A study on Compliance to Quality Indicators in Accident and Emergency Department at a Multispecialty Hospital

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INTRODUCTION

Emergency department (ED) plays an important role in hospital and health care system. ED serves as a primary center of care in the hospital and is responsible for more than half of the admissions in the hospital. Quality improvement and maintaining the standard is now of outmost importance in Emergency Department (ED) and emergency team to provide patient-centric care and to improve patient satisfaction. In every segment of the society people always want early treatment for their disease. They don’t want to wait.

Non-compliance of quality and clinical indicators in emergency department causes problems for patients and staff, including increased waiting times, overcrowding of the ED, increased ambulance diversion, increased length of stay, increased medical errors, increased patient mortality, revenue loss.

REVIEW OF LITERATURE

According to Khalifa et al study about Developing Emergency Room Key Performance Indicators: What to Measure and Why Should We Measure It?

It is crucial to develop key performance indicators that are measurable and in the same time beneficial to performance management and improvement. These must be comprehensive; covering all phases and components of ER; from arrival till discharge or admission, including other supportive services. KPIs can control and reflect the improvement of performance along 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.

According to Wiler JL et al study about Emergency department performance measures
Key performance indicators cover all clinical as well as quality indicators and they are as follow:
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,Time diagnostics to treatment,Time to diagnosis, participation in own care, Satisfaction: pain control Satisfaction: hygiene,Triage vs. time to see provider and Staff safety.

RESEARCH QUESTION: What is the status of compliance of the quality indicators and process gaps of accident and emergency department of mission hospital?

OBJECTIVES:

1. To assess the compliance of selected quality indicators in the emergency department.
2. To identify the gaps in process flow of the emergency department.

METHODOLOGY

STUDY DESIGN: Observational descriptive study

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

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.

DURATION OF STUDY: 6th February 2019 to 30th April 2019 (3 months)

SAMPLING TECHNIQUE: Convenience sampling

METHODOLOGICAL APPROACH

1.) to find out the compliance of quality indicators few quality indicators were selected after going through some literature and some were taken as per organizations protocol to find out the efficiency of the ED.

Quality indicators included in study are as follow:

1. Length of stay of the patient in ED (less than 1 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

a.) To find compliance of length of stay in ED data 10 patients daily were taken through convenience sampling during the working hours i.e. 9 AM to 6 P.M .
b.) To find out the compliance of ED conversion, ED LAMA, ED deaths, ED incidents, ED return and patient left ED without being seen, secondary data of total no of patients who visited the ED were considered.
c.) For ambulance response time total no of ambulance calls during the study period were considered.

2.) Secondly, for the gap analysis data was collected daily through convenience sampling. Patients were followed throughout the process from patient entering the emergency department and leaving the emergency department and time taken for each step was noted down. Informal discussion was done with the emergency staff to find out the reason leading to the delays in the process flow at each step.
Compliance of time take to start initial assessment also taken from this data.

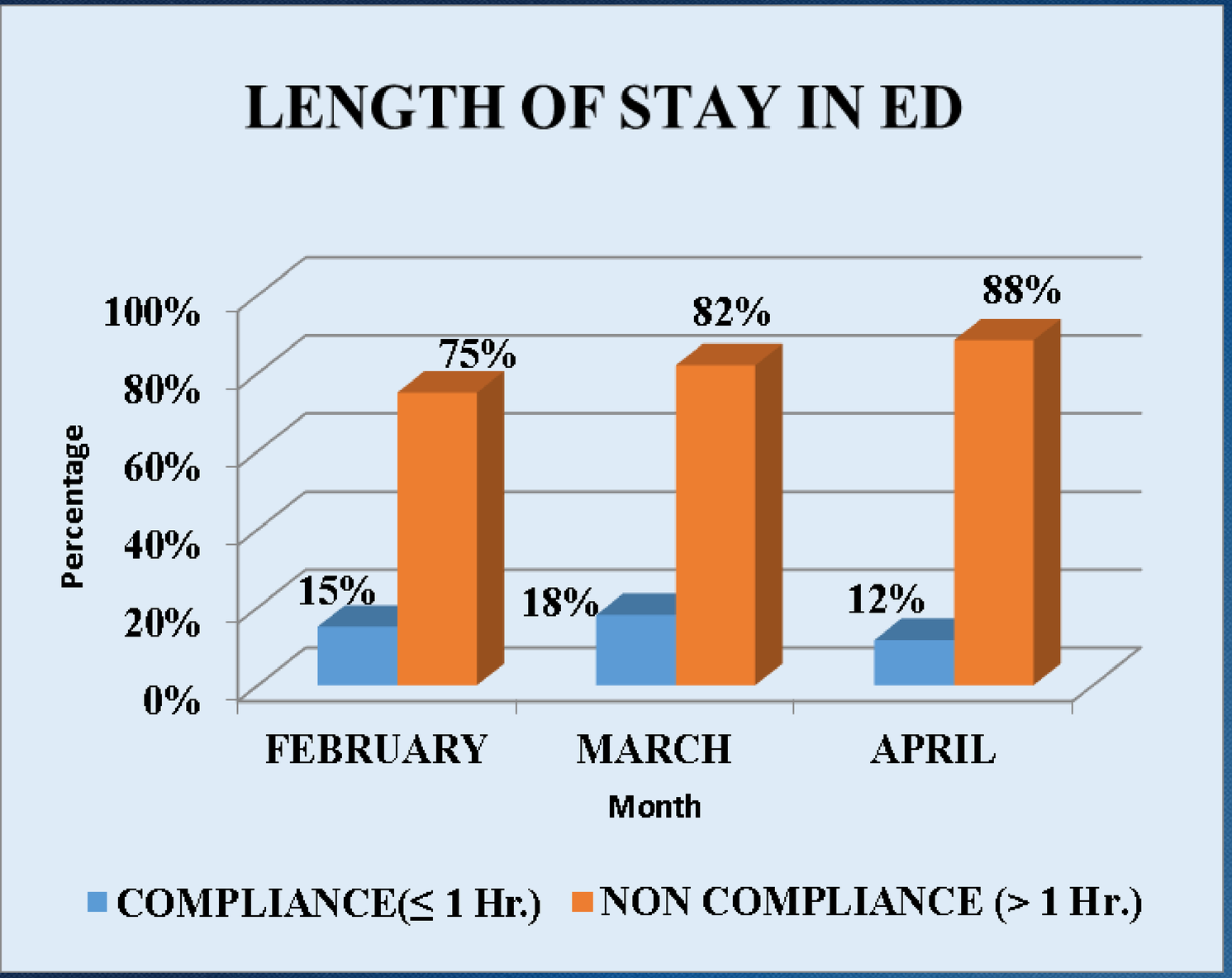
SAMPLE SIZE:

