

**TO STUDY THE FACTORS AFFECTING AVERAGE LENGTH OF STAY
(ALOS) OF PATIENTS WITH A VIEW TO SUGGEST MEASURES TO
REDUCE THE ALOS TO IMPROVE CUSTOMER SATISFACTION AND
REVENUE GENERATION IN A TERTIARY CARE HOSPITAL.**

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Introduction

- Hospital length of stay is considered to be a reliable and valid proxy for measuring the consumption of hospital resources. Average length of stay, however, albeit easy to quantify and calculate, does not suitably reflect the nature of such underlying distributions and may therefore mask the effects that the different streams of patients have on the system.
- Hospital length of stay is inversely proportional with profit making because if the length of stay is high then obviously bed turnover rate would be low which lead to low profit making. In context of MAX Hospital, it seems very realistic because as it is a super specialty hospital so the case mix is very high and in all the speciality. Hence this hospital has a different protocol and package system for different speciality. If against the protocol a single patient's stay is exceeding then this will become liability for the hospital because in that mean time hospital would like to perform yet another procedure to maximize the utilization of its resources.

ALOS =

Aim:

- ☐ The aim of the project is to study and analyse how to optimize the stay of the patient towards improving ALOS further.

Objectives:

- ☐ To find out the factors affecting for high average length of stay.
- ☐ To suggest measures to reduce high average length of stay thereby improving revenue generation and patient satisfaction.

Methodology

RESEARCH QUESTION:

- What are the various Variables regarding Admission and Discharge process that influence the ALOS a in Private Multi Speciality Hospital? How, reduction in ALOS effects the revenue generation of the hospital.

STUDY DESIGN: Prospective, cross-sectional, and analytical

SETTING: Max Hospital, Patparganj, Delhi (400 bedded)

STUDY POPULATION: Patients staying for more than 4 days in hospital (in general surgery, medicine, gastronomy, orthopaedics and pulmonology department)

DURATION OF STUDY: 1st April to 31st May.

Date Collection: Primary Data collection.

Sample size: Total discharged patients of cash, TPA, corporate and CGHS from hospital (during 1st April to 31st May) is- 1755 (target population).

- **Sampling technique**

Multistage Sampling procedure

- 1) Cluster Sampling
- 2) Purposive sampling

The reason behind opting multistage sampling procedure is, the whole data has been collected from various specialities of MAX Hospital, Patparganj and each speciality has been considered here as a cluster, apart from that purposive sampling is done here because in this study we have considered only the patients of Category B (Corporate and CGHS) and Category C (Cash and TPA) for specific purpose of finding out the average length of stay of specific categories patient.

- **Sample size:**

- Total discharged patients of cash, TPA, corporate and CGHS from hospital (during 1st April to 31st May) is- 1755 (target population).
- Out of 5 specialities, each speciality considered as a cluster
- Total discharged patient of Cash, TPA, Corporate and CGHS

- **Tools and Techniques-**

- Tools: Observation, speciality wise patient list, Computerized Patient Record System (CPRS).

Conceptual framework- IPD process flow

Patient comes to the floor along with a face sheet, admission request form and then ID band is tied on the wrist of the patient on receiving the patient.

Nursing assessment done (age, height, weight, vitals, allergies, risk assessment, requirement of an interpreter or not).

Concerned doctor is informed about the patient and the medications and instructions are entered in computerized patient record System (CPRS), reviewed by IPD Pharmacy.

Doctors rounds along with dieticians, floor mentors, nursing supervisor- Housekeeping Patient assessment is done and complaints are taken if any.

Plan of care decided for the patient.

Conceptual framework- discharge flow

Doctor's coordinators
informs the discharge
coordinators about the
discharge patients one
day prior at 4PM.
Simultaneously
unplanned discharges are
acknowledged.



If yes, intimation on
CPRS to nursing, lab,
pharmacy and billing



Nursing clearance to be
done pending mri,x ray
etc



Pharmacy clearance



Final clearance on HIS



Bill preperation to be
done within 15 min



Attendants informed to
go in billing



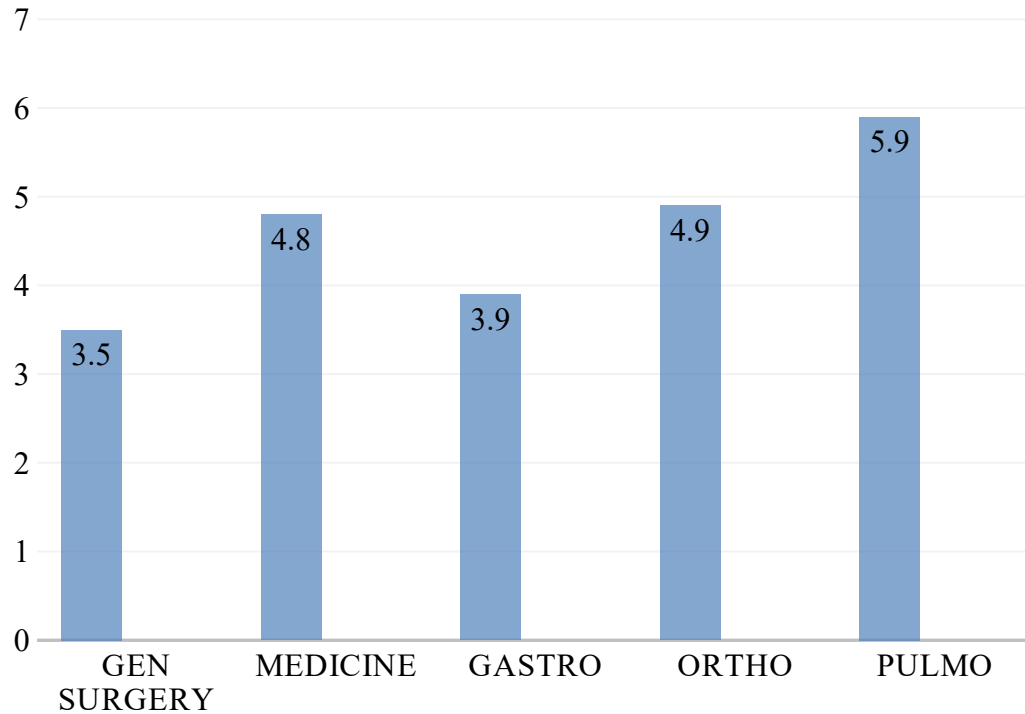
Final bill psyment and
discharge slip
handover to patient



