INTERNSHIP TRAINING

AT

PARAS HEALTH, GURUGRAM

ESTIMATION AND ANALYSIS OF TURNAROUND- TIME: EVIDENCE FROM A TERTIARY CARE HOSPITAL

BY

MRS. POOJA SHANKAR

ENROLL NO. – PG/21/072

UNDER THE GUIDANCE OF

DR. HIMANSHU TOLANI

PGDM (HOSPITAL AND HEALTH MANAGEMENT)

2021-23

INTERNATIONAL INSTITUTE OF HEALTH MANAGEMENT RESEARCH

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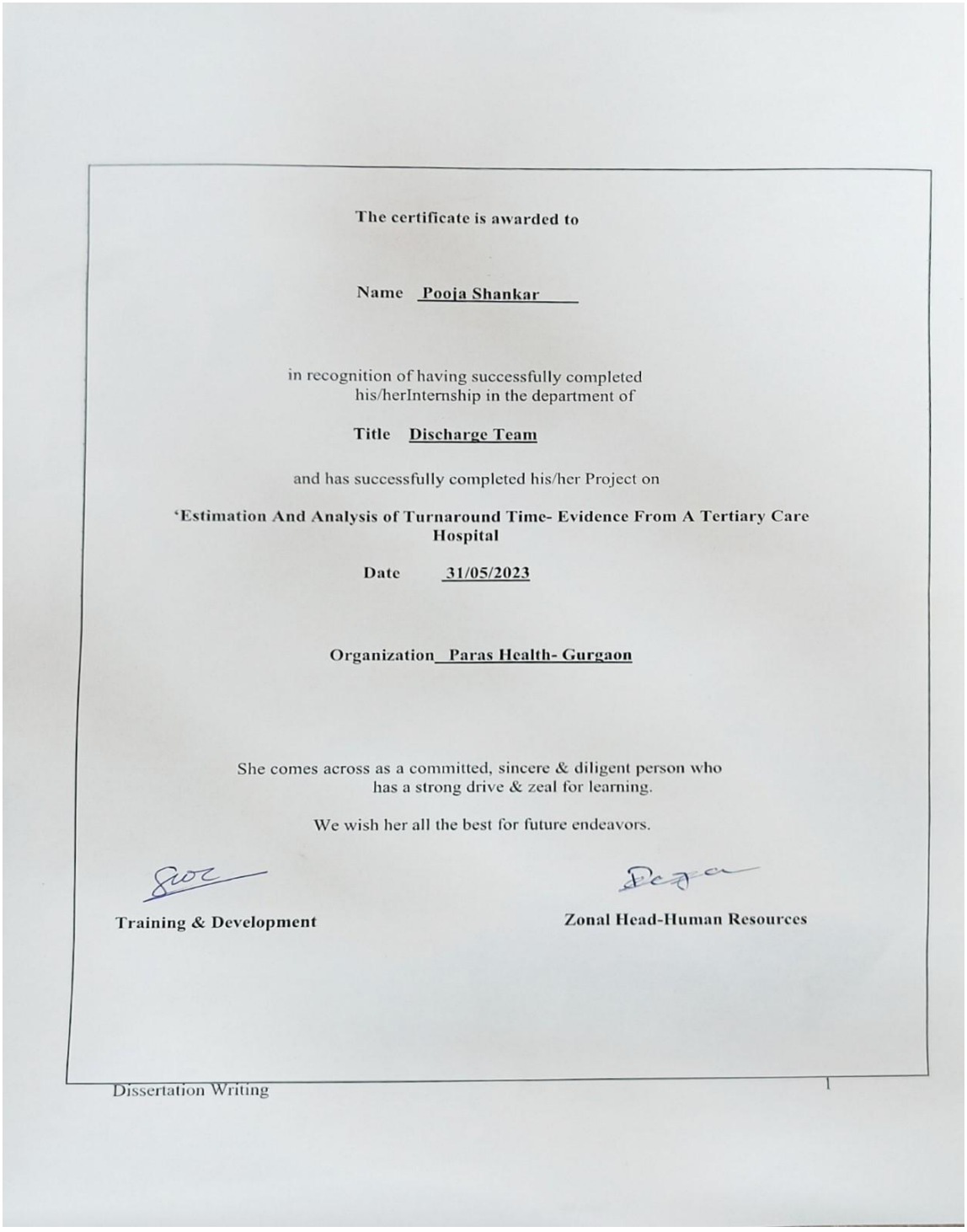

The certificate is awarded to

Name **Pooja Shankar**

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Title **Discharge Team**

and has successfully completed his/her Project on

'Estimation And Analysis of Turnaround Time- Evidence From A Tertiary Care Hospital

Date **31/05/2023**

Organization **Paras Health- Gurgaon**

She comes across as a committed, sincere & diligent person who
has a strong drive & zeal for learning.

We wish her all the best for future endeavors.

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This is to certify that Mrs. Pooja Shankar student of PGDM (Hospital & Health Management) from International Institute of Health Management Research, New Delhi has undergone internship training at Paras Health, Gurgaon from 19th Feb' 23 to 31st March'23

The Candidate has successfully carried out the study designated to him during internship training and his/her approach to the study has been sincere, scientific and analytical.

The Internship is in fulfillment of the course requirements.

I wish her all success in all her future endeavors.

