

# **A STUDY OF TURN AROUND TIME (TAT) OF DISCHARGE PROCESS OF INSURANCE PATIENTS IN A TERTIARY MULTISPECIALITY HOSPITAL**

Dissertation Submitted to



**The IIHMR University, Jaipur**

for the partial fulfilment for the award of the degree of

Master of Business Administration (MBA)

in

Hospital and Health Management

By

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Under the Supervision and Guidance of

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2024



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**JIMS/HR/OP/228/2024**

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**TO WHOMSOEVER IT MAY CONCERN**

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Her work and conduct was satisfactory.

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## CERTIFICATE

This is to certify titled “A Study Of Turn Around Time Of Discharge Process Of Insurance Patients In A Tertiary Multispeciality Hospital” is a record of the research work undertaken by **Ms. Vanshika Rana** in partial fulfilment 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 her approach to the research study has been sincere, scientific, and analytical.

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## DECLARATION BY STUDENT

I hereby declare that this dissertation titled “ A study of turnaround time of discharge process of insurance patients in tertiary multispecialty hospital” 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 Information derived from the publisher or unpublished work of others has been duly acknowledged in the text.

A handwritten signature in blue ink, appearing to read 'Vanshika', with a horizontal line underneath it.

Ms. Vanshika Rana

Date-02/07/2024

## ABSTRACT

**Submitted by:** Vanshika Rana

**Submitted to:** Dr. Piyusha Majumdar

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**Title:** “A study of turnaround time (TAT) of discharge process of insurance patients in tertiary multispecialty hospital”

**Background:** The discharge process of insurance patients begins with doctor’s approval of discharge, followed by sending of the final AL of patient by the in house TPA department to the external TPA, and after approval patient leaving the clinical unit within TAT of 270 minutes. Discharge is a crucial step that affects the patient’s satisfaction level of overall hospital services. The main aim of the study was to identify bottlenecks in discharge delays of insurance patients and recommend solutions to reduce them.

**Methodology:** This study is observational prospective study and is carried out for the period of two months, i.e., from March 2024 to May 2024. A sample of 250 patients was selected using the convenient sampling technique. Bivariate correlation analysis was done to identify the key subprocesses affecting the overall Turnaround Time (TAT) of discharge. Pareto analysis was performed to determine the main queries sent by the external Third-Party Administrator (TPA) department. Inclusion criteria followed was discharge of patients who opted for cashless hospitalization between working hours (10 AM TO 5PM), considering only private/GIPSA Insurance patients. The exclusion criteria were discharges initiated in the time after working hours after (10AM to 5PM) and cash, ECHS, ESIC, Haryana govt. and day care patients.

**Result:** The three main sub processes that causes maximum variance in the overall discharge process of insurance patients are the time taken for discharge summary to reach the in-house TPA department after approval by the doctor, approval by external TPA after sending of final AL, and time taken for final patient discharge after receiving approval. Additionally, from the Pareto analysis, it was found that out of total 87 queries generated, 3 categories accounted for 77 percent of total queries.

**Conclusion:** Study revealed that the time taken for the for-case file to reach the in house TPA department after doctors approval for discharge takes about 187 minutes, which should ideally be not more than 150 minutes, the delay was observed due to delay in formation of discharge summary by MO and overcrowded pharmacy 95. An odd and even system was implemented in pharmacy 95 in order to reduce the overcrowding further it was recommended for consultant to order discharge during night, so that the discharge summary can be formed by the MO who is working in the night shift, and consultant stamps and signs early morning. The study further revealed that private insurance company like ICICI Lombard, Care health Insurance takes maximum amount of time in sending final approval which causes further delay in overall discharge process, this is seen as an uncontrollable factor in the study. The study further revealed that drafting of checklist for the most query

generated will cover all common areas of concern, ensuring that submissions are thorough and accurate. By addressing these areas, patient satisfaction can be significantly enhanced and to ensure better service quality, appropriate measures should be in place to address the current limitations of the discharge procedures.

**Keywords:** Turnaround time (TAT), Third party administrator (TPA), Insurance, Authorization letter (AL), Discharge, Patient satisfaction

## ACKNOWLEDGEMENT

I would like to extend my deepest gratitude to everyone who has played a role in the successful completion of this dissertation.

First and foremost, my sincerest thanks to my supervisor, **Mrs. Kumkum Roy Chaudhary**, for her unwavering support, insightful feedback, and invaluable guidance throughout this journey. Her expertise and encouragement have been fundamental in shaping this research.

I am profoundly grateful **Dr. P.R. Sodani**, President, for providing an exceptional platform for academic growth and research. My heartfelt thanks also go to the faculty and staff of IIHMR, Jaipur, whose knowledge and resources have greatly contributed to a conducive learning environment.

I would like to express my special thanks to my Faculty Mentor, **Dr. Piyusha Majumdar**, for her constant support and encouragement throughout the project. I am committed to applying the skills and knowledge gained from this experience in my future endeavors.

Special appreciation goes to the doctors, nurses, and administrative staff whose cooperation and assistance were crucial during the data collection phase of this study.

Lastly, I am indebted to all the researchers, scholars, and authors whose work I have referred to and cited in this dissertation.

This dissertation is a product of the collaborative efforts of many individuals, and I am deeply thankful to each one of you for your contributions.

Sincerely,

**Vanshika Rana**

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## **ABBREVIATIONS**

NCJIMCARE: N.C Jindal Institute of Medical Care and Research

OPJICACRE: O.P Jindal Institute of Cancer and Cardiac Research

TAT: Turnaround Time

TPA: Third party administrator

GIPSA: General Insurance Public Sector Association

ECHS: Ex-Servicemen Contributory Health Schemes

ESIC: Employee State Insurance Corporation

HIMS: Hospital Information Management System

LOS: Length Of Stay

OPD: Outpatient Department

IPD: Inpatient Department

MO: Medical Officer

NABH: National Accreditation Board for Hospitals

AL: Authorization letter

## CHAPTER 1: INTRODUCTION

National Accreditation Board for Hospitals & Healthcare Providers (NABH) defines discharge as a meticulous process ensuring a patient's stable transition out of the hospital with all necessary medical summaries.

Hospitals provide two primary services: outpatient care, where patients receive treatment on the same day without an overnight stay, and inpatient care, where patients are admitted for extended treatment. In the inpatient setting, the final stage after admission and treatment is discharge.

Discharging a patient after intervention is a complex process involving various staff members and departments. Delays in discharge can negatively impact both the healthcare system and the patient's experience. These delays can arise from a multitude of factors, including administrative hurdles, housekeeping issues, resource limitations, insurance-related complications, or mismanagement. They not only disrupt the overall healthcare system's efficiency but also leave patients with a negative impression upon leaving the hospital. The most frequent culprits behind discharge delays are often linked to inefficiencies within the administrative staff.

During peak discharge hours, achieving effective coordination amongst various departments to secure insurance authorization from external third-party administrators (TPAs) becomes a significant challenge. This can be attributed to a lack of trained staff, insufficient personnel, or the absence of streamlined discharge procedures.

The consequences of discharge delays extend beyond a negative patient experience. Hospitals face increased costs due to delayed bed vacancies, a higher risk of hospital-acquired infections, and inefficient utilization of staff resources. Implementing effective strategies to reduce these delays is crucial. The first step involves identifying bottlenecks that hinder the discharge process's efficiency.

The turnaround time (TAT) for discharge holds immense significance for hospitals. A faster TAT directly correlates with increased patient satisfaction. It serves as a key benchmark for evaluating a hospital's efficiency and quality of care. Enhancing the quality of the discharge process translates directly to a rise in patient satisfaction. This, in turn, establishes a positive association between a smooth discharge experience and the likelihood of patients returning to the same hospital for future treatments.