PARAMETERS	SAMPLE SIZE
For ED conversion, ED LAMA, ED deaths, ED incidents, ED return, patient left ED without being seen	2624
Ambulance response time	163
Length of stay of patient in ED	772
Gap analysis, time taken to start initial assessment	433

DATA COLLECTION PROCEDURE:

Primary data – Collected through TAT form, gap analysis form by direct observation. For length of stay of the patients in ED, time taken for initial assessment and for gap analysis
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, incident occurred in ED.

QUALITY INDICATORS



Total sample = 772 patients

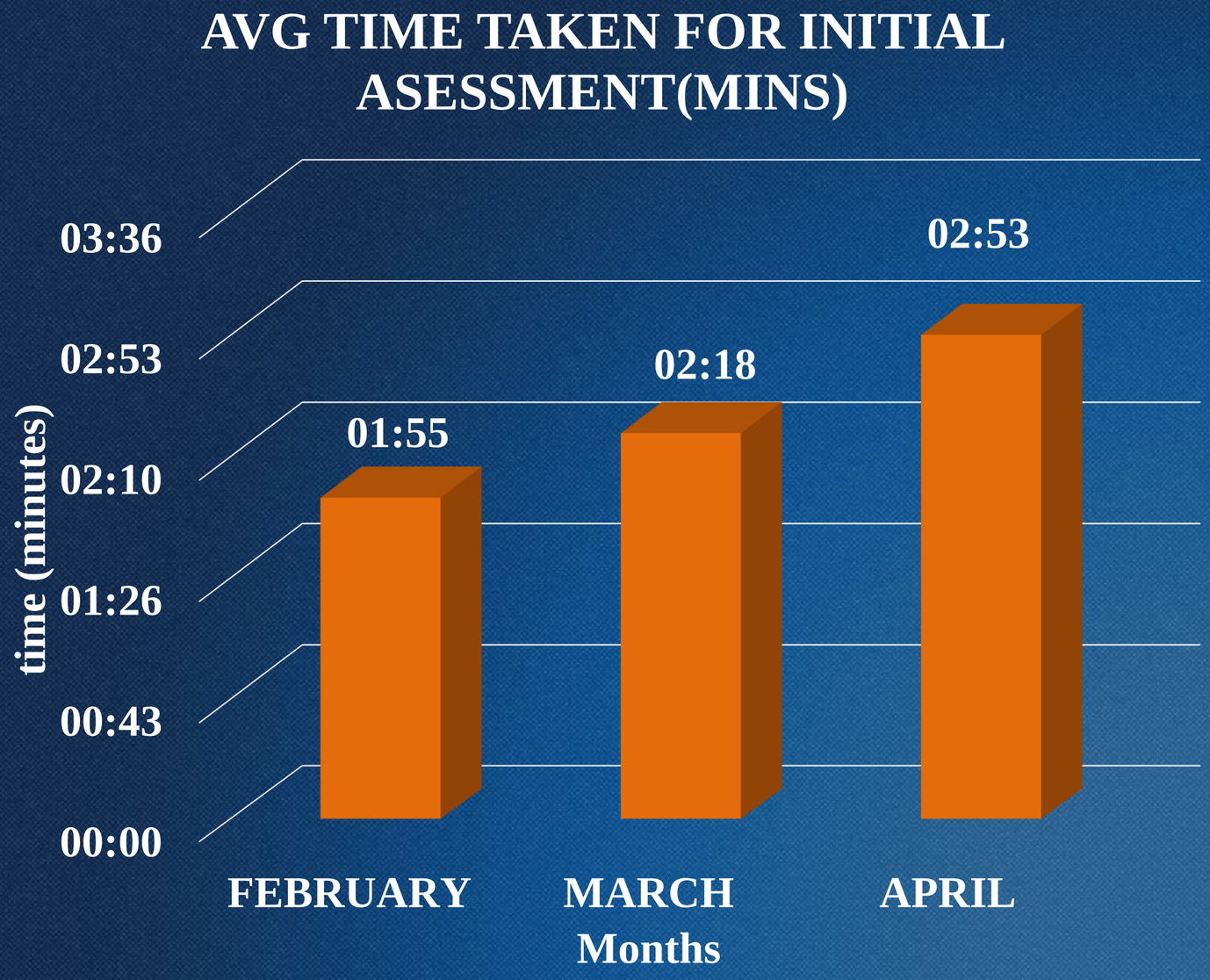
Total no of patients in February (224), March (436), April (112).