Dr. Sumesh Kumar
Associate Dean Academic and Student Affairs
IIHMR, New Delhi

03/07/2023
Mentor

IIHMR, New Delhi

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The following dissertation titled **'Estimation and Analysis of Turnaround Time: Evidence From A Tertiary Care Hospital'** at **'Paras Health Gurgaon'** is hereby approved as a certified study in management carried out and presented in a manner satisfactorily to warrant its acceptance as a prerequisite for the award of **PGDM (Hospital & Health Management)** for which it has been submitted. It is understood that by this approval the undersigned do not necessarily endorse or approve any statement made, opinion expressed or conclusion drawn therein but approve the dissertation only for the purpose it is submitted.

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for evaluation of dissertation.

Name	Signature
Prof Ashok Agarwal	
Dr Aman Rej Gupta	Aman Rej Gupta
Dr. Arif yousuf	

Certificate from Dissertation Advisory Committee

This is to certify that **Mrs. Pooja Shankar,** a graduate student of the **PGDM (Hospital & Health Management)** has worked under our guidance and supervision. She is submitting this dissertation titled **"Estimation and Analysis of Turnaround Time: Evidence from a Tertiary Care Hospital"** at **"Paras Health- Gurgaon"** in partial fulfillment of the requirements for the award of the **PGDM (Hospital & Health Management).**

This dissertation has the requisite standard and to the best of our knowledge no part of it has been reproduced from any other dissertation, monograph, report or book.

Institute Mentor

03/07/2023

Dr. Himanshu Tolani

Assistant Professor
International Institute of Health Management
And Research, Delhi.

Organization Mentor

Mrs. Swati Singh

Assistant Manager- **Discharge Team**
Paras Health, **Gurgaon**

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Shankar

Signature

POOJA SHANKAR

FEEDBACK FORM

Name of the Student: Pooja Shankar

Name of the Organization in Which Dissertation Has Been Completed: Paras Health- Gurgaon

Area of Dissertation: Discharge Team

Attendance: Regular, Punctual

Objectives achieved: YES

Deliverable: Discharge TAT, KRA's - appointments, HSC and good pharmacy revenue.

Strengths: Discipline, Patience, handles patients well.

Suggestions for Improvement: Learn with more experience

Suggestions for Institute (course curriculum, industry interaction, placement, alumni): —

Signature of the Officer-in-Charge/ Organization Mentor

Date: 31/5/2023

Place: Gurgaon

ACKNOWLEDGEMENT

I take this wonderful opportunity to thank all the hands which have joined together to make this project a success.

I express my acknowledgement and extend my heartfelt thanks to IIHMR Delhi that gave me this opportunity. My gratitude to my mentor Dr. Himanshu Tolani for his constant guidance and suggestions throughout the internship that enlightened me on the subject.

My special thanks to my organization mentor Mrs. Swati Singh (Assistant Manager- Discharge Team) for her cooperation. She made me understand how the Operations department works in a hospital. She helped me to understand the hospital workflow and culture better. I thank the management staff of Paras Health, Gurugram who helped me with their support.

I also take this opportunity to thank my colleagues, family and friends for their support and encouragement

TABLE OF CONTENTS

ABBREVIATIONS

NABH	National accreditation board for hospitals & healthcare providers
NABL	National accreditation board for testing and calibration laboratories
MT	Medical Transcriptions
TPA	Third party administration
GDA	General duty assistant
RMO	Resident Medical Officer
GRE	Guest relation executive
HSK	Housekeeping
WS	Ward secretary
TAT	Turnaround time
ALOS	Average length of stay
HIS	Hospital information system

OVERVIEW OF THE HOSPITAL

INTRODUCTION

Paras Health laid its foundation in the healthcare sector with the launch of its first tertiary care hospital in the year 2006 in Gurugram. Since then, Paras Health has aimed at providing affordable, accessible, and high-quality healthcare services. Its mission and values are centered towards delivering world class health outcomes and making the vision of quality health a reality for all Bhartiya's. They achieve this by staying abreast with the latest developments in the scientific field and combining innovative technology with medical expertise.

The company has a network of 6 hospitals in Northern India (Gurugram, Patna, Darbhanga, Udaipur, Panchkula, Ranchi, Srinagar, and Kanpur) that operates 1500 beds as of date.

MISSION

Paras Health aspires to be the largest private healthcare provider in North India by 2031 with 9000+ beds under its network.

Paras Health participates in providing exceptional health facilities and improving the health infrastructure of the state/region.

VALUES

Our values drive our decision to open new units – accessibility of healthcare in the region, presence of affordable healthcare at the location and last, existence of a specialized quality healthcare provider

Compassion: Caring for patient's medical needs as partners

Affordability: Driven to provide affordable healthcare services

Accessibility: Taking healthcare services closer to places where there is a need

Quality: World-class clinical outcomes in patient care based on best practice

AFFILIATIONS/ ACCREDIATIONS

Paras Health Gurugram is a NABH accredited hospital.

It was also Haryana's 1st hospital to be accredited by NABH and NABL.