The past decade has witnessed a significant rise in the number of patients availing healthcare services with the backing of insurance plans. This translates to a growing patient load at private hospitals for individuals covered under commercial insurance policies. This category of patients has high expectations regarding the quality of service they receive and demonstrates low tolerance for subpar experiences.

## **1.1 Health Insurance in India**

### **The Indian Healthcare System: Challenges and Opportunities**

India's healthcare landscape presents a complex picture. While the health insurance market is experiencing promising growth, significant challenges remain in achieving universal health coverage (UHC). This report explores these challenges and the potential solutions to improve healthcare access and affordability for all Indians.

#### **Market Growth Amidst Low Penetration**

The Indian health insurance market is projected to reach a value of \$180.6 billion by 2028, driven by factors like rising medical costs, increased chronic diseases, and government initiatives. However, despite this growth, health insurance penetration remains low, particularly in rural areas (14% coverage) compared to urban centers (18% coverage). The overall market density is estimated to be around 10%, indicating a significant gap in coverage. (1)

#### **The Burden of Out-of-Pocket Expenses**

Limited government spending on public healthcare translates to limited capacity and quality of services. Consequently, two-thirds of the population rely on the often-expensive private sector, leading to high out-of-pocket expenditures (OOPE). This financial burden disproportionately impacts those without health insurance, pushing them towards financial vulnerability due to medical bills.

#### **The "Missing Middle" and Coverage Gaps**

Government schemes like Ayushman Bharat aim to bridge the coverage gap, particularly for the lower socio-economic strata. However, a substantial portion of the population, often referred to as the "missing middle," remains uninsured. This segment encompasses individuals across various income levels and occupations in both urban and rural areas. Addressing their needs is crucial for achieving UHC. (2)

#### **Underinvestment and Reliance on Private Care**

India's public health system suffers from chronic underfunding, with government spending on health at only 1.5% of GDP. This directly impacts the availability and quality of care in public hospitals. The consequence is an overdependence on the private sector, which, while offering more options, often lacks robust financial protection mechanisms.

#### **High Out-of-Pocket Expenditure and Financial Risks**

Despite some improvements, India's OOPE as a percentage of total health spending remains high at 63%. This, coupled with the inherently higher costs of private healthcare, exposes individuals to significant financial risk. Research suggests that over 7% of the population falls into poverty each year due to healthcare expenses, highlighting the urgent need for solutions. (3)

## **Catastrophic Health Spending and the Need for Protection**

The rising trend of catastrophic health spending, where medical expenses exceed a significant portion of a household's income, further adds to the financial hardship. Studies show a concerning increase in such cases, emphasizing the need for robust financial protection mechanisms like health insurance to safeguard individuals across income levels.

India's healthcare system faces the challenge of balancing affordability with accessibility. While the expanding health insurance market offers promise, ensuring wider coverage and addressing the needs of the "missing middle" are crucial steps. Increasing government investment in public healthcare alongside promoting wider health insurance adoption can help create a more equitable and financially secure healthcare system for all Indians

### **PURPOSE OF THE STUDY:**

The study has broadly two objectives, first is to find out which sub process affect the overall discharge process of patients, this will help to identify the bottlenecks and recommend solution based on it and the second objective is to collect and analyze the queries generated by the external TPA which will help to draft a checklist this will help the discharge process be more quick and reduce additional efforts. Additionally, we observe time taken by different TPA in sending approval after sending AL, and the most common reason for delay in discharge process.

#### **Objective 1: Identifying Bottlenecks and Streamlining the Discharge Process**

The first objective is to identify the specific sub-processes that create delays or hurdles during patient discharge. This will involve:

- **Mapping the Discharge Process:** A detailed flowchart will be created to visualize each step involved in discharging a patient who utilizes cashless authorization. This map will identify all sub-processes, including interactions with internal departments and external TPAs.
- **Data Collection and Analysis:** Data will be collected on various factors that might contribute to discharge delays. This includes:
  - Time taken by each sub-process
  - Frequency of delay within each sub-process
  - Reasons for delays in external TPA approvals

By analyzing this data, the study aims to pinpoint the sub-processes that are causing the most significant bottlenecks in the discharge process.

#### **Objective 2: Improving Efficiency with a TPA Query Checklist**

The second objective focuses on gathering insights from queries generated by external TPAs. These queries typically arise when a TPA requires additional information or clarification before granting cashless authorization. This objective involves:

- **Collecting and Analyzing TPA Queries:** The study will collect and analyze all queries received from TPAs during the discharge process. This will include categorizing these queries based on the information they request.

#### **Additional Considerations:**

- The study will also examine the time taken by different TPAs to send approvals after receiving an authorization request (AL). This will help identify any potential inefficiencies with specific TPAs and allow for targeted communication or collaboration to improve their response times.
- By analyzing the most common reasons for delays in the discharge process, the study aims to develop actionable recommendations and solutions to address these issues.

### **1.3 CLASSIFICATION OF HEALTH CLAIMS:**

#### **1. Cashless Claims:**

- **Benefits:** If you prefer treatment at a hospital within your insurer's network, you can leverage cashless claims. Network hospitals have partnered with the insurance company or TPA to provide this benefit. The list of network hospitals is mentioned on the policy document or website of insurance company/TPA.
- **Process:**
  - You (the policyholder) need approval before starting treatment. This involves submitting a claim request by the hospital to the respective insurance company or authorized TPA.
  - The insurer verifies details with the hospital against your policy coverage details and upon approval, pays the expenses directly to the hospital.

#### **2. Reimbursement Claims:**

- **Benefits:** This option allows you to choose any hospital for treatment.
- **Process:**
  - You pay the hospital bills upfront for hospitalization and medical expenses.
  - Later, you submit a claim request to the insurance company for reimbursement, along with necessary bills and invoices.
  - The insurer or TPA verifies the details and documents, then reimburses you as per your policy coverage

### **1.4 Preauthorization and Post authorization Process**

**1. Preauthorization process:** Involves obtaining approval from the insurance company (payer) **before** treatment begins (applicable to planned and elective admissions). This ensures your chosen services are covered under your plan. Certain procedures require pre-

authorization. During eligibility verification, the insurance company will confirm which services need this approval.

Based on your insurance plan and required medical procedures, the company will either approve, deny, or request additional information before granting pre-authorization. Pre-authorization provides an estimated cost of treatment, additionally if pre authorization doesn't guarantee payment, but not having it can lead to claim denial.

**2. Post authorization process:** Begins **after** doctor approves inpatient to be discharged. In this the internal TPA department sends authorization letter (that includes discharge summary and relevant investigation reports) to the external TPA department for final approval. As the name suggests approval must be obtained after the patient has availed treatment that was approved by the respective insurance company.

Post authorization approval by the insurance company guarantees payment of bills for the treatment availed according to the policy coverage and terms and conditions. In the post authorization process the company can either approve, deny or raise query for the claim requested, or cover only a certain portion of the claim and exclude the non-consumable items.

### **1.5 Process flow**

#### **Pre-Authorization Process:**

The cashless authorization process begins when patients arrive at the clinical unit for either planned or emergency admission.

In emergency admissions, patients are admitted directly to receive treatment. In planned admissions, patients must inform the in-house TPA department in advance to avail cashless treatment. Upon admission, the ward or registration staff inquiries about the mode of payment, verifying if any TPA or other empaneled agencies are involved. The staff then confirms the status of the patient's health insurance card with the department of empanelment. If approval is granted, relevant ID proof and the health insurance card of the policyholder are collected. If disapproved, the patient must pay through cash mode. According to hospital policy, approval for planned admissions must be obtained from the external TPA at least 48 hours before admission.