Patient clothes
changed and wheel out
for bed readiness

Result

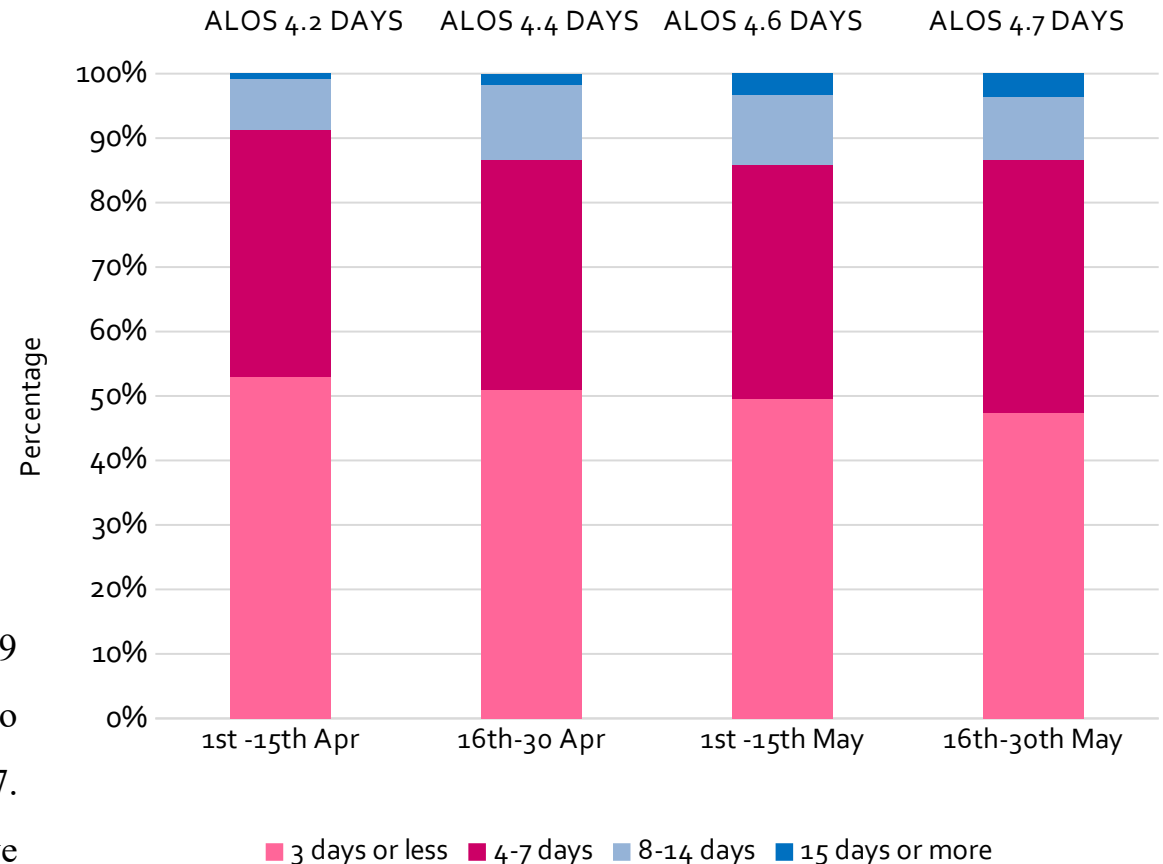
ALOS for various specialities



■ ALOS

Pulmonology speciality seem to have highest average length of stay of 5.9 when compared with other specialities. When taking 15 days duration to calculate ALOS. It came out to be almost same ranging between 4.2 to 4.7. Maximum patients have stay of 3 days or less. Only a few patients have stay longer than 15 days in both months.

Percentage distribution of hospital inpatients by length of stay: MAX Hospital, selected month APRIL and MAY



CONSOLIDATED ALOS ACCORDING TO MODE OF PAYMENT (EXCLUDING EWS)