SERVICES PROVIDED

Paras Health Gurugram has 283 beds strength with more than 30 super specialties providing a full spectrum of tertiary care medical and surgical interventions

- Critical Care
- Dentistry
- Dermatology
- ENT
- Endocrinology
- Critical care

- Internal medicine
- Pediatrics
- Psychiatry
- Ophthalmology
- Respiratory
- Rheumatology

Centers of Excellence

- Neurology
- Neurosurgery
- Cardiology
- CTVS
- Oncology
- Orthopedics and Joint replacement
- Obstetrics and Gynecology
- Gastroenterology
- Kidney Transplant
- Nephrology
- Plastic Surgery
- Urology

DISCHARGE TEAM

The KRAs of the discharge team included:

- Collecting planned discharges, a day before
- Counsel all the planned discharge patients as per policy
- Responsibilities for all planned discharges to be performed on time
- Timely information regarding the discharge status
- Follow the discharge policy
- Coordination with all teams involved in the discharge process
- Coordination with MTs regarding preparation of discharge summary
- Coordination with billing team regarding update on TPA approval/ final bill preparation
- Coordination with housekeeping team for wheel out arrangement with GDA & transport
- Vacant bed status to be updated in the morning and evening.
- Alignment with- nursing, RMO, Ward secretaries, Billing, MT's, GRE and HSK
- Hassel free discharge process on the floor
- Counselling and target for- Discharge medications, home sample collection and prior appointment as per discharge summary.

LEARNINGS

- Teamwork with members of the discharge team for smooth process on floors
- Interdepartmental coordination with medical team, MT's, WS, Nurses, HSK staff, security etc.
- Patient counselling, handling their queries and arguments regarding delay or dissatisfaction with the discharge process
- Soft skills

PROJECT OUTLINE

ABSTRACT

Background: Delayed discharge is an issue with majority of the hospitals. The present study was conducted to identify the delay in discharge TAT for insurance, panel, and cash method of payment. Second, to observe the various causes of delay in TAT. Lastly to analyze the relation between mode of payment and delay in TAT.

Methods: This cross-sectional study was done on in-patients discharged in April'23 from Paras Health, Gurugram. 600 patients' data were divided into 3 groups based on their mode of payment and simple random sampling was done for selection of patients. The discharge TAT data was collected from the hospital HIS. Data was analyzed to calculate delay, observed causes of delay was mapped and Kruskal Wallis H test was done to test the study hypothesis.

Results: The delay in discharge TAT was observed to be 32 minutes for cash (Desired 2 hours 50 minutes), 2 hours 9 minutes for insurance (Desired 3 Hours 50 minutes) and no delay for panel (Desired 2 hours 50 minutes). The panel patients TAT was 22 minutes less than the desired TAT. The most common causes for delay as per the collected data were in the billing process (49% of insured patients and 40.5% cash patients) and IPD pharmacy clearance by over 30 min (33.5% of insurance, 27.5% of panel and 31.5% of cash patients). There are other observed causes of delay leading to higher TAT. The Kruskal Wallis H test shows that there is a statistically significant difference (P value <0.05) between the modes of payment.

Conclusion: Delay is observed in cash and insured patients while desired TAT is met only for panel patients. Significant delay is observed when the mode of payment is by insurance.

Keywords: Discharge process, Turnaround time, TAT, Delayed TAT

INTRODUCTION

In a hospital setting, an inpatient is admitted for receiving health services. The inpatient in a hospital goes through three stages: admission, medical intervention and the finally discharge[1]

Hospital discharges are lengthy and procedural. After a successful and satisfying course of treatment, the patient and their loved ones are ready to get back to their regular lives as soon as possible, and any unnecessary delay in the discharge procedure makes the patient unhappy. Delay in discharge also increases exposure to hospital-acquired infection[2]. As a result, the length of time it takes hospitals to discharge patients is crucial.

Hospital costs are also increased by discharge delays[3]. A quick and efficient discharge procedure can guarantee the early availability of various bed categories to new patients, which can in turn shorten the waiting period for patient admission or even lower the rate of patient rejection owing to bed shortages[4]. Improving discharge process quality leads to patient satisfaction[5].

Turnaround time (TAT) can be defined as the period for completing a process cycle. The total testing cycle divides the process into smaller ones, each one independent bearing impact on the TAT[6].

Paras' hospital in Gurugram has a defined discharge process. In case of a planned discharge, the doctor notifies for discharge, and a rough discharge summary is prepared for further corrections prior to finalization.

The rest of the process can be tracked over the HIS: the patient is marked for discharge, sent for billing (For IPD pharmacy clearance), pharmacy clearance is done, file is received by the billing department and bill is prepared, and then the bill is sent for TPA approval.

The process defers slightly depending on the mode of payment opted by the patients. Payments are made either by cash, panel credit/cash, or cashless insurance method. Each process in the entire cycle has a TAT of 30 min each.

The total TAT for cash and panel patients is between 2-3 hours. While that for insurance patients is 4-5 hours. The hospital aims to maintain benchmarked TATs for their IPD patients.

This study aims to estimate and analyze the discharge TAT. This study maps the complete patient discharge process over a period of 1 month and calculate the TAT for each part of the process, cause, and effect for delays in the discharge process and finally analyzes the data to understand the relation between mode of payment opted by the patients and delay in discharge TAT. Box plot analysis to compare the three modes of payments. Fishbone analysis to identify causes of delay in TAT based on observations and TAT calculated on the system. Statistical analysis was done using the Kruskal Wallis H test to test the study hypothesis.