Once the relevant documents are collected, the designated MO or consultant fills out the Pre-Authorization form, detailing the treatment plan, necessary investigations, and patient vitals. In emergency cases, the GDA staff or the patient/attendant takes the form to the in-house TPA department, with the entire process expected to be completed within 30 minutes. The request for cashless authorization is then submitted to the TPA portal or via email.

The TPA verifies the request against the coverage details of the patient's policy, checking if the estimated costs align with tariff rates, the relevance of the investigations, the patient's history, and whether hospitalization is necessary or if the patient can be treated on an OPD basis. The TPA then accepts, rejects, or raises a query regarding the request.

If accepted, the in-house TPA receives confirmation from the external TPA and informs the patient/attendant. After discharge, the bill is settled by the insurance company, excluding non-medical items, and the original documents are retained by the hospital.

If rejected, a denial letter with the reason for rejection is sent by the external TPA to the in-house TPA department, and the patient/attendant is informed of the denial. The patient/attendant must then pay in cash.

If the external TPA raises a query, it is sent back to the ward and addressed by the consultant or designated MO. The response is then sent back to the in-house TPA department via GDA staff and submitted on the portal, after which the request is either accepted or rejected.

#### **Detailed discharge process (post authorization):**

The post-authorization process begins after the doctor approves the discharge of the patient. The doctor reviews all relevant investigations and ensures there are no pending issues before the MO creates the discharge summary. The MO of the respective ward is responsible for creating the discharge summary, which includes the reason for admission, significant findings, diagnosis, and details of procedures performed. After the discharge summary is created, it is signed, stamped, and dated by the consultant.

Once the discharge summary is complete, the IPD bill is generated in the ward. This bill includes accommodation charges, IPD consumables with their quantities and rates, and any other relevant charges. Concurrently, the patient is prepared for final discharge. The IPD staff goes to Pharmacy 95, which has a separate counter for discharge medicines, to obtain the prescribed medications. The pharmacy staff dispenses the medicine and generates a medical bill. If any alternate medicine is provided, it is verified by the consultant.

After obtaining the discharge medicine, the IPD staff submits the case file and final IPD bill to the in-house TPA department. The staff verifies the final IPD bill against the hospital tariff rates, ensures all investigations are attached, and includes the discharge summary. The final authorization letter (AL) is then sent to the external TPA department for cashless authorization.

The external TPA can either approve, reject, or raise a query regarding the request. If approved, the patient or their attendant is informed of the confirmation status, and the insurance company covers the final bill except for non-medical items, which the patient pays. Once settled, the patient can leave the clinical unit.

If rejected, the insurance company/TPA sends a rejection letter with the justification, and the patient pays in cash.

If a clinical query arises (regarding an investigation report, the justification for admission, or an error in the IPD bill), it is sent back to the ward by the GDA staff and resolved by the MO/Consultant. After resolution, the in-house TPA department forwards the query to the respective TPA, where the claim is either rejected or approved.

If a non-clinical query is generated (related to tariff rates or resending any investigation that has already been attached), the in-house TPA directly responds and resolves it, after which the claim is either approved or rejected.

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## CHAPTER 2: LITERATURE REVIEW

| S.NO | AUTHOR                                                                                                                               | YEAR | TITLE                                                                                                                          | FINDINGS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|------|--------------------------------------------------------------------------------------------------------------------------------------|------|--------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.   | Rajendu Srivastava Bryan L. Stone, Raza Patel, Matthew Swenson, Andrew Davies, Christopher G. Maloney, Paul C. Young, Brent C. James | 2009 | Delay in discharge in a tertiary care pediatric hospital                                                                       | Physician decision-making was identified as a major contributor to discharge delays in the study. This included overly cautious treatment approaches and inconsistencies in clinical decisions. The research highlighted the significant impact of these delays on both patient LOS and overall healthcare costs. To address this issue, the study recommends: More efficient discharge planning; Streamlining the discharge process to minimize delays, Timely scheduling of consultations and diagnostic tests. |
| 2.   | Kasturi Shukla, Shrishti Upadhyay                                                                                                    | 2018 | Predictive Modelling for Turn Around Time (TAT) of Discharge Process for Insured Patients in a Corporate Hospital of Pune City | The study identified two key factors contributing to discharge delays for patients with health insurance: slow preparation of discharge summaries, especially for those with extended hospital stays and delays in final bill approval by insurance companies. To address these issues, the study recommends that hospitals focus on timely completion of discharge summaries, Proactive report submission, Efficient query resolution.                                                                           |

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|    |                          |      |                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 3. | A Sing, P Ravi, K Lepcha | 2019 | Insured patient discharge delay: Causes and Solution | <p>This study investigated the factors affecting discharge times for insured patients. Researchers employed two statistical methods, bivariate correlation and unadjusted linear regression. These techniques helped identify how different sub-processes within the discharge process relate to Overall discharge times. Pareto analysis was then used to analyze queries received from external TPAs. The biggest slowdowns for insured patients getting discharged were: Getting discharge summaries to the in-house TPA department on time, waiting for external insurance companies to approve final bills and summaries.</p> |

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| 4. | Jenyz M Mundodan, KS Sarala, V Narendranath                             | 2019 | A Study to Assess the Factors Contributing to Delay in Discharge Process in a Teaching Hospital     | A time motion study at a teaching hospital examined the discharge process for 69 patients. The study identified bottlenecks that were significantly impacting discharge times. Key Bottlenecks were identified and what came forward was that the main culprit was the time-consuming preparation of discharge summaries. Additionally, delays were found in, retrieving patient charts from the ward for billing purposes, Communicating the final bill amount to patients. These bottlenecks were found to be the major reasons for slow discharge times. |
| 5. | Alexander Micallef, Sandra C. Buttigieg, Gianpaolo Tomasell, Lalit Garg | 2020 | Defining Delayed Discharges of Inpatients and Their Impact in Acute Hospital Care: A Scoping Review | <p>This study reviewed 64 relevant research articles to develop a clear definition of "delayed discharges" in acute care hospitals. It also created a model that illustrates the connections between causes and effects of these delays.</p> <p>The research suggests that implementing preventive measures and changes within acute care settings can significantly reduce delayed discharges. This, in turn, would lead to several benefits, including, improved bed availability, reduced emergency</p>                                                  |

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|    |                                                                            |      |                                                                                           | department overcrowding, strengthened partnerships between hospital and community care, and decreased healthcare waste and costs.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 6. | Dr. Renny Thomas, Ashwini Malviya, Dr. Ankita George, Tony Thomas, Gayatri | 2021 | Process mapping of insurance department and analysis of denial with respect to department | This study investigated the challenges faced by cashless patients in the insurance claim process by mapping the workflows of insurance departments and analyzing claim denials. The research identified several key factors contributing to both discharge delays and claim rejections. Causes of discharge delays that came forward were lack of coordination between hospital staff, technical issues, discrepancies in medical documentation. The study also pointed out the reasons for claim rejections that were Policy coverage limitations, Exhausted limits, Incomplete prescribed years, Unjustified hospitalizations, discrepancies in medical documentation. |

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| 7. | Jatin Kumar | 2022 | <p>A Study of the Causes of Delay in Patient Discharge Process in a Large Multi-Specialty Hospital with Recommendations to Improve the Turnaround Time (TAT)</p> | <p>The study analyzed the discharge process for 100 inpatients, comparing cash-paying patients with those using insurance. Pareto analysis was used to pinpoint the biggest contributors to discharge delays for insured patients. The study then compared the proposed turnaround time (TAT) for discharge with the actual time it took for insured patients to be discharged.</p> <p>This comparison helped identify areas for improvement. Finally, the study offered recommendations for streamlining the discharge process.</p> <p>These recommendations addressed specific departments and highlighted the importance of better coordination among all departments and stakeholders involved. This collaborative approach is crucial for a smoother discharge experience for insured patients.</p> |
|----|-------------|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