	Total Volume	
	CTI	PSU
	APRIL	APRIL
Patparganj	617	239

Total volume of CTI and PSU patients in month of April

ALOS	
CTI	
APRIL	MAY
3.9	4.4

ALOS in CTI patients

ALOS	
PSU	
APRIL	MAY
4.9	4.6

ALOS in PSU patients

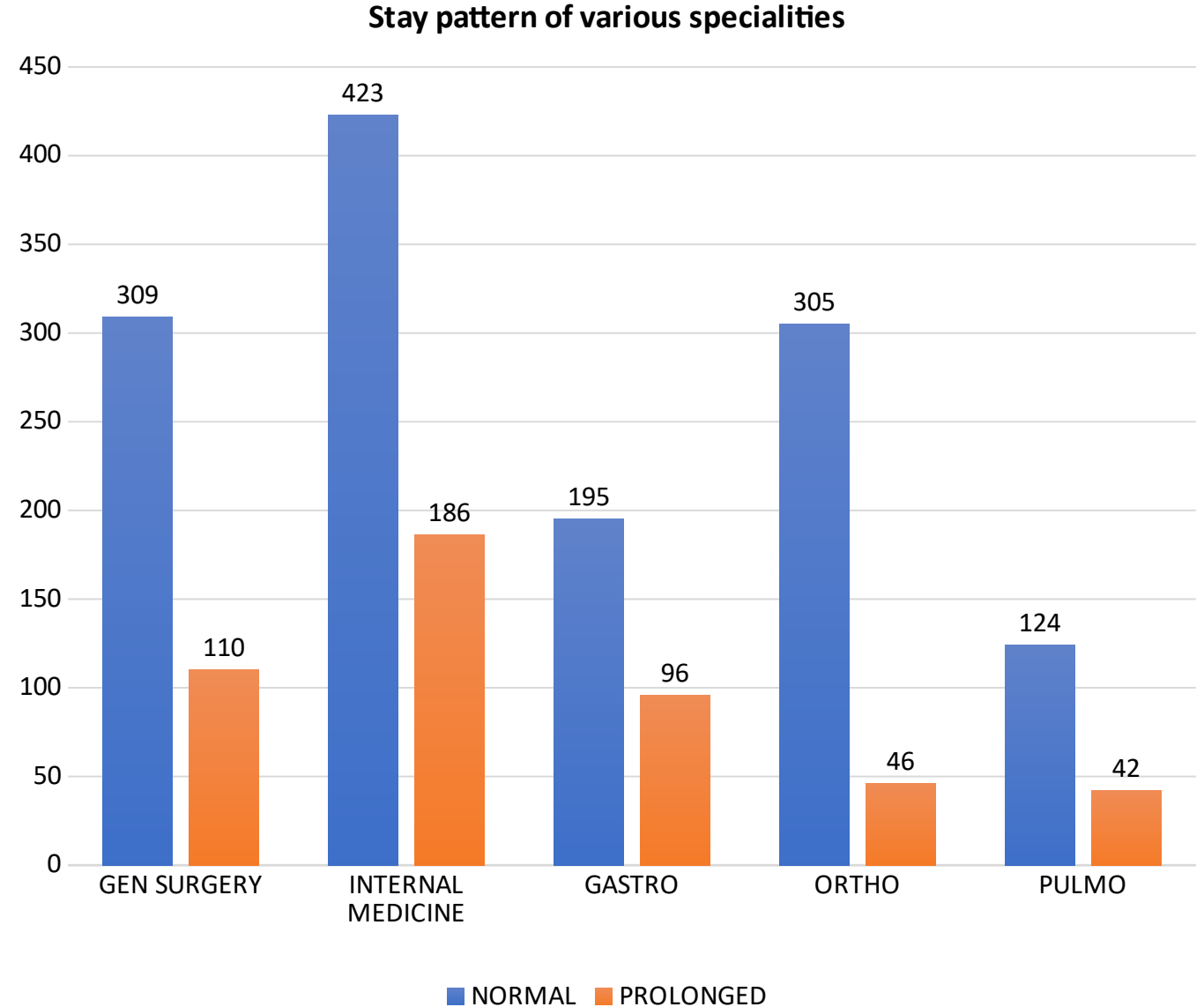
ALOS	
Total	
APRIL	MAY
4.2	4.5

Out of all the departments pulmonology has the highest average length of stay in both months (April and May). Total ALOS is slightly higher (4.5) in May as compared to April (4.2).

STAY PATTERN
OF VARIOUS
SPECIALITIES

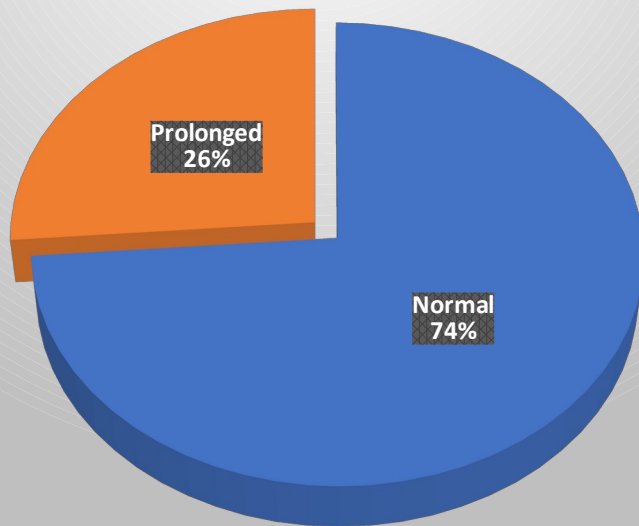
Specialty	Normal	Prolonged	Total
Gen surgery(4 days)	309	110	419
Internal medicine(5 days)	423	186	528
Gastroenterology(4 days)	195	96	291
Orthopaedics (3-7 days)	305	46	351
Pulmonology(6-7 days)	124	42	166
Total	1356	480	1755