LITERATURE REVIEW

A study was conducted by Kirti Udayai and Piyush Kumar, (2012) where the paper attempts to study the impact of six sigma approach and it shows number of patients being managed by six sigma approach had a direct impact on the revenue and a positive patient satisfaction[7].

A study conducted in 2013 observed that there was a delay in all types of discharges- insurance patients, cash patients, and discharge against medical advice (DAMA) in the hospital. Patients' satisfaction survey was conducted, and the scores reflected that most patients felt the discharge process was lengthy and believe that the process can be sped up.

A study conducted in 2015: Role of discharge planning and other determinants in total discharge time at a large tertiary care hospital showed that the discharge time for insurance patients, unplanned discharges was significantly higher compared to uninsured and planned discharges. A pilot study to improve the planning process to reduce the discharge TAT showed reduction in mean discharge time[8].

According to Davis et al. (2020), this study focused on addressing in-patient discharge delays through a quality improvement initiative. The findings highlighted the effectiveness of the quality improvement initiative in reducing discharge delays and improving overall hospital efficiency. The study emphasizes the importance of continuous quality improvement efforts to address discharge delays and enhance the quality of patient care [9].

Study conducted by S. Arun Vijay: Reducing and optimizing the cycle time of patients discharge process in a hospital using six sigma DMAIC approach in 2014 showed a positive impact on reducing the discharge time due to the application of six sigma approach. As a result, more patients will be managed which indirectly increases the number of admissions, turnover of the rooms, increases hospital profitability and will also enhance Patient satisfaction. This study also demonstrated the contribution of the multidisciplinary team members of the hospital in reducing Patients discharge time[10].

METHODOLOGY

Study design- Observational Cross-sectional study

Study setting- Paras Health Gurugram

Duration of the study- 3 Months

Study population- IPD patients

Inclusion criteria- IPD patients -planned, unplanned discharges and LAMA (leave against medical advice) patients

Exclusion criteria- Patients from critical areas like ER, CCUs, NICU, PICU, HDUs and patients from day care.

Sample size: 600 (300 Panel, 300 Cash, and 300 insurance patients)

Sampling technique- Simple random sampling for selection of patients, Purposive sampling for distribution and division of groups

Data collection tool- Secondary data collected from the HIS

Data analysis- MS Excel and SPSS V. 22 were used for tabulation and analysis of the data. Hypothesis:

Null Hypothesis- There is no significant relation between the mode of payment and the delay in discharge TAT

Alternate Hypothesis- There is a significant relation between the mode of payment and the delay in discharge TAT.

RESULTS

Based on the data collected, analysis was done to calculate the actual TAT. Baseline analysis through calculation of mean, median, mode and understanding the distribution of the data was done.