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| 8. | Ms. Anupam Sukumar, Prof G Senthil Kumar, Mr. R.J.T. Nirmal Raj | 2023 | Identification of causes of delay in in patient discharge at a multispecialty hospital    | This research employed a quantitative approach, utilizing a standardized checklist to evaluate the discharge process in the Inpatient Department. The study identified several areas for improvement to expedite patient discharge. Qualified Discharge Summary Personnel, Standardized Physician, Proactive Insurance Approval. Leverage Pareto analysis to identify potential insurance approval issues and plan accordingly to avoid delays. The study suggests significant improvements in the discharge process, leading to faster patient throughput and reduced wait times. |
| 9. | Ms. U. Suji, A. Magalingam                                      | 2023 | A study on delays in insurance patients discharge at a multispecialty hospital in Kerala. | This study, involving 202 patients, monitored their discharge process using various metrics. The findings highlighted the potential of technology and improved communication channels to streamline the discharge process and minimize delays. The study also proposed specific improvement areas that, if implemented, could significantly enhance the operational efficiency of discharging patients.                                                                                                                                                                            |

### **CHAPTER 3: METHODOLOGY**

**STUDY DESIGN:** This study is an observational prospective study design carried out in Jindal Institute of Medical Sciences, Hisar, Haryana, for two months from 20<sup>th</sup> March 2024 to 26<sup>th</sup> May 2024. A total of 250 discharge patients were observed which included patients who opted for cashless hospitalization between working hours, consideration of only private/GIPSA Insurance patients. Discharge initiated in the time after working hours), cash, ECHS, Haryana government patients not included in study. Sampling technique is nonprobability convenient sampling technique. Data was collected through observation and analysis was done through MS Excel and SPSS.

**DATA COLLECTION PROCEDURE:** HIMS of hospital (Aarogya), mail of the hospital and the registers maintained was used to check the time at which the authorization letter was sent to the respective insurance company, when was the approval received and when the patient was finally discharged respectively. Tracking sheet constituted of date of admission, date of discharge, UHID, patients name, insurance company and respective TPA, ward where the patient was admitted, time of discharge order, time at which file came at the TPA desk, time taken to sent AL to the TPA, time of reverting and receiving query (if any generated), time to receiving the final approval, time of informing about the final approval to department, and time at which patient was finally discharged .

#### **Ethical Consideration:**

- Informed consent will be obtained from all participants before data collection.
- Participant anonymity and confidentiality will be ensured throughout the study.
- Data will be securely stored and accessed only by authorized researchers.
- The study will adhere to ethical guidelines set forth by institutional review boards and regulatory authorities

| <b>Turn Around Time</b> | <b>Elaboration</b>                                                                                                               | <b>Data Collection Tool</b>                   | <b>Technique</b> |
|-------------------------|----------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|------------------|
| TAT 1                   | Time taken for the discharge summary to be delivered from the ward to the in-house TPA department                                | Observation                                   | Observation      |
| TAT 2                   | Time taken to forward the final Authorization Letter (AL) to the external TPA department                                         | Through track sheet                           | Shadowing        |
| TAT 3                   | Time taken to address and resolve any generated queries                                                                          | Email timing                                  | Shadowing        |
| TAT 4                   | Time taken by the external TPA to provide final approval after receiving the AL                                                  | Email timing                                  | Shadowing        |
| TAT 5                   | Time taken for the final patient discharge after receiving approval from the external TPA                                        | Register Maintained                           | Observation      |
| TAT 6                   | Total time for the discharge process, beginning with the doctor's approval and ending with the patient leaving the clinical unit | Addition of TAT 1, TAT 2, TAT 3, TAT 4, TAT 5 |                  |