Average length of stay in February = 3 hour 2 mins

March = 2 hour 35 mins

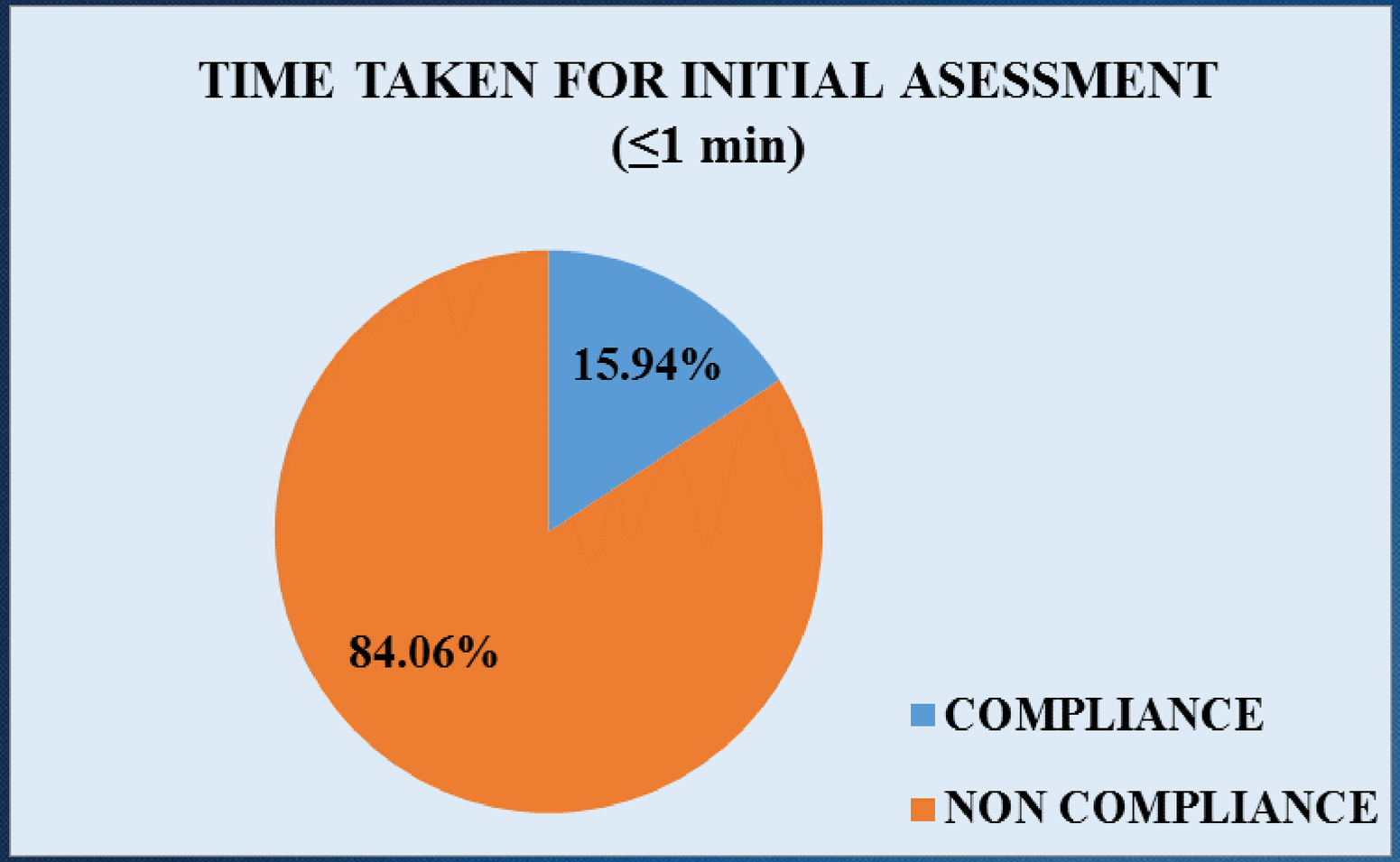
April = 2 hour 36 mins

Standard time as per organizations protocol is 1 hour.



Total sample = 433 patients.

Time taken to start initial assessment and primary survey by the doctor, standard time as per organizations protocol is within 1 min to start the initial assessment.



Only 15.94% of the cases initial assessment start within 1 min which is the standard time set as per organization.