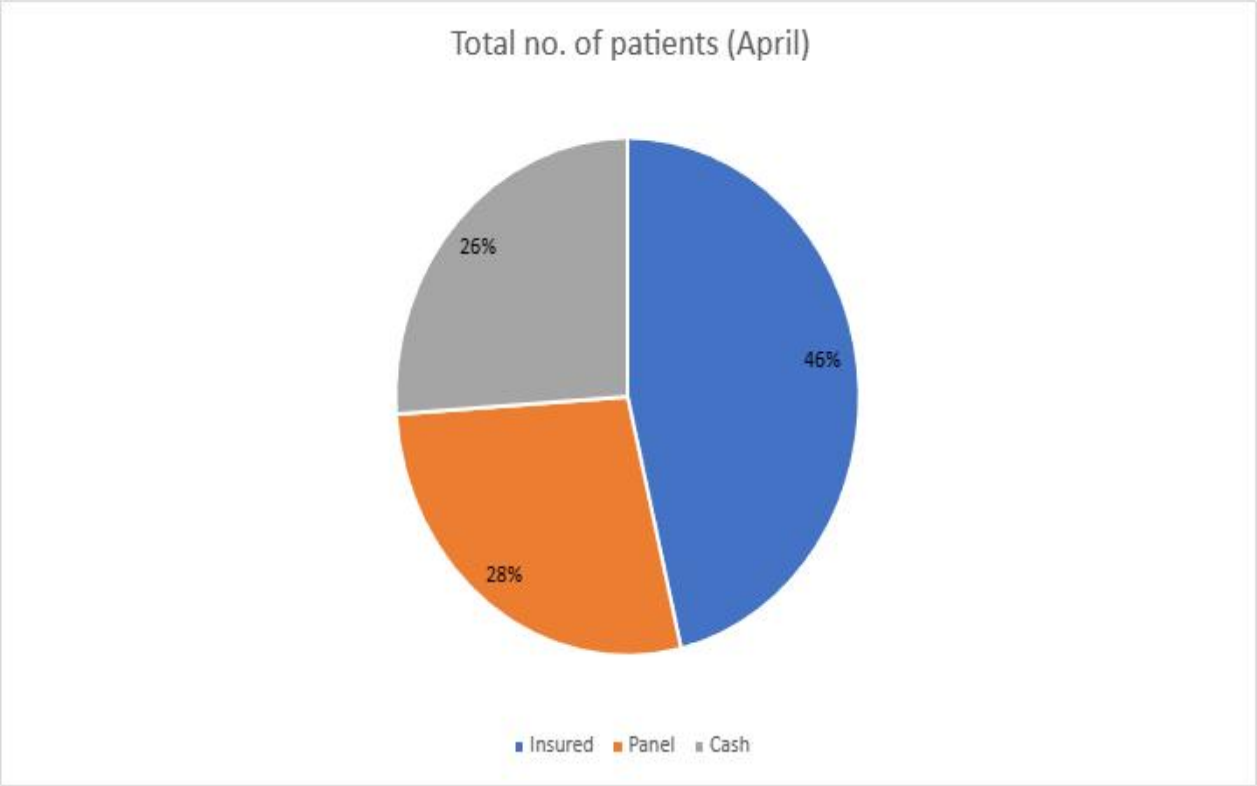

Fig. 01

Fig. 01 represents the distribution of patients based on their payment modes for April'23. The total number of patients discharged in the month of April was 955 out of which 49 % (442) were under insurance, 28% (264) were under panel and 26% (249) were cash patients.

Tab.01 (Central Tendency Values)

Mode of payment	Mean	Median	Mode
Insurance	5:59:26	5:20:00	5:15:00
Panel	2:25:10	2:03:00	2:00:00
Cash	3:22:01	2:44:00	2:03:00

Tab.01 represents the calculated mean, median and mode of the patients based on their mode of payment. This helps us calculate the difference between the desired TAT as per the hospital discharge policy and the actual TAT calculated from the data collected.

The mean time taken for insurance patients to get discharge was calculated as 5 hours 59 minutes and 26 seconds. For panel patients it was 2 hours 25 minutes and 10 seconds, while for cash patients it was 3 hours 22 minutes and 1 second.

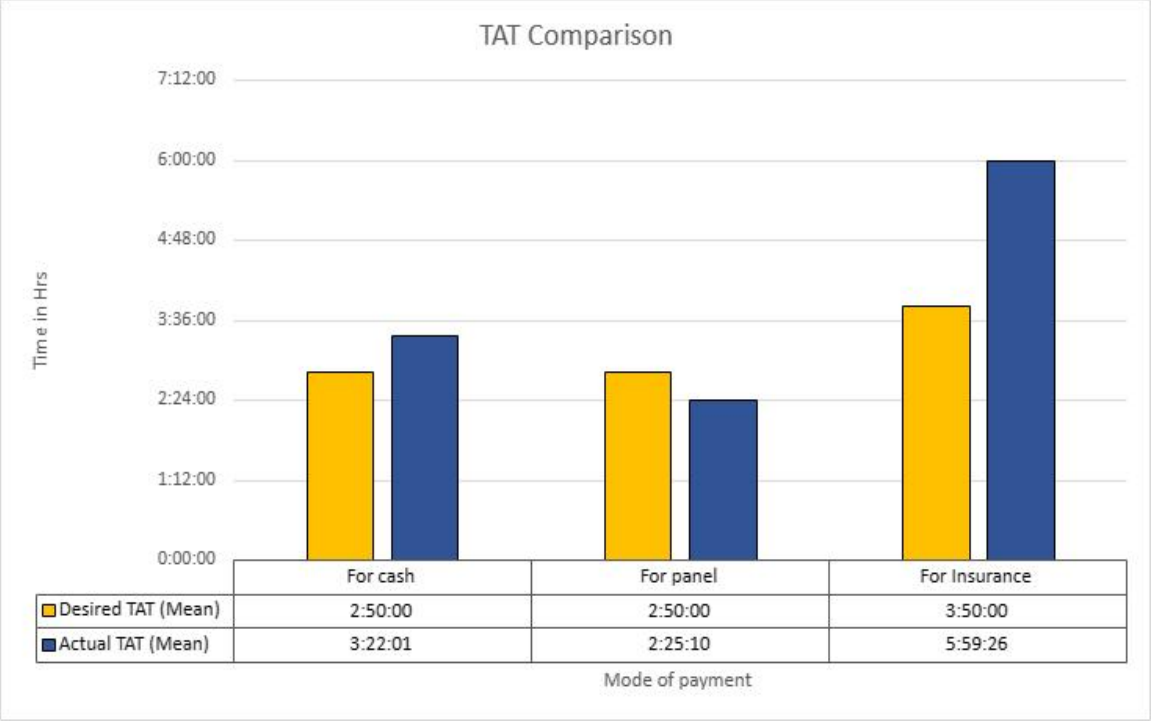

Fig.02

Comparison graph as represented in Fig.02 shows the difference between the desired and actual TAT for the discharge patients. The graph clearly indicates a stark difference for the insurance patients.

The difference between the desired TAT and actual TAT for insurance patients is a delay of 2 hours 9 minutes and 26 seconds. For cash patients the delay is 32 minutes and 1 second. The desired TAT is only met in case of panel patients. Infact the meantime taken for panel patients to get discharged is less than the desired TAT by 22 minutes and 21 seconds.