Stay pattern of various specialities

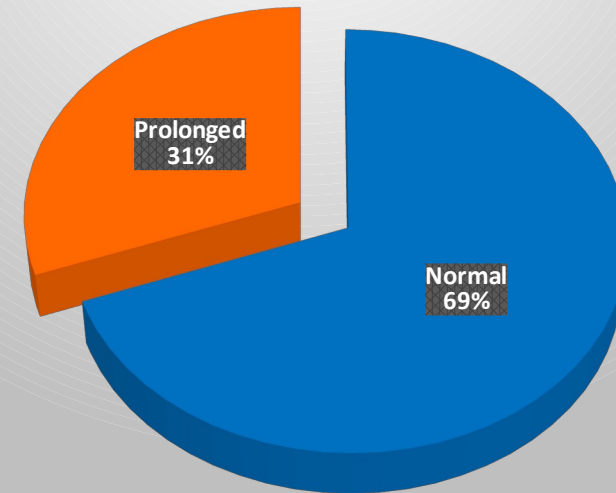


Stay pattern of various categories in percentage

Stay Pattern of Gen surgery patients in percentage

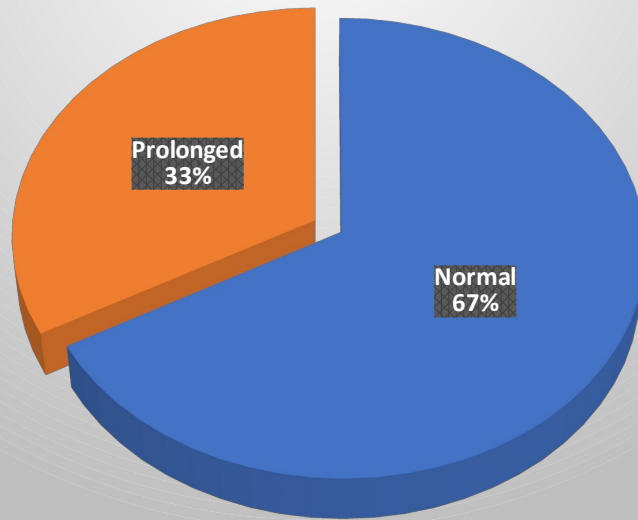


Pattern of Internal Medicine patients stay in percentage

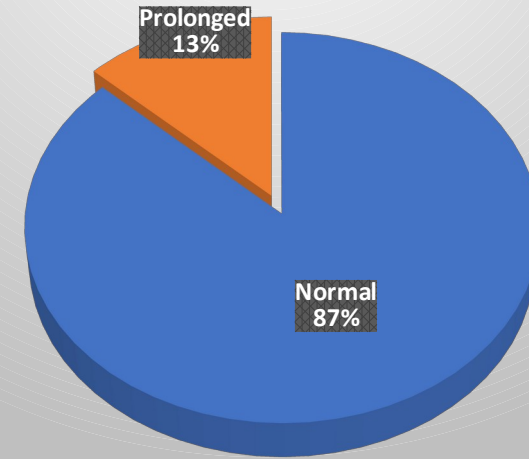




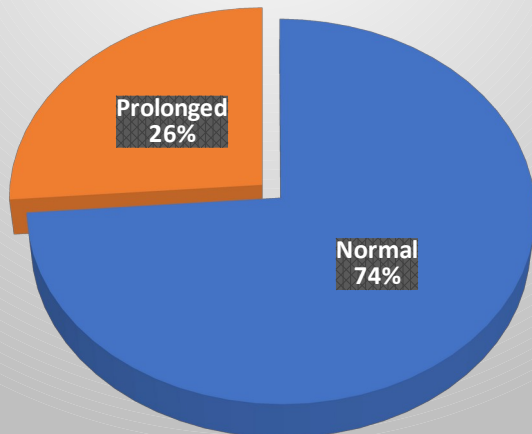
Pattern of Gastro patients stay in percentage