Table 3.1: Data collection tools and technique used

## CHAPTER 4: RESULT

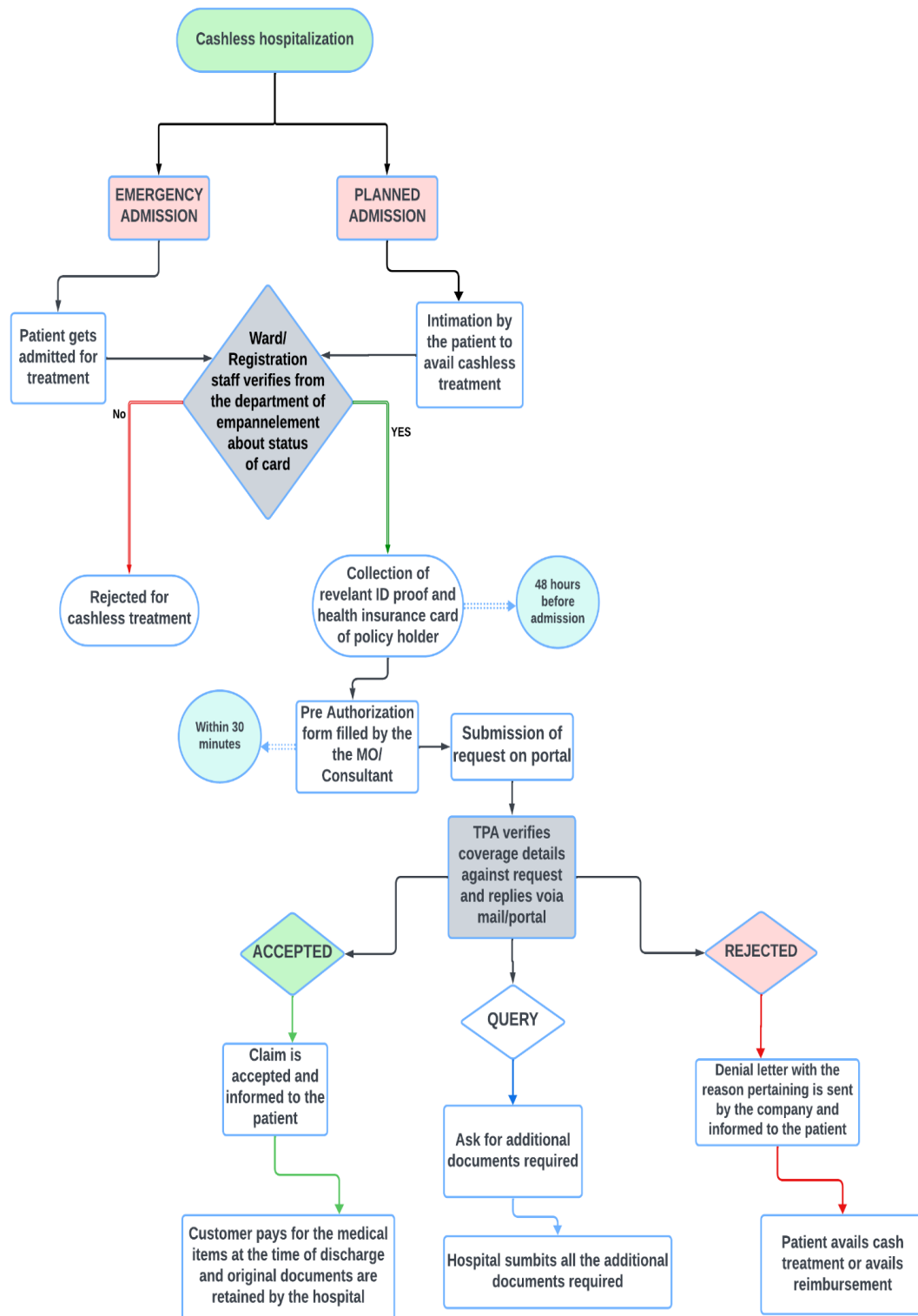


Figure 4.1 Cashless hospitalization process

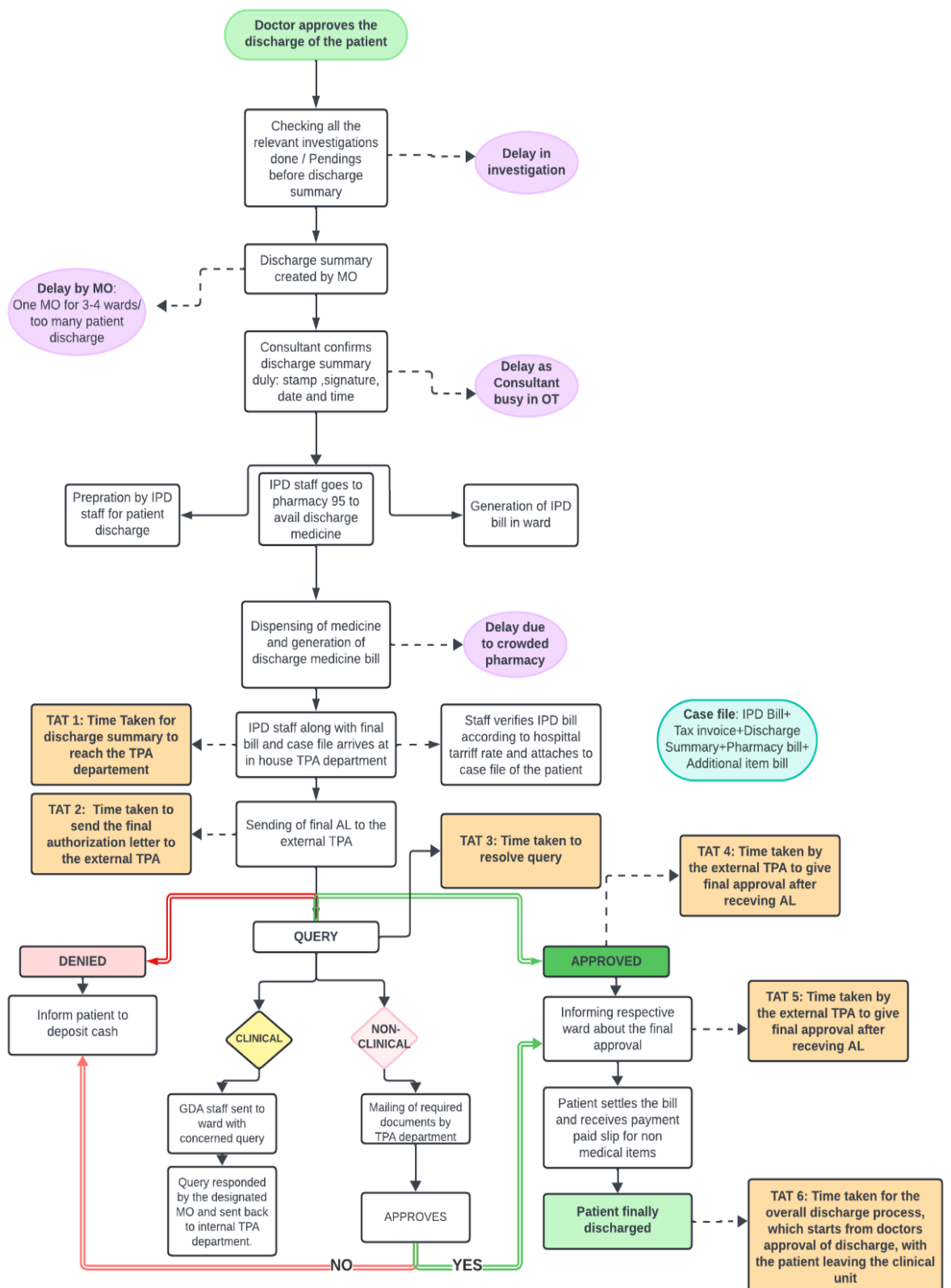


Figure 4.2 Detailed discharge process of insurance patients

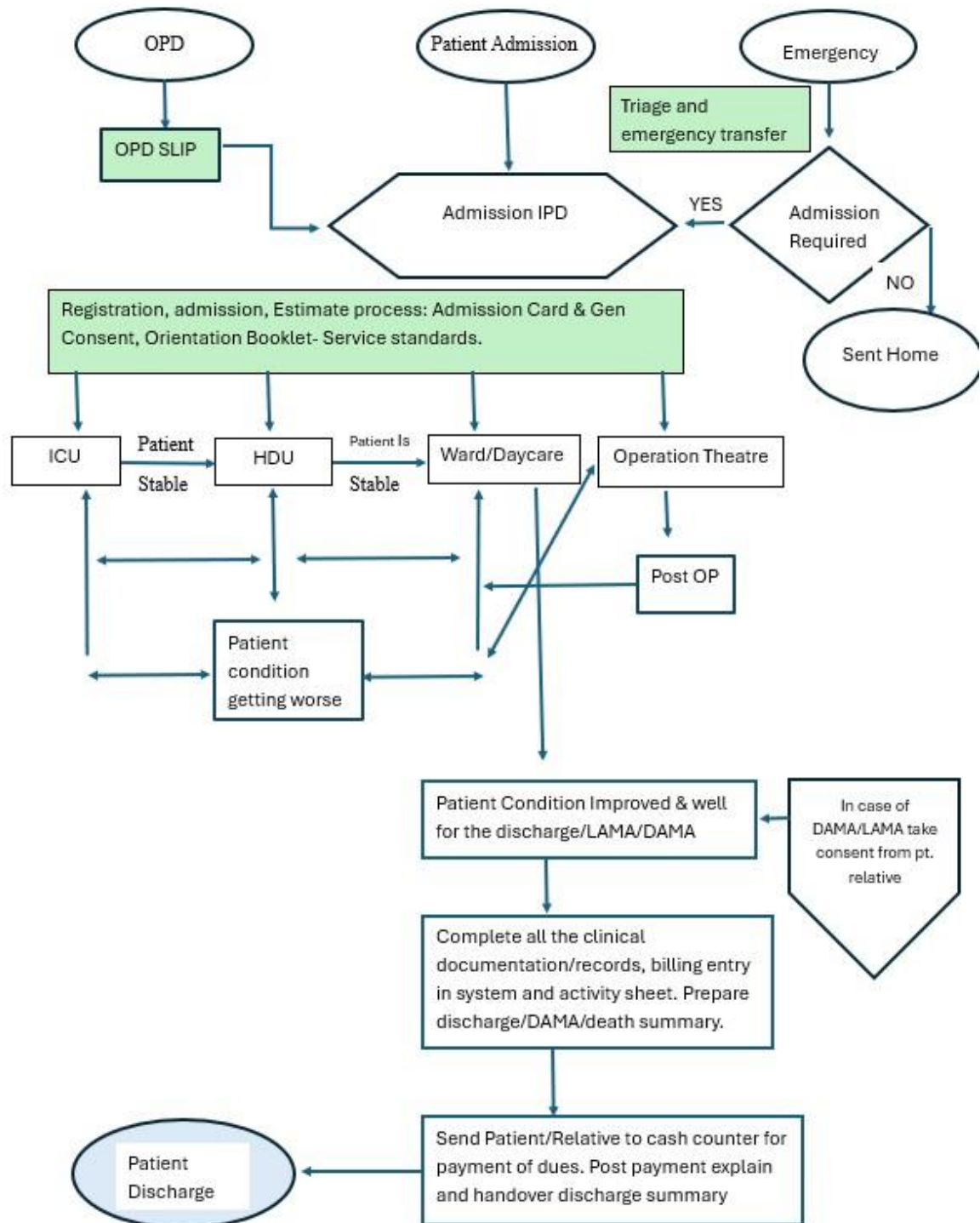


Figure 4.3 Complete patient flow. Source: Hospital manual at Jindal Institute of Medical Sciences