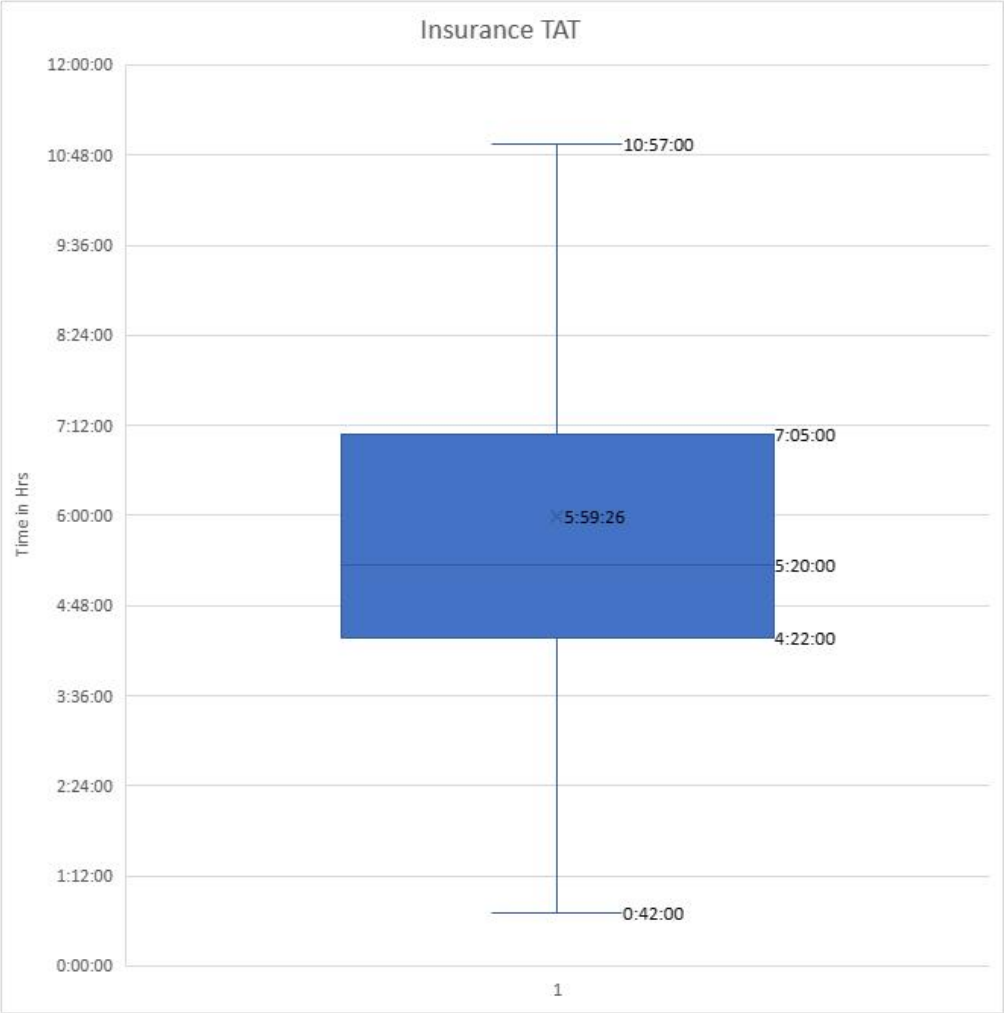

Fig.03

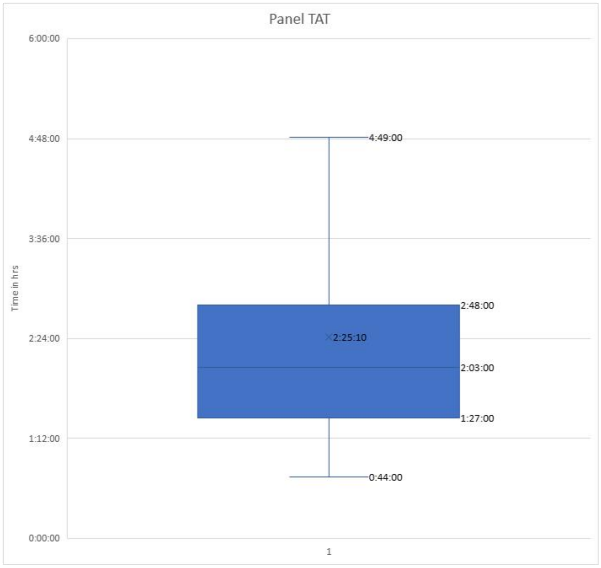

Fig. 04

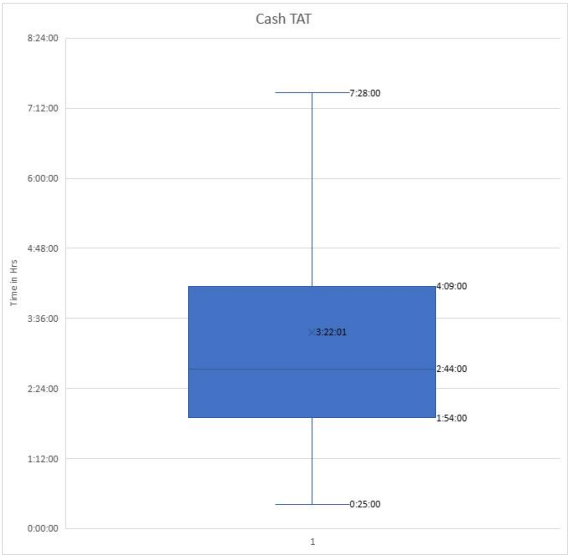

Fig.05

The figures (Fig.03, 04 and 05) are data represented in a box plot for analysis of the distribution, skewness along with understanding of the mean, median, Interquartile range (IQR) and maximum-minimum value.

In Fig 03, Fig. 04, and Fig. 05 the mean value is marked with an X in the middle of the box.

