS in the emergency department was Avg. In the months of March and April, LOS is defined as more than 4-hour criteria imposed by each organization. N=3285

2. Time taken to start initial assessment: a total sample size of 250 patients was used to determine the time required to begin initial assessment to determine compliance. In the months of February, March,

and April, the average time spent in the emergency department for an initial assessment. It exceeds the organization's 1-minute criteria for the months of February, March, and April.

3. Patients who left the ED without being seen: no such case was noticed or seen during the study period in which a patient departed the Emergency Department without receiving any form of assessment. Because most of the patients who came to the hospital were referred from other corporate hospitals, Ed was able to help them. The fact that it was not able to witness all cases, such as patients arriving after working hours, was a major drawback of this indicator.

4. ED return within 72 hours: During the study period, there were only four incidences of people returning to the ED within 72 hours after being treated for the same symptoms. There were no such incidents registered and seen in the months of February, March, and April.

5. ED conversion: During the study period, 3285 people have passed through the ED, with 1871 of them being admitted to the hospital. There were 1132 OPD discharges through emergency, 167 LAMAS, 1 brought dead, 36 emergency fatalities, and 2 other cases (DORB)

6. Number of ED LAMA cases: In the months of February, March, and April, there were 1677 LAMA cases out of 3285 total emergency department footfalls.

7. Number of ED deaths: In the months of February, March, and April, there were 36 ED deaths. There were 3285 total footfalls.

8. Ambulance Response Time: During the study period, 250 ambulance calls were received. The response time for in-call ambulances was fewer than 10 minutes, as per the organization's requirement. Most of the non-compliance is due to the ambulance's various points of contact.

9. An incident occurred in the emergency department: only two incidents were recorded during the study period. None of it has anything to do with the patients. One was an equipment-related near-miss event: an oxygen cylinder slipped from the oxygen cylinder carrying trolley while being paused for moving a patient from the ED to the ICU, causing oxygen leakage. It took place in April. Another was an unpleasant occurrence involving equipment, in which a patient's blood sample was delivered to the lab via a pneumatic chute, which resulted in a delay in laboratory diagnosis and reports.

The following are the significant shortcomings that have been identified as having a direct or indirect impact on the emergency department's quality and performance:

Assessment & Stabilization average time taken for assessment to start is more than one minute

Emergency physicians require time to assess and stabilize patients. Frequently, patients present with various complaints symptoms, as well as ambiguous symptoms. Doctors frequently struggle to arrive at a diagnosis in a short period of time. Most of them are residents who require senior consultant counsel or direction in procedures and treatments. Although this causes a delay in the process, it is necessary to thoroughly diagnose the patient to eliminate any hazards. Due to the admissions procedure, there has been a delay.

Delay by the Patient party in decision making Waiting for the admissions consultant, delays in signing and filling out consent forms Inadequate documentation required for admittance (especially in insurance & corporate patient cases), Due to the absence of relevant signatory authority from the end of patient family, which is essential during admission, and delays caused by TPA patients, the admission process is delayed, resulting in increased emergency department turnaround time.

Delay due to laboratory investigation delay in taking the sample Delays in sending the sample to the lab and obtaining the results directly affect the TAT in this stage, as can other issues such as the non-availability of GDA.

Delay due to radiology investigations: The primary causes of radiology delay are delays in changing the patient's clothes, shifting the patient from the emergency room to the radiology department, imaging procedures, delay in generating, numerous imaging processes, and report interpretation. TAT increases because of this.

Delay due to GDA Non-Availability Because of GDA non-availability, there is a delay in transmitting samples to the laboratory, changing the patient's garments, and transferring patients from the Accident and Emergency Department (A&ED) to disposed inpatient departments. Per shift, there are only two male GDAs and one female GDA. The lack of GDA availability is due to a staffing shortfall, and current employees are being assigned to other tasks such as collecting and disposing of linen, obtaining food for patients and staff, and going to stores to gather emergency supplies.