Data was transcribed and tabulated in MS-Excel and imported in SPSS-20, for analysis. Descriptive analysis was carried out on all the TATS. TAT was converted into minutes. The output of descriptive analysis is shown in Table- 4.1.

| S.NO | Descriptive Statics                                                                                                                            | Minimum | Maximum | Average | Standard Deviation |
|------|------------------------------------------------------------------------------------------------------------------------------------------------|---------|---------|---------|--------------------|
| 1    | <b>TAT 1:</b> Time taken for the discharge summary to be delivered from the ward to the in-house TPA department                                | 26      | 885     | 187.11  | 112.17             |
| 2    | <b>TAT 2:</b> Time taken to forward the final Authorization Letter (AL) to the external TPA department                                         | 5       | 112     | 23.06   | 11.89              |
| 3    | <b>TAT 3:</b> Time taken to address and resolve any generated queries                                                                          | 10      | 1200    | 133.86  | 196.40             |
| 4    | <b>TAT 4:</b> Time taken by the external TPA to provide final approval after receiving the AL                                                  | 16      | 1283    | 136.63  | 156.73             |
| 5    | <b>TAT 5:</b> Time taken for the final patient discharge after receiving approval from the external TPA                                        | 30      | 598     | 17.24   | 39.90              |
| 6    | <b>TAT 6:</b> Total time for the discharge process, beginning with the doctor's approval and ending with the patient leaving the clinical unit | 72      | 1500    | 373.57  | 202.19             |

Table 4.1: Descriptive Analysis

**Analysis of queries:** The second objective of this study is to analyze the queries generated by the external TPA from 20<sup>th</sup> March 2024 to 26<sup>th</sup> May 2024. Data is collected through the electronic mail address of the in-house TPA department where the external queries are received. In total, 87 queries were raised by the external TPA to the in-house TPA, during the study. Pareto analysis is done on the collected data, with the help of MS E

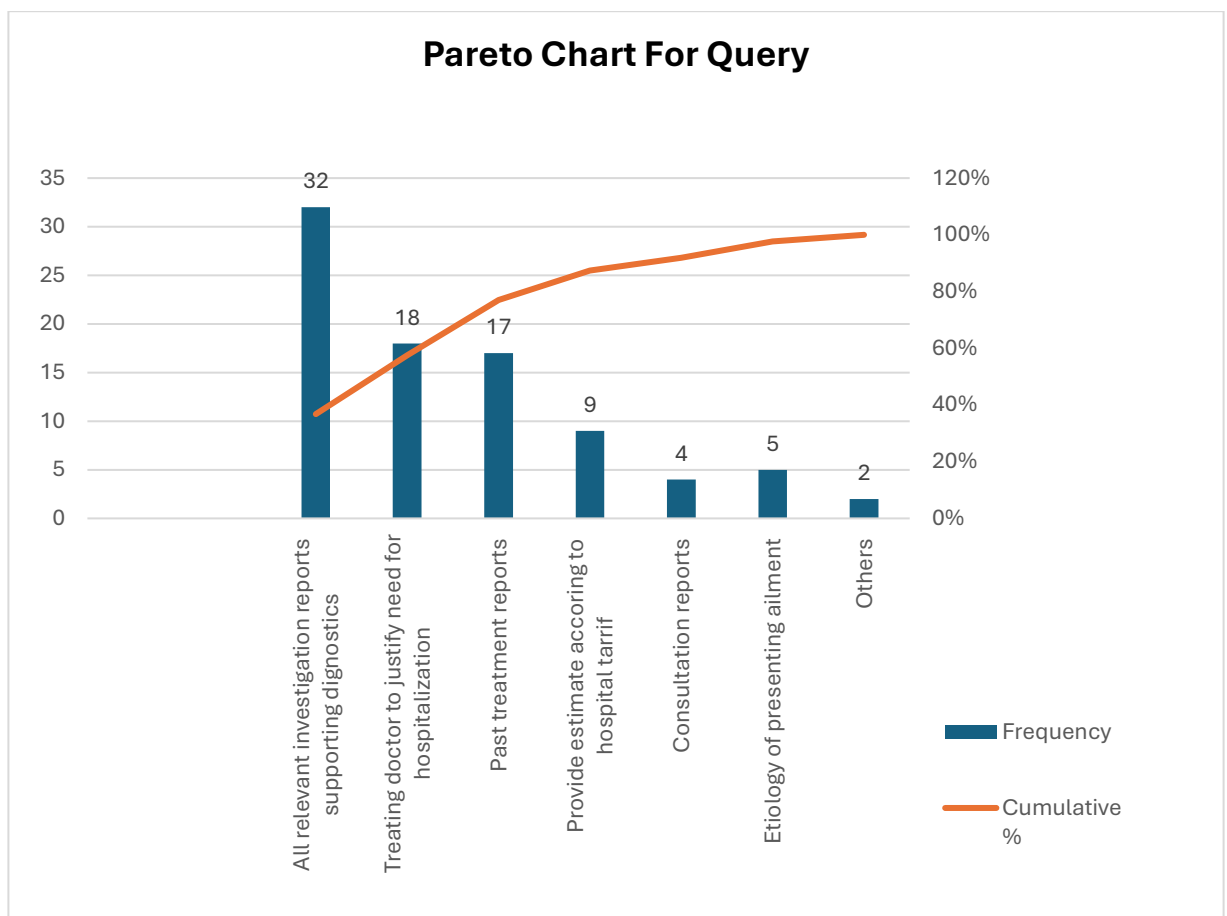


Figure 4.4: Pareto analysis for TPA queries generated

It is found that the top three queries, that are All relevant investigation reports, treating doctor to justify need for hospitalization and past treatment reports account are responsible for 77% of the total query generated by the external TPA as depicted in table 4.2.

| S.NO | Query generated                                           | Percent | Cumulative Percent |
|------|-----------------------------------------------------------|---------|--------------------|
|      | All relevant investigation reports supporting diagnostics | 37      | 37                 |
|      | Treating doctor to justify need of hospitalization        | 21      | 57                 |
|      | Past treatment reports                                    | 20      | 77                 |
|      | Provide estimate according to hospital tariff             | 10      | 87                 |
|      | Consultation report                                       | 5       | 92                 |
|      | Etiology of current ailment                               | 6       | 98                 |
|      | Others                                                    | 2       | 100                |
|      |                                                           |         |                    |
|      | Total                                                     | 87      |                    |