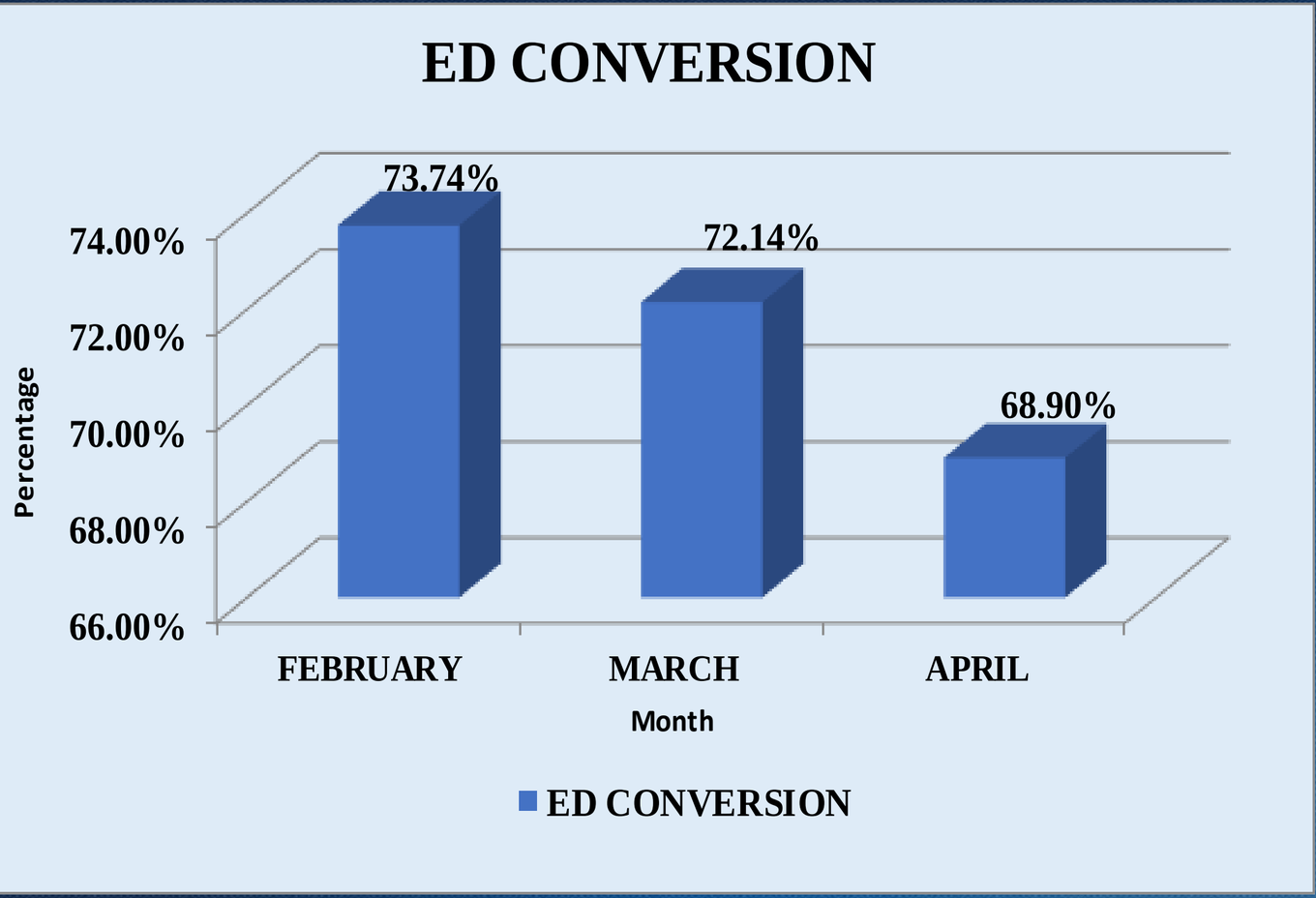
Other 84.06 % cases were non compliant.

Patients who left ED without being seen

During study period no such case was noticed or observed who left Emergency department without any kind of assessment. Because most of the patients coming to the hospital Ed was referred from other corporate hospitals. Major limitation in this indicator was that it was not possible to observe all the cases like patients coming after working hours, they were not directly observed.

ED return within 72 hours

During study period there were only 4 such cases those who return to ED within 72 hours with the same symptoms after being treated for the same. One in the month of February, 3 in the month of March and in month of April there was no such cases recorded and observed.