Pattern of Orthopaedics patients stay in percentage



Pattern of pulmonology patients stay in percentage

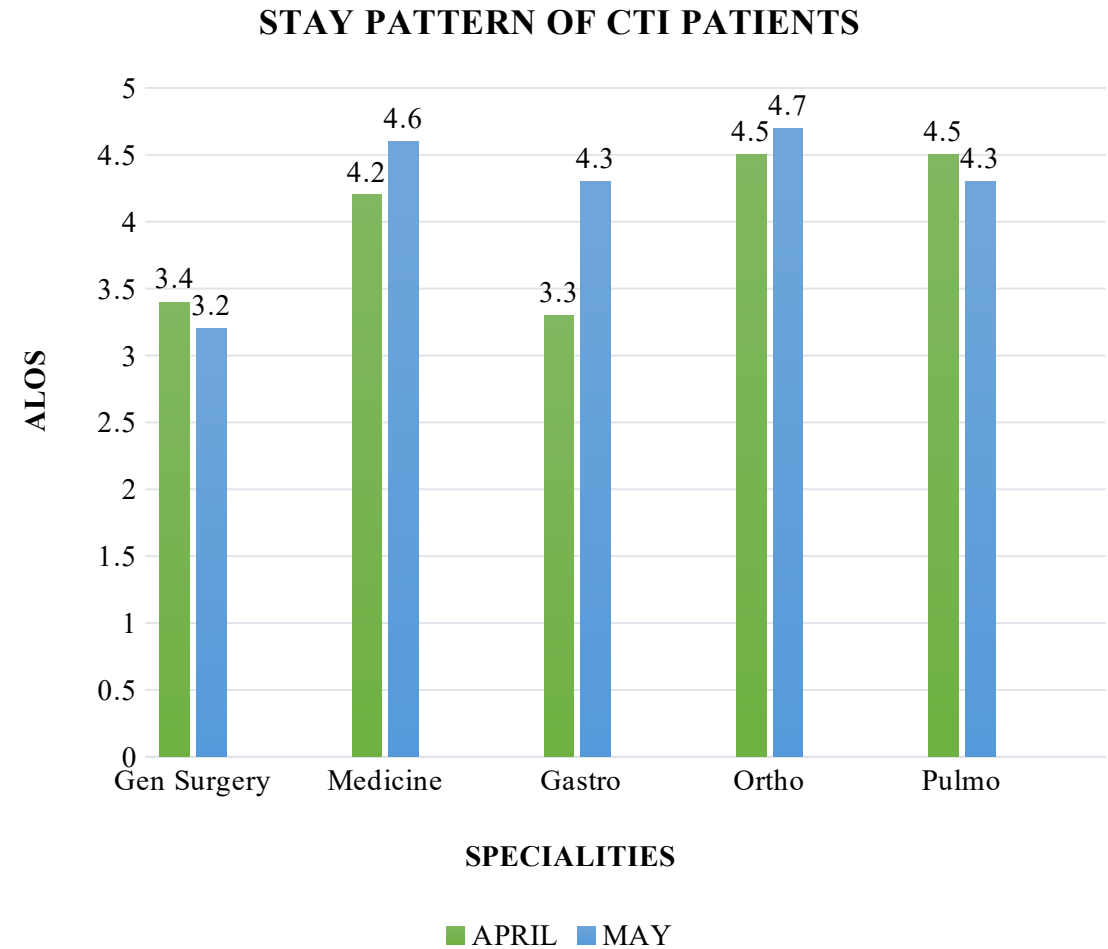


It can be observed that Gastroenterology department has the highest prolonged stay of 33%. Out of 196 patients 95 patients had prolonged stay more than 4 days. Whereas Orthopaedic department has least prolonged stay patients i.e., 11%. Out of 305 patients only 46 patients had prolonged stay of more than 7 days.

Pattern of prolonged stay according to mode of payment

Department wise Consolidated ALOS in CTI patients

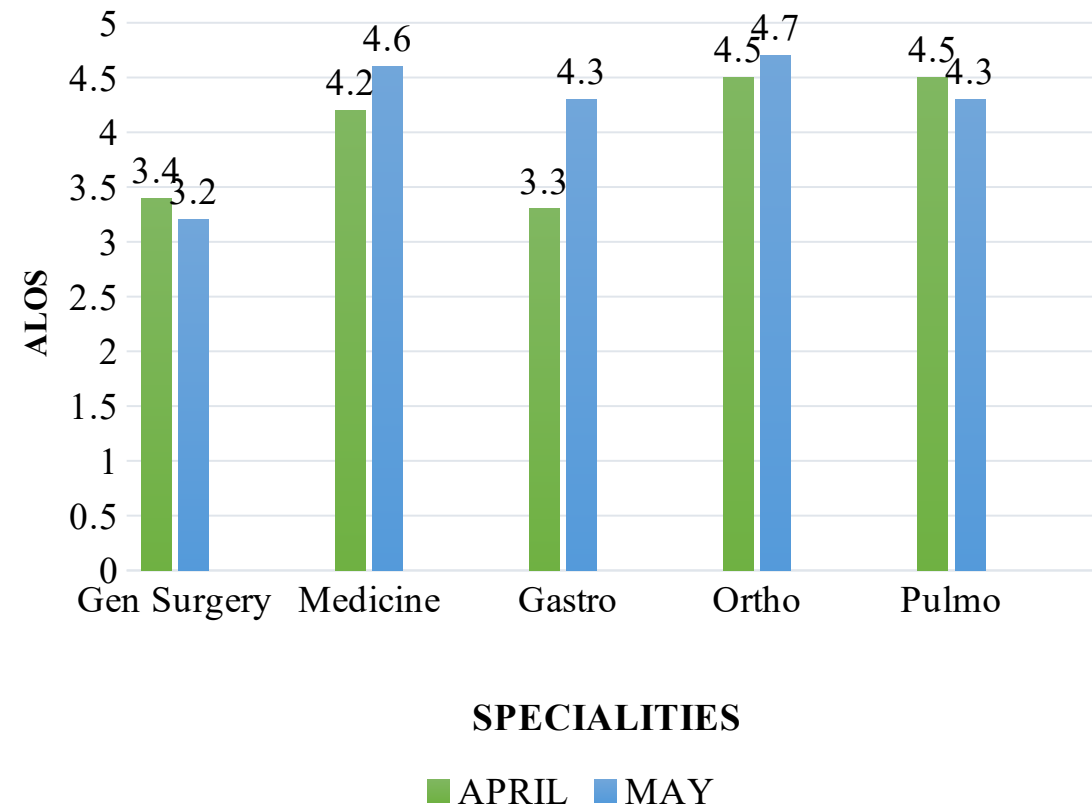
DEPARTMENT NAME	ALOS	
	CTI	
	APRIL	MAY
General Surgery	3.4	3.2
Internal Medicine	4.2	4.6
Medical Gastroenterology	3.3	4.3
Orthopaedics	4.5	4.7
Pulmonology	4.5	4.3