Delay due to staff scheduling for the shifts Due to a change in shift of medical and paramedical workers within a little period every day, patients' length of stay in the hospital's Accident & Emergency Department increases. Nursing, GDA, and housekeeping employees work in three shifts.

Delay by the senior consultant: when you need someone, Senior consultants are sought for assistance on the patient's admittance and diagnosis, although they are frequently unavailable or arrive late. As a result, the patient's discharge has been delayed.

Exit Block: The exit block is defined as a condition or set of conditions in an indoor facility that prevents patients from being transferred from the emergency department to other indoor facilities such as ICCU/ICU/Ward/Semi-private room/suits, even after they are ready to be transferred, resulting in an increase in the length of stay of patients in the Accident & Emergency department. This is the leading cause of patient delays, which leads to an increase in the length of stay.

Delay due to procedures: Multiple important procedures are frequently necessary on the patient, which can take a long time to stabilize. Some of the doctors are residents in the department, thus operations take time. In addition, there is a delay in the procedure owing to academic activities. Further research was required to determine the causes of process flow gaps and the amount to which they are affecting the process flow, resulting in an increase in the duration of stay of other quality indicators.

7.CONCLUSION

High waiting times were found to be the only independent risk factor for patient dissatisfaction. Information about delays and the causes for the delays might be conveyed to patients in EDs in a systematic manner, which could be a useful technique for reducing perceived wait times and improving patient satisfaction.

It is critical to monitor all key performance indicators, including quality and clinical indicators, to ensure that the emergency department of a multispecialty hospital runs smoothly. The primary reasons for the delay are gaps such as investigation delays, exit blocks, communication delays, radiography delays, admission delays, evaluation, and stabilization delays, GDA non-availability, shifting delays, and Sr. Consultant delays & process delays.

Gaps leading to increased length of stay should be scientifically investigated and improved on a continuous basis. Continuous detailed in-depth studies should be conducted to analyze the performance of different departments that are found to have a higher proportion of delayed cases affecting quality indicators.

By doing so, we will be able to improve the emergency department's process flow, which will not only help to reduce overcrowding, but will also lead to increased patient and employee satisfaction. We can

achieve the goal of providing patient-centered care by reengineering the emergency department's process flow.

6. RECOMMENDATIONS

Further investigations or in depth should be done to find out the rate of reasons resulting in delays.

QUALITY INDICATOR:

- A separate area for simple treatments like injections and suturing. Vaccinations and other preventative measures.
- in addition to a separate small X-ray and radio-diagnosis unit in the emergency department to reduce the time spent on non-potential patients and investigation processes.
- Designated space with sufficient manpower and a waiting area for expedited cases to prevent time wasting in the admissions process, separate counters for ER registration and ER-generated lab orders.
- An automated ambulance monitoring system should be put in place.
- The Ambulance has a single point of contact.

PROCESS GAP: To speed up the discharge process in the IPD to reduce the emergency department's exit blockage.

Employees in the emergency department should be trained in emergency department protocols.

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7.ANNEXURES-

1.TURNAROUND TIME FORMAT

S NO.	PATIENT NAME	AGE/SEX	ARRIVAL TIME IN ED	TIME OF SHIFT OUT	LENGTH OF STAY IN ED

Table:2 turnaround time

2.QUALITY INDICATOR FORMAT

INDICATORS	FEBRUARY	MARCH	APRIL
TOTAL NO. OF ADMISSION			
ADMISSION IN ICU			
ADMISSION IN GENERAL WARD			
LAMA			
DEATHS			
ED RETURN			
PT LEFT			
ED CONVERSION			

Table:3 quality indicator

3.AMBULANCE RESPONSE SHEET

S NO.	DATE	IP NO.	PATIENT NAME	AMBULANCE CONFIRMATION CALL TIME	AMBULANCE OUT TIME	AMBULANCE IN TIME	PURPOSE

Table:4 ambulance response