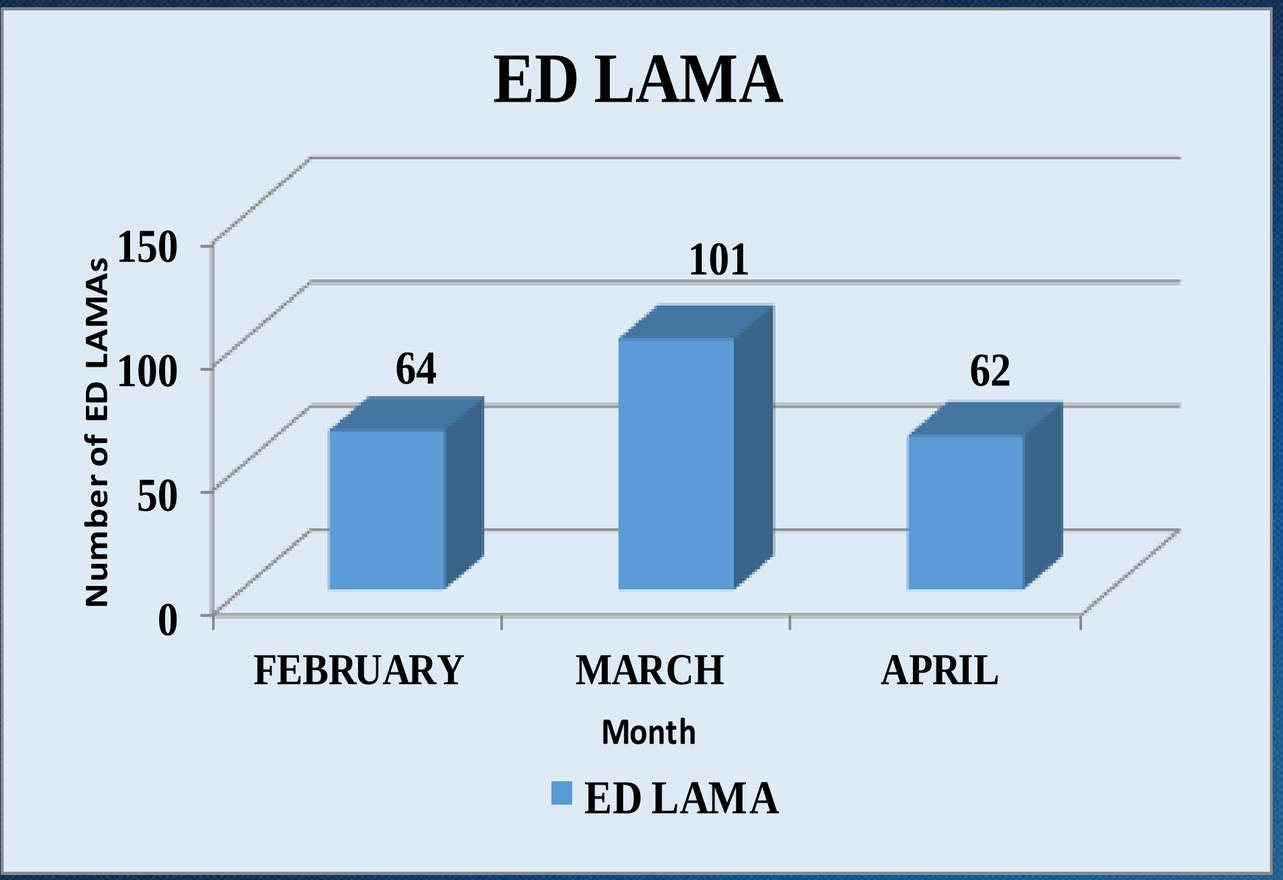


Total footfall = 2624

potential footfall = 1875 (patients who got admitted to the hospital).

513 were OPD discharges through the emergency, 227 were LAMA, 1 brought dead, 6 deaths in emergency and 2 were other cases (DORB).

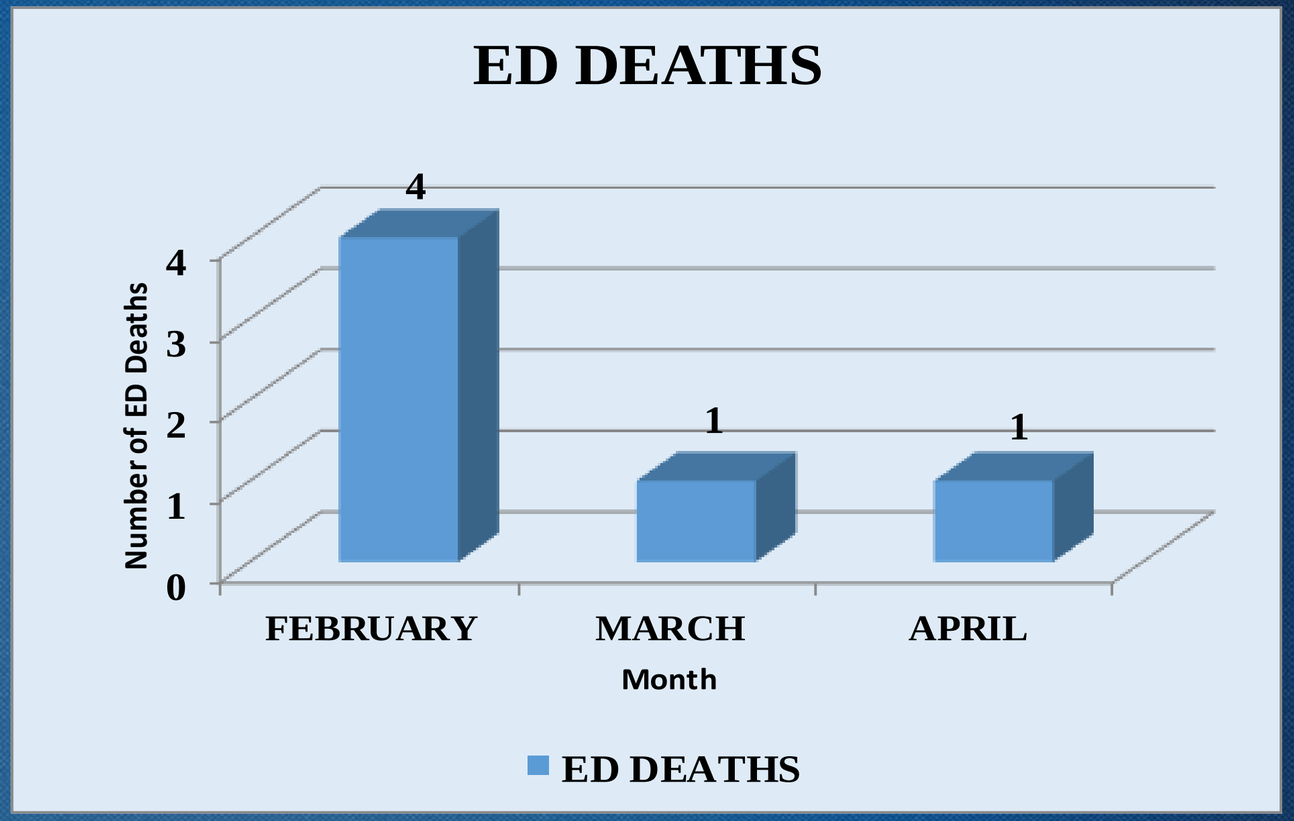
MONTHS	TOTAL FOOTFALL	TOTAL ADMISSIONS	TOTAL GENERAL WARD TRANSFER	TOTAL CRITICAL CARE TRANSFER
FEBRUARY	914	669	279	390
MARCH	980	701	280	421
APRIL	730	503	232	273
TOTAL	2624	1875	791	1084