Table 4.2 Cumulative percentage

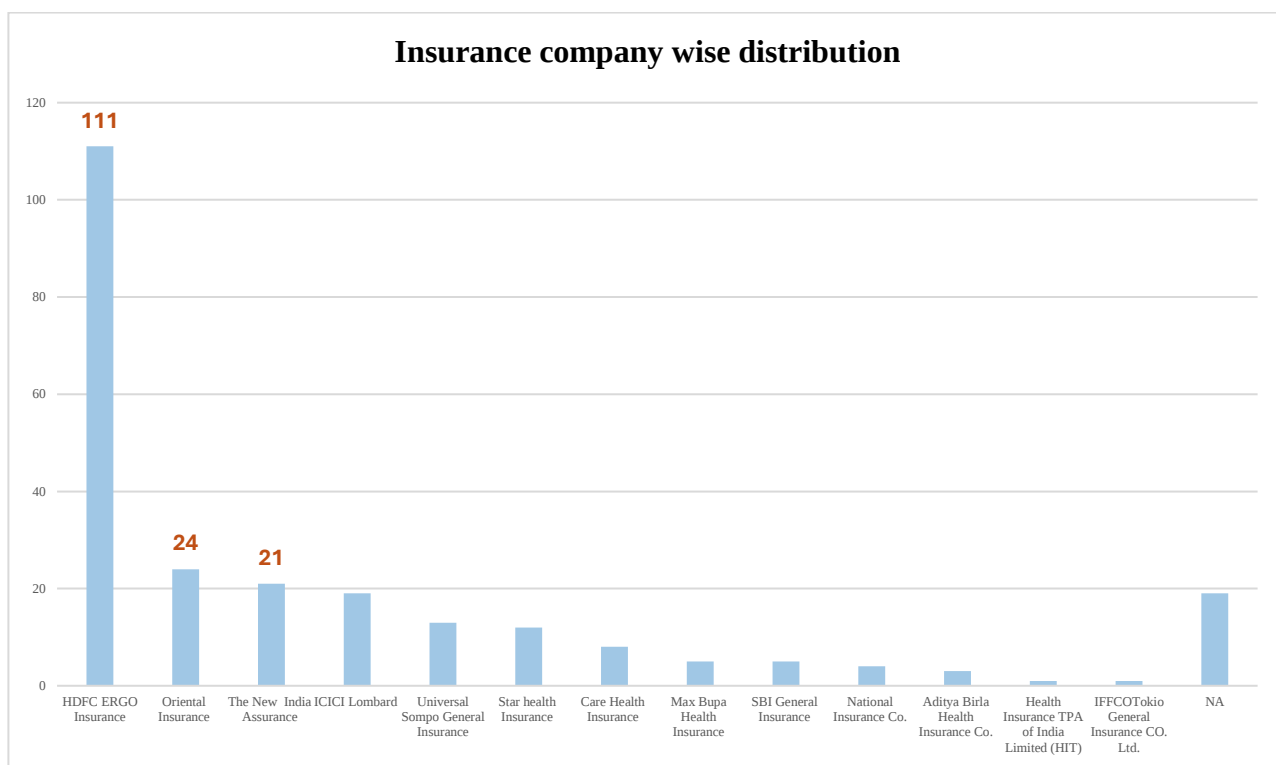


Figure 4.5: Insurance company and their respective cases coming to the in house TPA department

The maximum number of cases were generated from HDFC ERGO Insurance Company (private insurance) followed by Oriental Insurance and the New India Assurance company (GIPSA) .

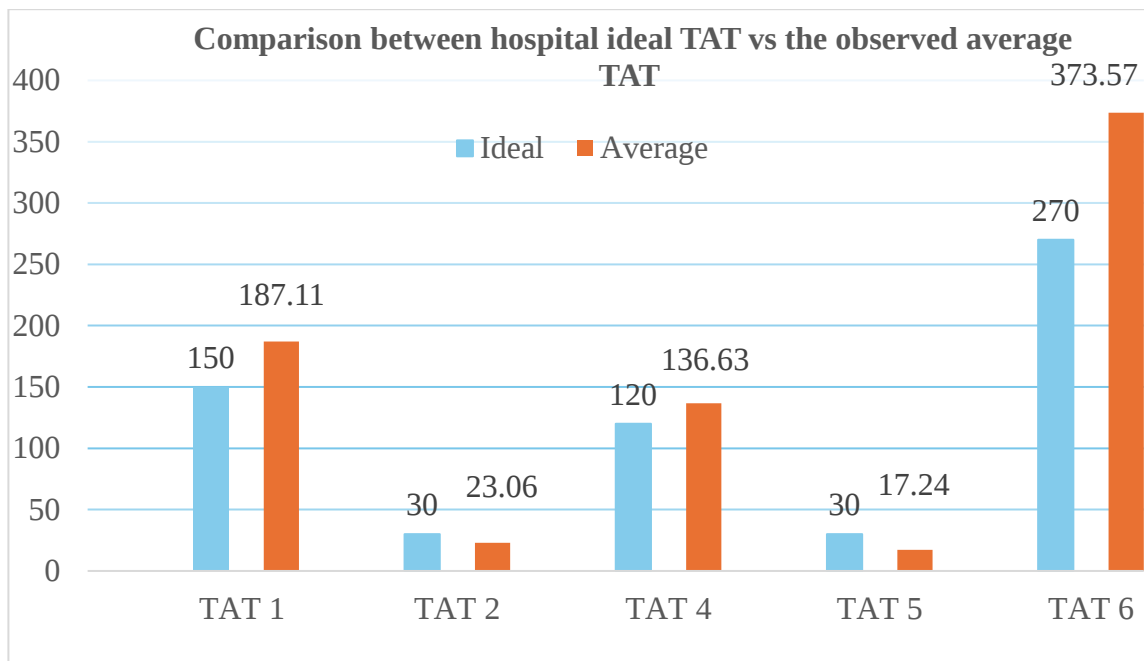


Figure 4.6: Comparison between hospital ideal TAT vs the observed average TAT

While comparing the ideal TAT with the observed TAT we see a significant variation, this is depicted in fishbone diagram discussed further in figure 4.15

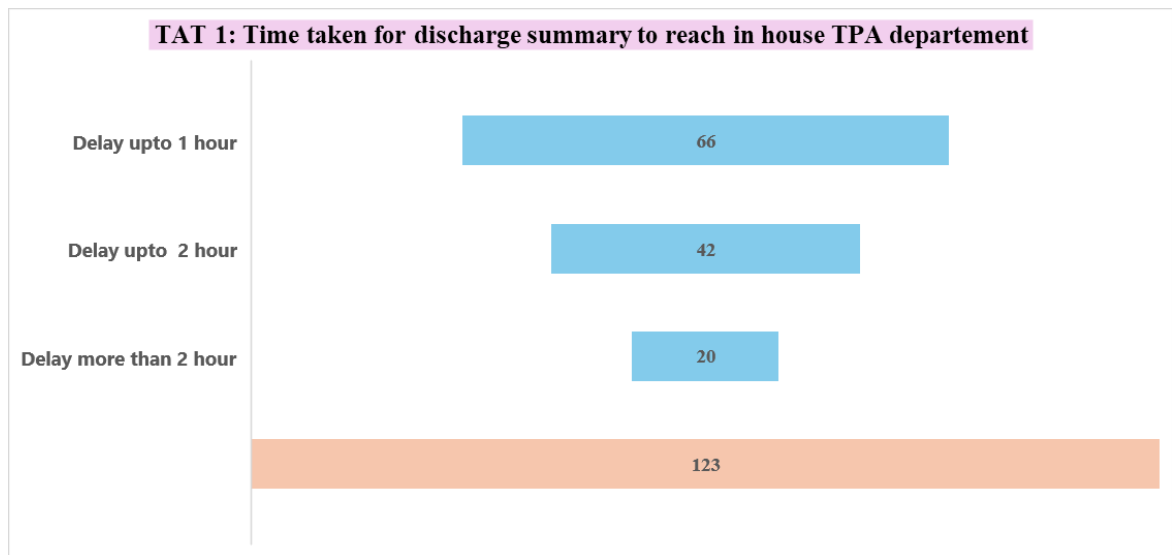


Figure 4.7 : Table depicting time delay for TAT 1

According to the table 4.7, out of the 123 delayed cases, 66 instances (53.65%) experienced delays of up to one hour beyond the ideal time of 150 minutes for the discharge summary to be delivered from the ward to the in-house TPA department. Additionally, 34% of the cases were delayed by 2 hours, and 16% were delayed by more than 2 hours.