The line in the middle of the box represents the median value of the data. For Insurance patients the median value is 5 hours 20 minutes, for panel 2 hours 3 minutes and for cash patients it is 2 hours 44 minutes.

The maximum TAT for insurance patients is 10 hours 57 minutes, for panel 4 hours 49 minutes and for cash 7 hours 28 minutes. The minimum TAT value for insurance, panel and cash are 42 minutes, 44 minutes, and 25 minutes, respectively.

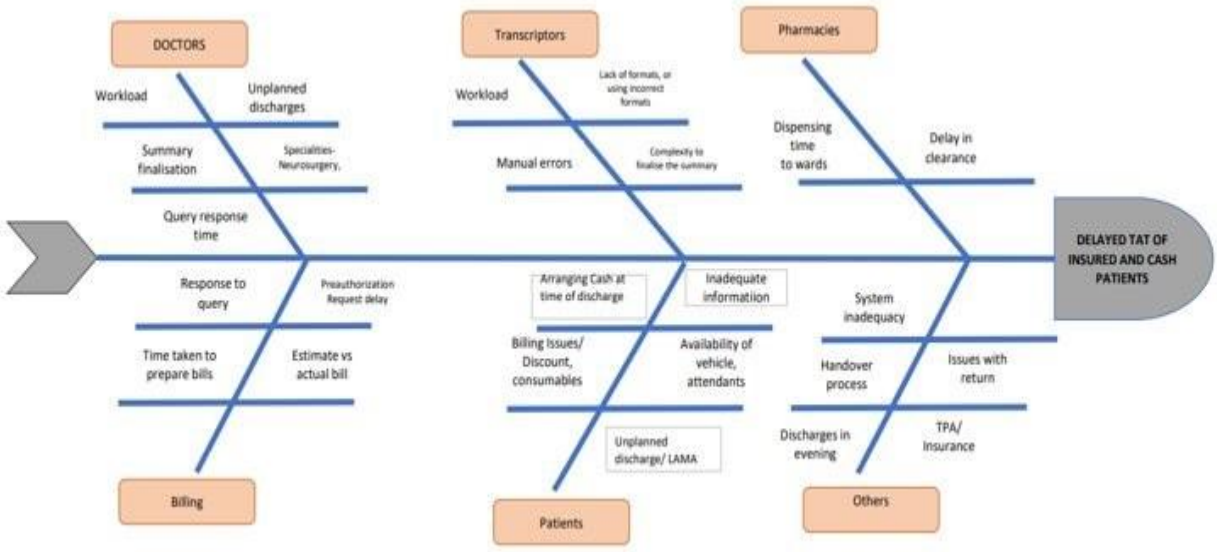

Fig. 06

The above figure is a fishbone analysis of the most common observed causes of delay in the discharge process. Although data collected showed that billing and IPD pharmacy clearance takes the most time in the process. But the above mentioned are the observed causes which contribute towards the delay in TAT. Discharge summary, TPA query, availability of cash/ attendants at the time of discharge, unplanned discharge etc. are some of the factors that led to the delay.

The data does not follow normal distribution hence nonparametric test Kruskal Wallis H test was considered for hypothesis testing. Analysis was done with 95% confidence intervals and result with p value <0.05 was considered significant.

Tab.02 (Kruskal Wallis H Test Results)

Mode of payment	N	Mean Rank (TAT in min)
Insurance	200	437.82
Panel	200	191.53
Cash	200	272.15
Total	600	

The Kruskal Wallis H test showed that there is a statistically significant difference (null hypothesis rejected) in TAT between the modes of payment. $\chi 2(2) = 209.898$, $p= 0.000$. The mean TAT score here is in minutes and the values are - 437.82 for Insurance, 191.53 for Panel and 272. 15 for cash patients.

DISCUSSION

The study was conducted to understand the relation between mode of payment and delay in TAT. The study also addresses observed administrative hassles of delayed discharge process.

A study conducted in 2011 by Dr Parag R Rindan, et al. revealed that TPA patients were dissatisfied by the extensive time taken for discharge. After efforts were made to reduce the TAT it enhanced profitability and admission process for new patients.

In our study there is significant delay for insurance patient. As per the data, insurance patients reflect 48% of the total IPD patients in the month of April'23. It is safe to interpret that delay in discharge process leads to high bed occupancy and unavailability for critical patients. This also leads to dissatisfaction among patients and attendants towards the hospital discharge process.

As per the Attune live, the average time taken for the discharge of patients in most of the hospitals is in the order of 5–6 hrs[11]. The delays seem inevitable at the time of discharge and TAT cannot be brought down without identifying bottlenecks. Delay can result from poor bed management, lack of planning. There are several people and departments involved in the discharge process. A delay was observed in the billing process.

In our study desired TAT is met only for panel patients while a delay is observed in the cash and insurance category.

The Kruskal Wallis test results showed that the TAT is different for each category of patients and the mode of payment opted by the patients significantly impacts the discharge TAT ($p<0.05$). A significant delay is observed when the mode of payment is by insurance.

There are several other factors for delay like preparing discharge summary, arranging cash by patients, etc. these are not calculated in the system. Past studies have been conducted to understand the delay resulting from time taken to prepare the discharge summary[12] and the benefits of using EMR and an efficient system to reduce the time taken for finalization of summaries.