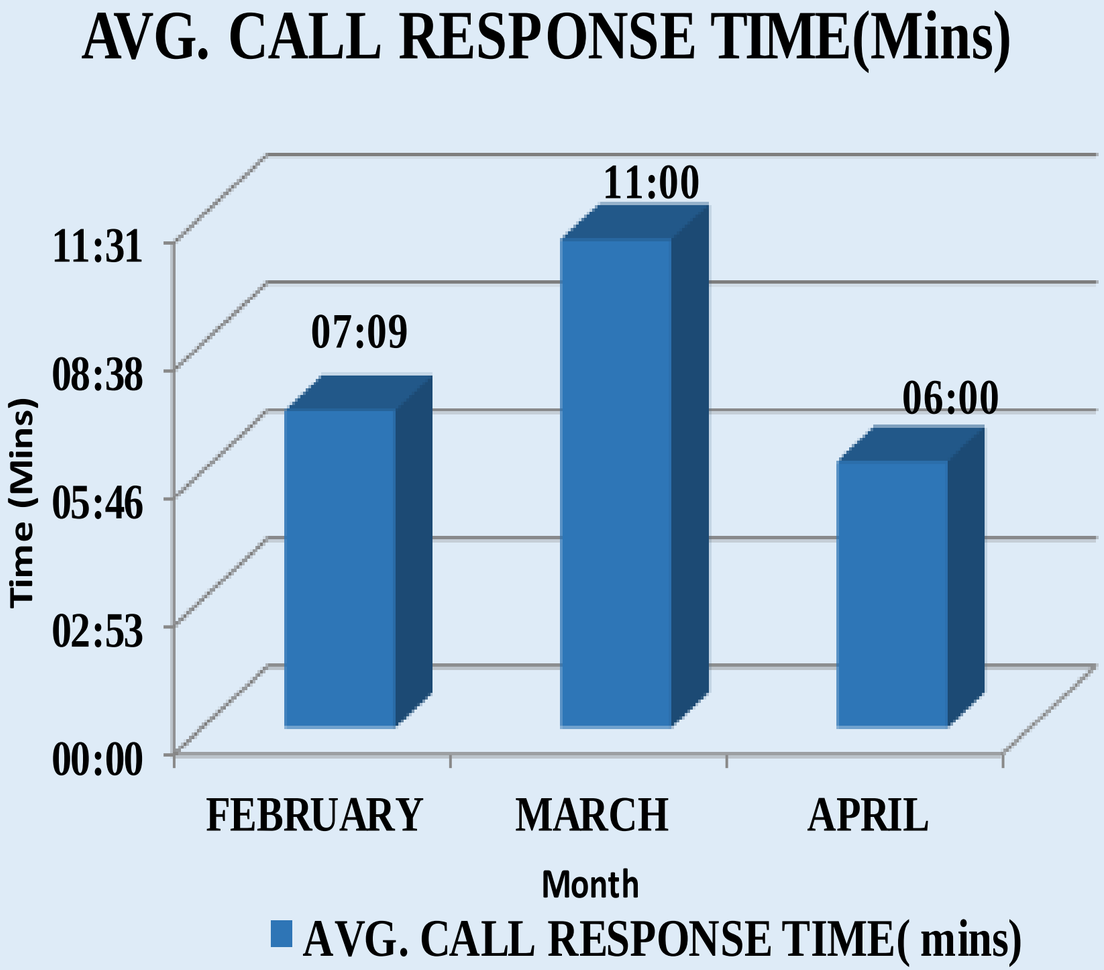


Total sample= 2624

227 LAMA cases

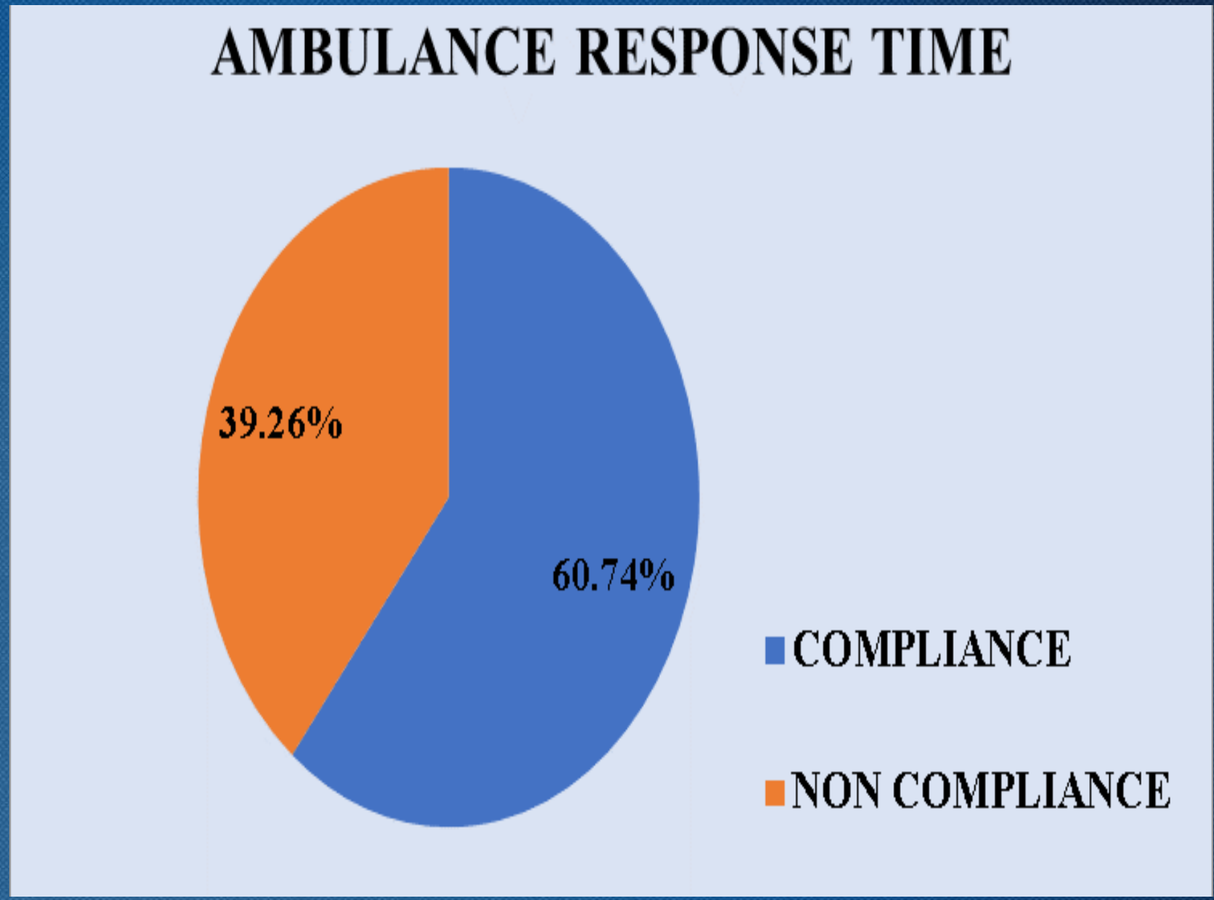
6 ED deaths in the month of February, March, and April.





Total no. of ambulance calls = 163

In 60.74% calls ambulance response time was less than 10 mins as per standard set by organization.



Incidents in ED

- There were only two cases of incidents recorded in the study period. None of it was directly related to the patients.
- One was near miss event equipment related; Oxygen cylinder while being halted for transferring patient from ED to ICU fell from the oxygen cylinder carrying trolley, Leakage of Oxygen Occur. It happened on 13th of March 2019.
- And another was adverse event equipment related in which Patient blood sample sent by Pneumatic chute to lab around 3:00am was jammed and which lead to delay of laboratory diagnosis and reports. It happened on 4th of April 2019