Department wise consolidated ALOS in PSU patients

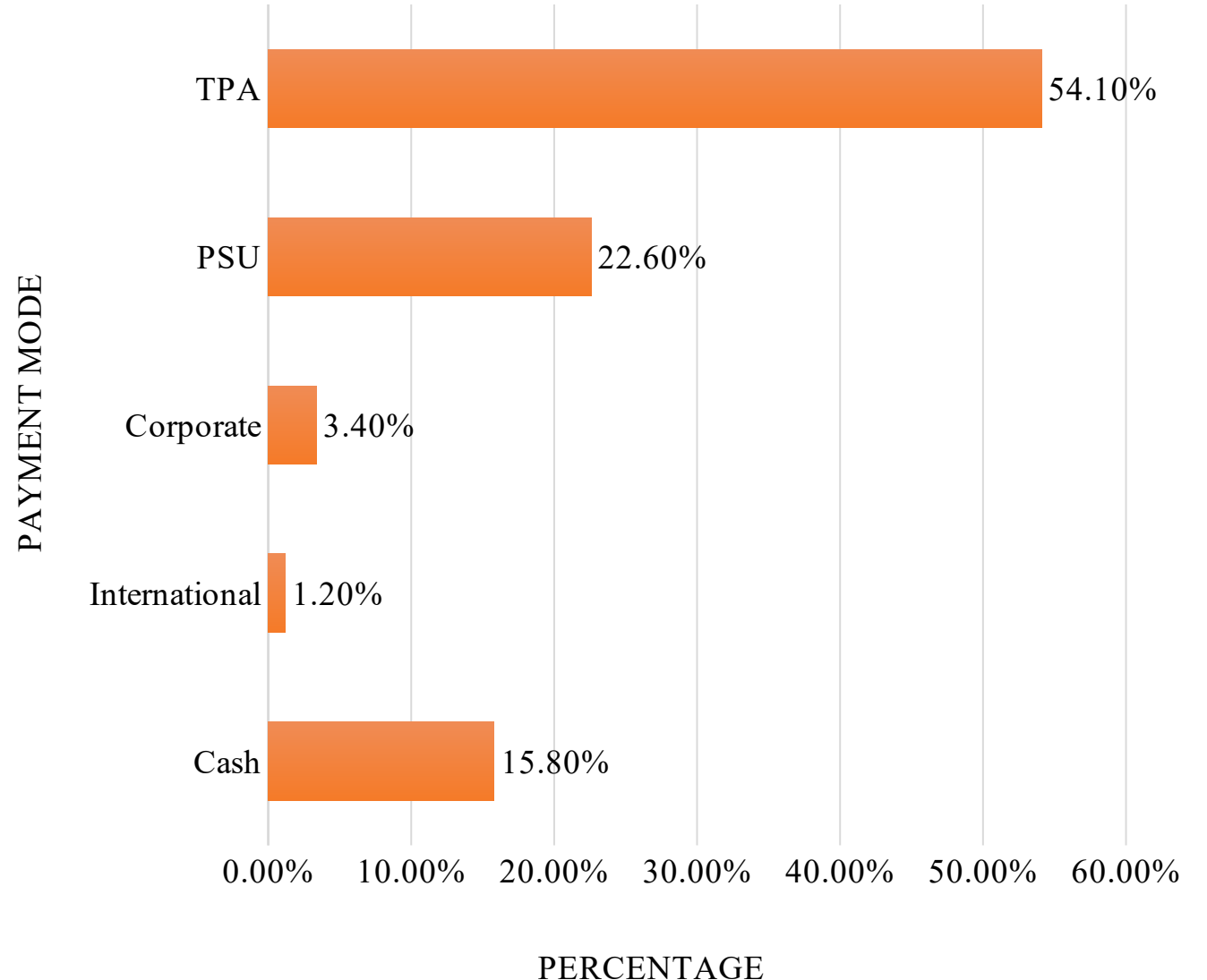
ALOS		
DEPARTMENT NAME	PSU	
	APRIL	MAY
General Surgery	2.7	3.7
Internal Medicine	6.0	5.8
Medical Gastroenterology	2.7	4.1
Orthopaedics	4.9	6.8
Pulmonology	10.1	6.1

STAY PATTERN OF PSU PATIENTS

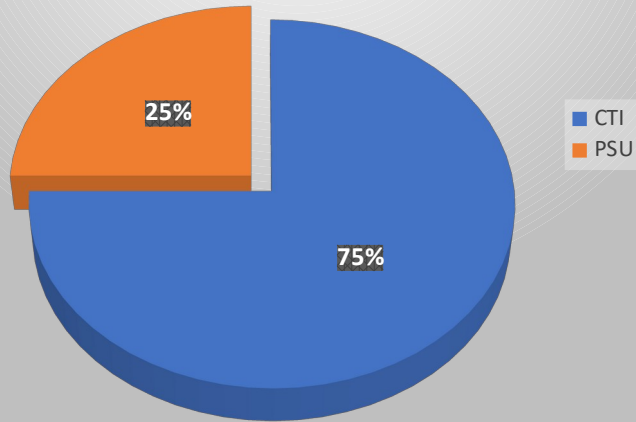


Pattern of prolonged stay according to mode of payment

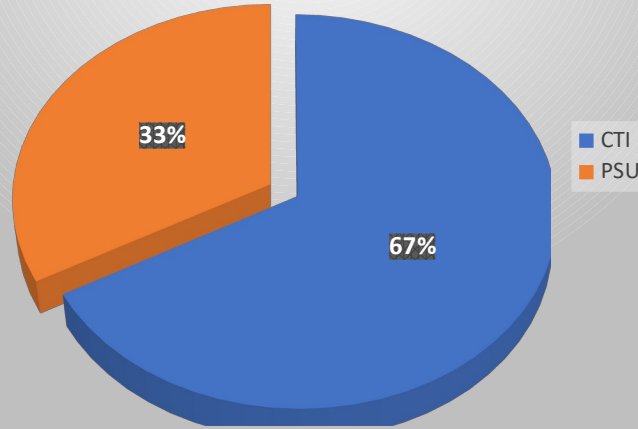
Pattern of prolonged stay according to mode of payment