CONCLUSION

Private hospitals across the country are now witnessing an increase in patient load. Especially after the pandemic, importance of health and marketing of health insurance policies have increased awareness among the public. Many individuals are enrolled under commercial insurance policies

Along with this, hospitals now have shifted their focus on patient satisfaction and improving the quality of care. Patients too have high expectations for the medical and other hospital services. Our study shows that the mode of payment has a significant relation and impacts the time taken for the discharge from a tertiary hospital. While there are several reasons leading to the delay effective solutions need to be implemented to increase patient satisfaction and profitability of the hospital.

Recommendations:

Improve planned discharge process, returns on previous night, informing the patient and family members, preparing tentative discharge summaries.

Tracking time to prepare discharge summary and time from approval to patient wheeled out will further quantify the total TAT.

Certain specialties provide rough summaries and corrections in paper format. This leads to errors and delays, especially when case summaries are lengthy. Opting to make summary corrections over the system can reduce the TAT and errors.

There are some limitations in this study like delay due to discharge summary is not calculated in the study and delay based on ALOS or specialty not calculated in the study.

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ANNEXURE

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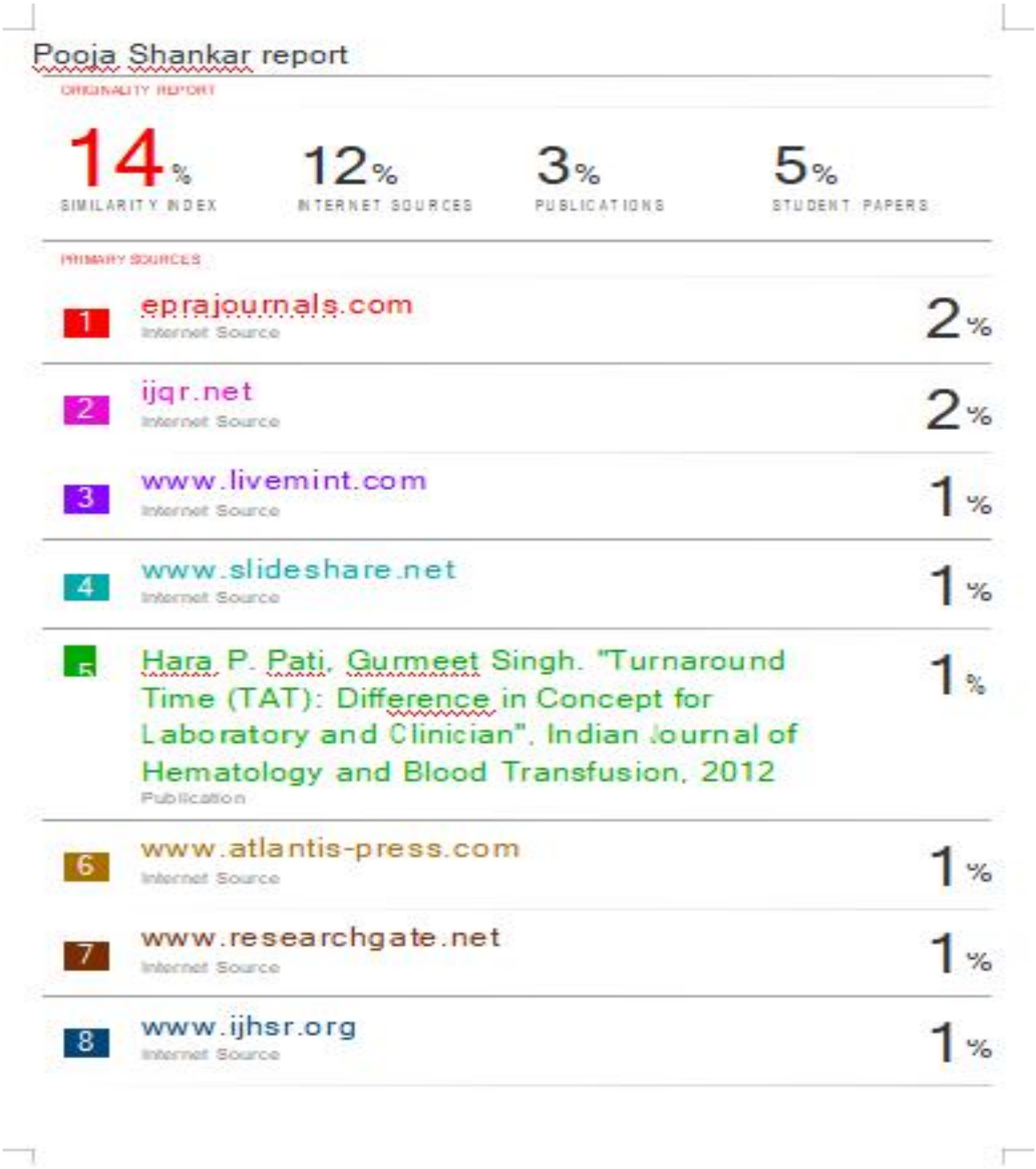

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Enrollment/Roll No.	PG\21\072	Batch Year	2021 - 2023
Course Specialization (Choose one)	Hospital Management ✓	Health Management	Healthcare IT
Name of Guide/Supervisor	Dr./ Prof.: HIMANSHU TOLANI		
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