GAP ANALYSIS

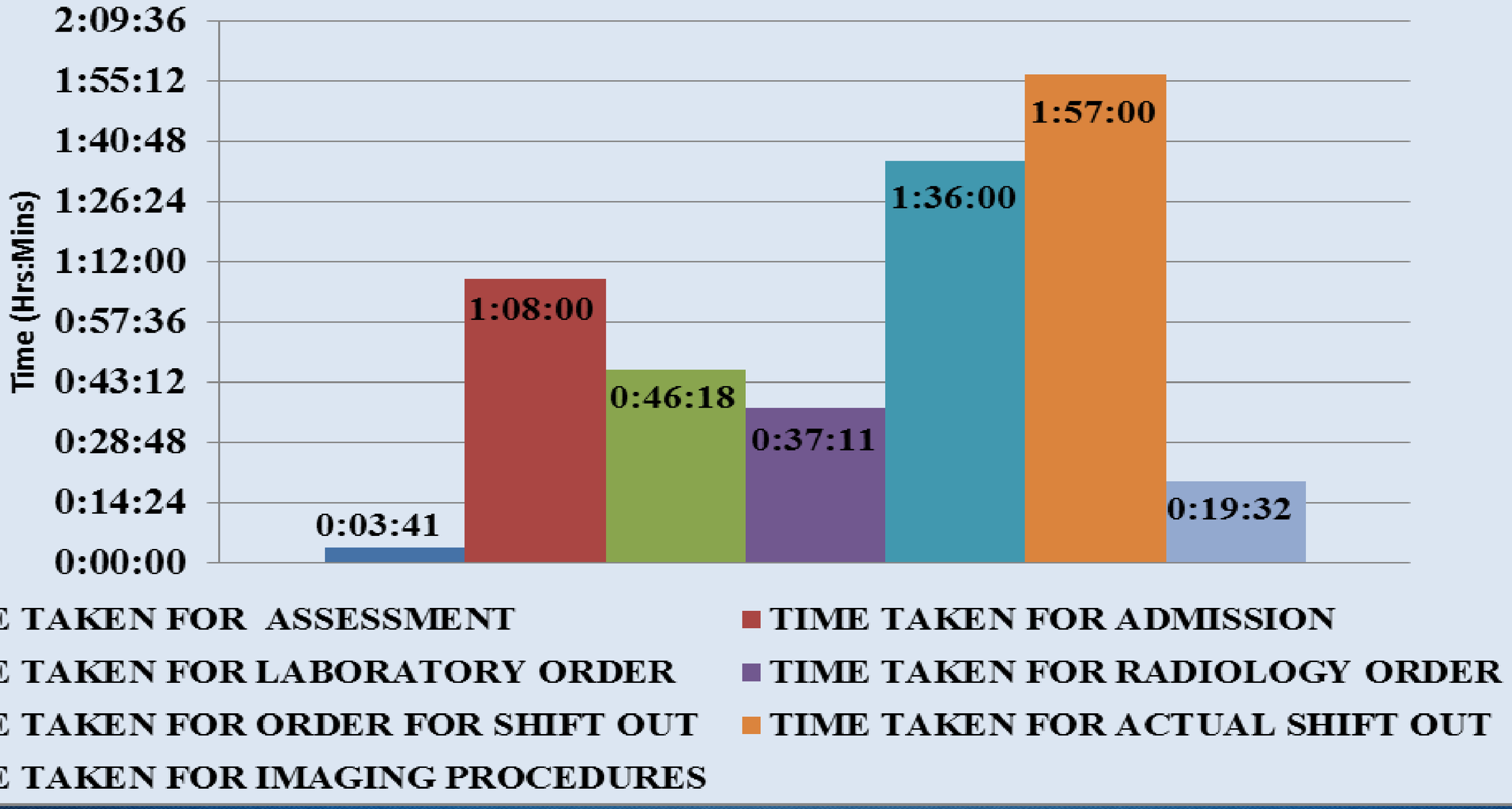
For gap analysis of process flow in the accident and emergency department total sample of 433 patients were taken during the study period.

In it the time of patient arrival, time taken for initial assessment, time taken for admission, time for laboratory orders, time for radiology orders, time taken for order of shift out, time taken for actual shift out of the patient and time taken for imaging process were recorded.

For analysis time taken for each step was calculated from the time of patient’s arrival in ED and their average was calculated.

N= 433	Average time taken	Minimum time taken	Maximum time taken
Time taken for assessment	00:03:41	00:01:00	00:10:00
Time taken for admission	01:08:00	00:08:00	02:37:00
Time taken for laboratory order	00:46:18	00:10:00	01:15:00
Time taken for radiology order	00:37:11	00:06:00	00:53:00
Time taken for order for shift out	01:36:00	00:09:00	04:25:00
Time taken for actual shift out	01:57:00	00:25:00	06:10:00
Time taken for imaging procedures	00:19:32	00:07:00	01:05:00

GAP ANALYSIS IN ED PROCESS FLOW



The major reasons which directly or indirectly affect the quality and performance of the emergency department which were observed are as follow:

- **Assessment & Stabilization**
- **Delay due to admission process**
- **Delay due to laboratory investigation**
- **Delay due to radiology investigations**
- **Delay due to GDA Non-Availability**
- **Delay due to staff scheduling for the shifts**
- **Delay by the senior consultant**
- **Exit Block**
- **Delay due to procedures**
- **Delay due to miscommunication**
- **Delay due to Non-potential patient**
- **Delay by the coordinators**

RECOMMENDATIONS

- Further scientific investigations should be done to find out the reasons resulting in non compliance and delays in process flow of ED.

QUALITY INDICATORS:

- Separate space to perform minor procedures such as injections, suturing, vaccinations etc. along with separate small X-ray and Radio-diagnosis Unit in the ED to reduce the time taken for non-potential patients and investigation procedures.
- A computerized Ambulance monitoring system should be implemented. Single point of contact for Ambulance To fasten the discharge process in the IPD to reduce the exit block from the emergency.
- Training of the ED employees regarding the protocols of the emergency department should be done.

GAP ANALYSIS:

- Designated space with requisite manpower and waiting area for fast track cases.
- Separate counter for ER registration and ER generated lab orders to reduce time wastage in the step of admission

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1. Wiler JL, Welch S, Pines J, Schuur J, Jouriles N, Stone-Griffith S. Emergency department performance measures updates: proceedings of the 2014 emergency department benchmarking alliance consensus summit. Academic Emergency Medicine. 2015 May;22(5):542-53. https://onlinelibrary.wiley.com/doi/full/10.1111/acem.12654
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Thank you!

Questions please..