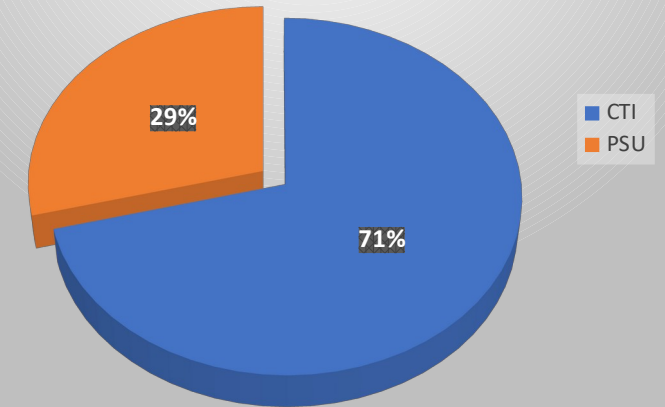
Prolonged stay of gen surgery patients



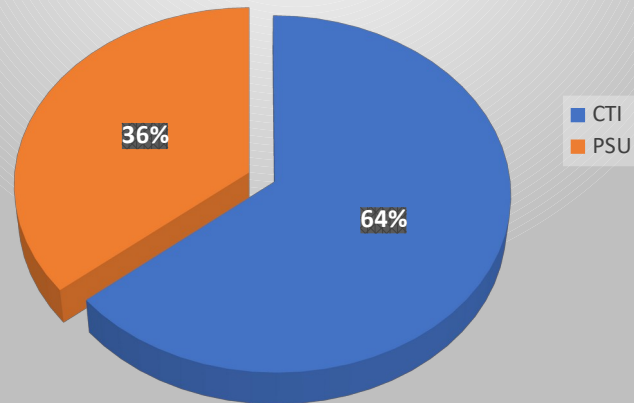
Prolonged stay of Internal Medicine patients



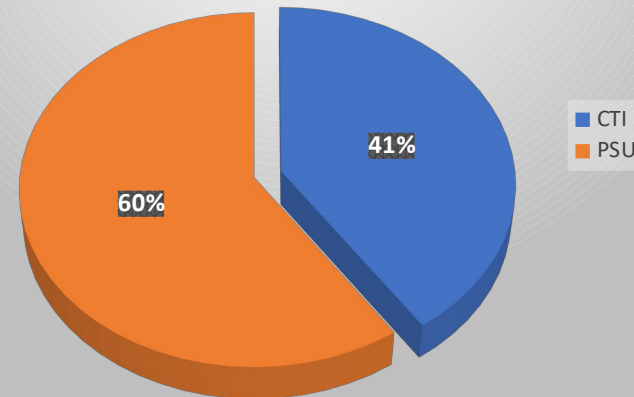
Prolonged stay of Gastro patients



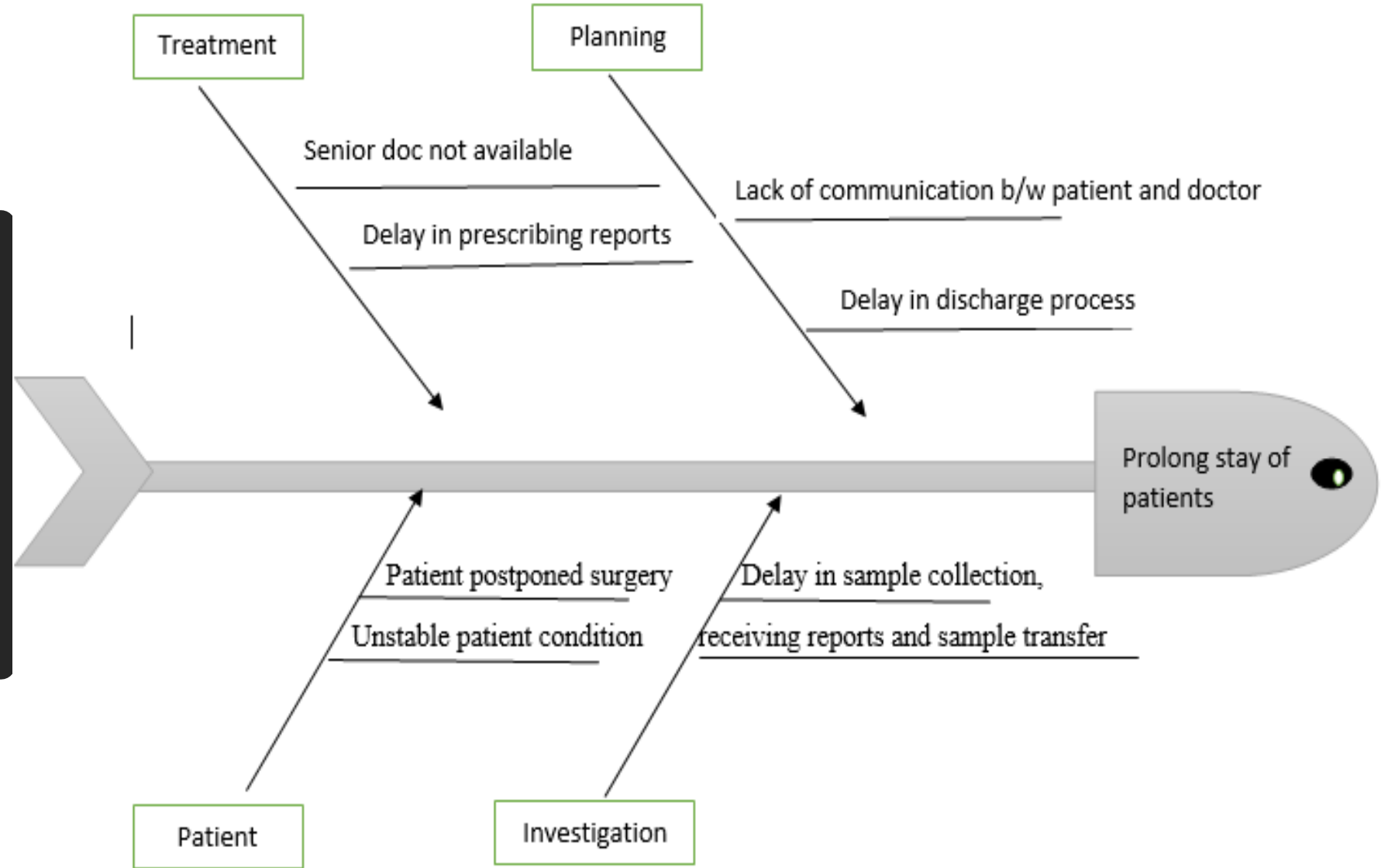
Prolonged stay of Orthopedics patients



Prolonged stay of Pulmo patients

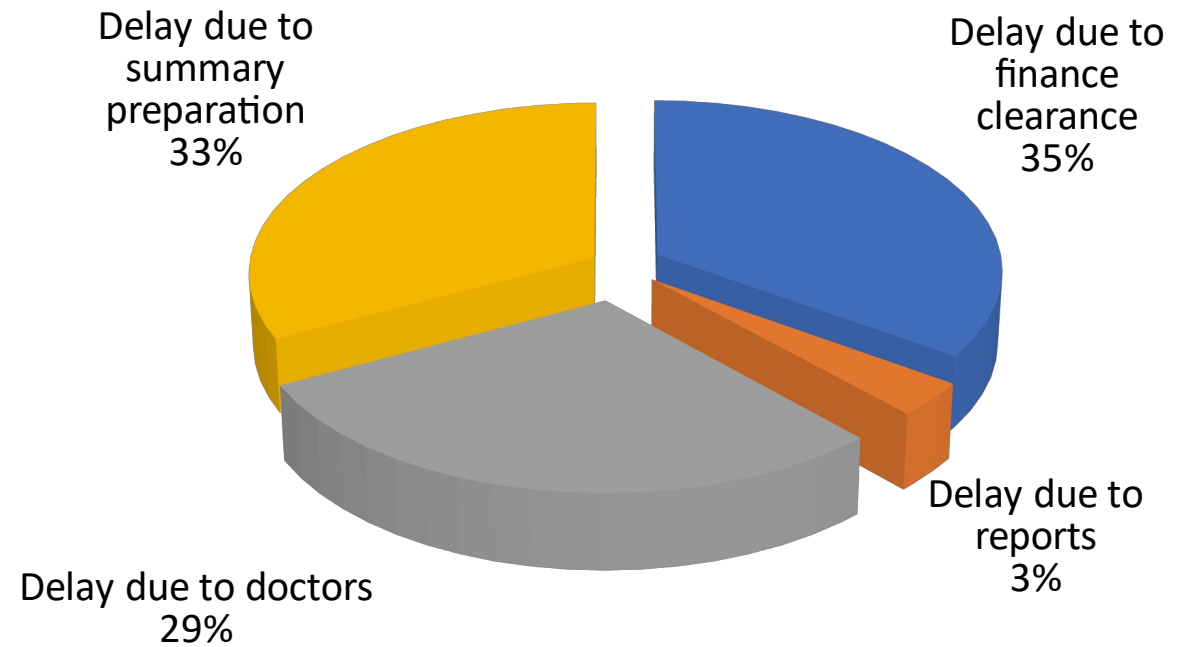


Fishbone analysis



Discussion

Reasons for delayed discharge



Recommendations

- Investigation:

Pre-procedure investigations are very crucial event for all the procedures. During the study it has been found that the investigations play a major part of pre-procedure reasons for high length of stay in all type of cases, by doing investigations in OPD or in Day Care level we can decrease length of stay.

- TPA Clearance:

During the study it has been seen that in case of TPA patients there are a number of protocols to be followed by the attendant and the department that it takes time in getting the pre-authorization of bill from TPA Company.

There is a possible solution for this problem which has been already implemented in few hospitals of south and till now is running successfully. What they did there?

They establish a tie up with all TPA's that they will send them all the necessary paper one day prior to discharge and TPA company complete all the formalities by the same day after that a very small charges are left for discharge date like-room rent or consult fees and as they have all necessary paper so they won't find any problems to approve that small amount on the discharge date by 11:00 AM. Communication between both concern teams should be effective. Timely updates regarding the approval should be provided to the hospital. Relationship managers of TPA department in concern hospital should be active.

- Availability of doctor

In a few cases it has been seen that patients stay exceed just because of unavailability of doctor. In pilot study delay due to doctor came out to be 29.2%, hence consultant doctor should make sure to do wards rounds timely.

Limitations and strength of study

❖ Shortcomings of current Average length of stay research

- Major limitations of the study are that whole of the long stay patients' populations could not include in it as MAX Hospital is a super specialty hospital consisting of 24+ specialities so tracking all patient specialty wise is difficult.
- There are patients who are kept in isolation because of COVID-19 so it was difficult to collect data from that area.
- The reason given for prolonged stay may contain some ambiguity as there was limited access to patients and their relatives to get information about their reasons completely and accurately.

❖ Strengths of the study

- The length of stay (LOS) is an important indicator of the efficiency of hospital management. Reduction in the number of inpatient days results in decreased risk of infection and medication side effects, improvement in the quality of treatment, and increased hospital profit with more efficient bed management.
- Quick resolution to problem can be identified.
- ALOS within 4 days can lead to good revenue generation in the hospital.

Conclusion

- MAX Hospital, Patparganj is continuously facing the problem of prolonged length of stay of patients and high bed occupancy rate which should be optimum, which is mainly due to high length of stay.
- Reasons for high length of stay are mentioned in the chapter. This also further leads to low bed turnover rate; higher bed occupancy presents in the hospital and unnecessary long waiting hours by the patients for admission to the in-patient department.
- Hospital can easily deal with this problem by implementing few interventions on which some of them are mentioned in the study.





Thank you