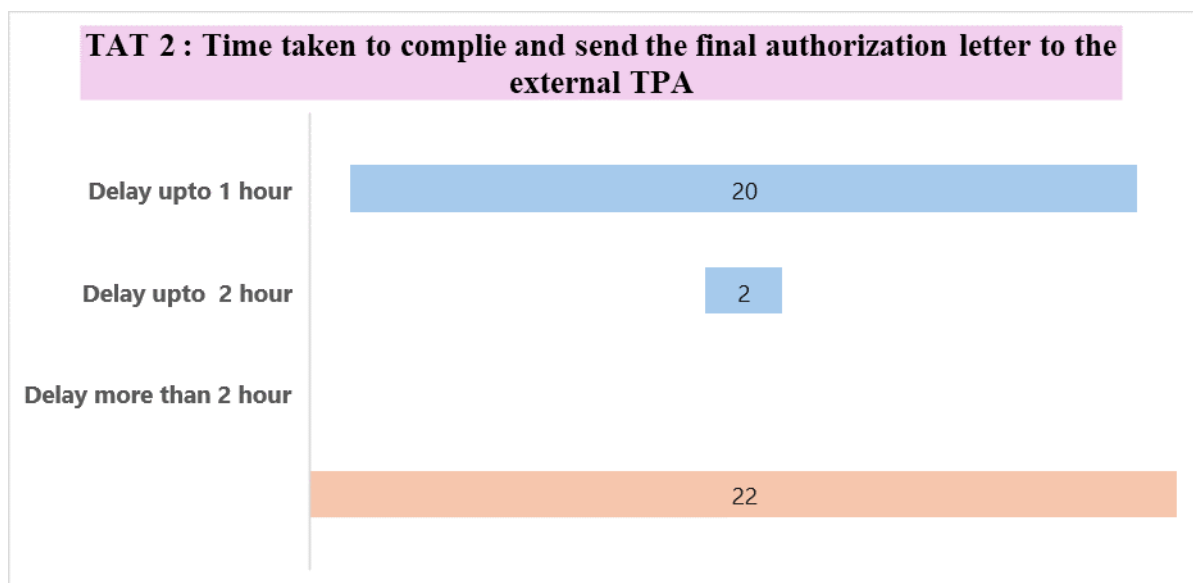


Figure 4.8 : Table depicting time delay for TAT 2

According to table 4.8 out of total 22 delayed cases, 90% experienced delays of up to one hour beyond the ideal time of 30 minutes for compiling and sending the final authorization letter to the external TPA. Additionally, 10% of the cases were delayed by 2 hours.

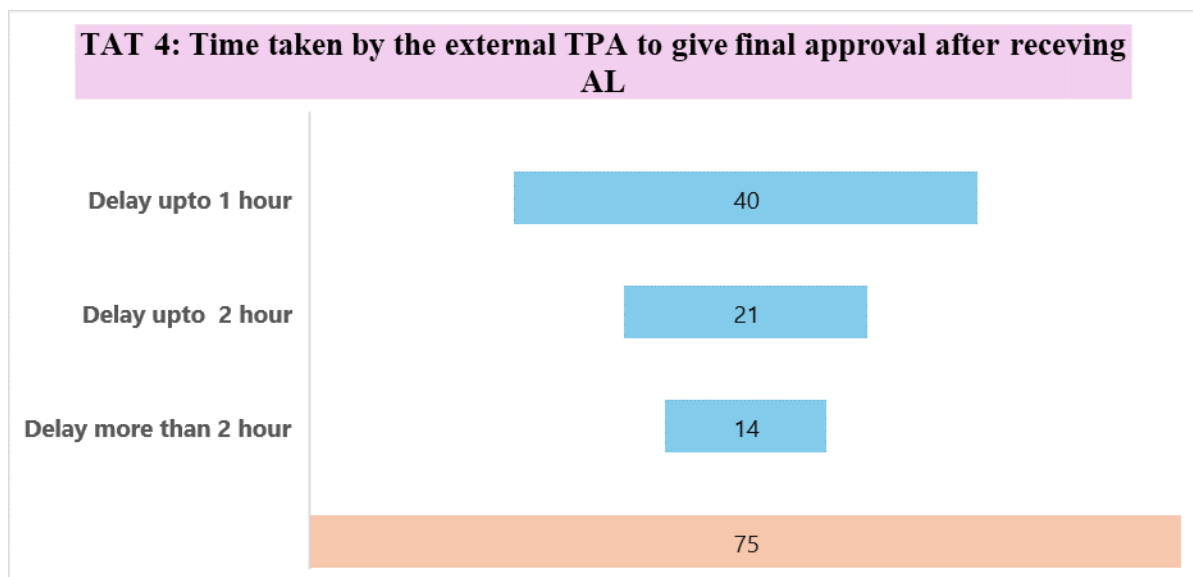


Figure 4.9 : Table depicting time delay for TAT 2

According to the table 4.9, out of total 75 delayed cases, 53% experienced delays of up to one hour beyond the ideal time of 120 minutes to receive approval from external TPA. Additionally, 28% of the cases were delayed by 2 hours and 16% of the cases were delayed by more than 2 hours.

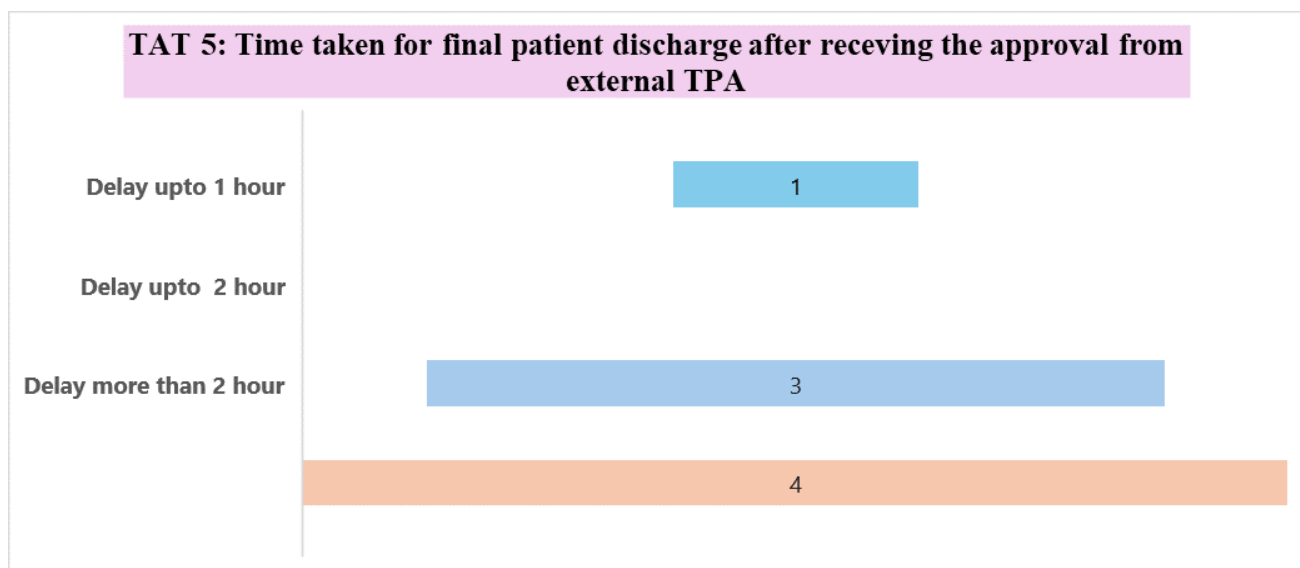


Figure 4.10 : Table depicting time delay for TAT 5

According to table 4.10, out of total 4 delayed cases, 25% experienced delays of up to one hour beyond the ideal time of 30 minutes for final patient discharge after receiving approval letter to the external TPA. Additionally, 75% of the cases were delayed by more than 2 hours.

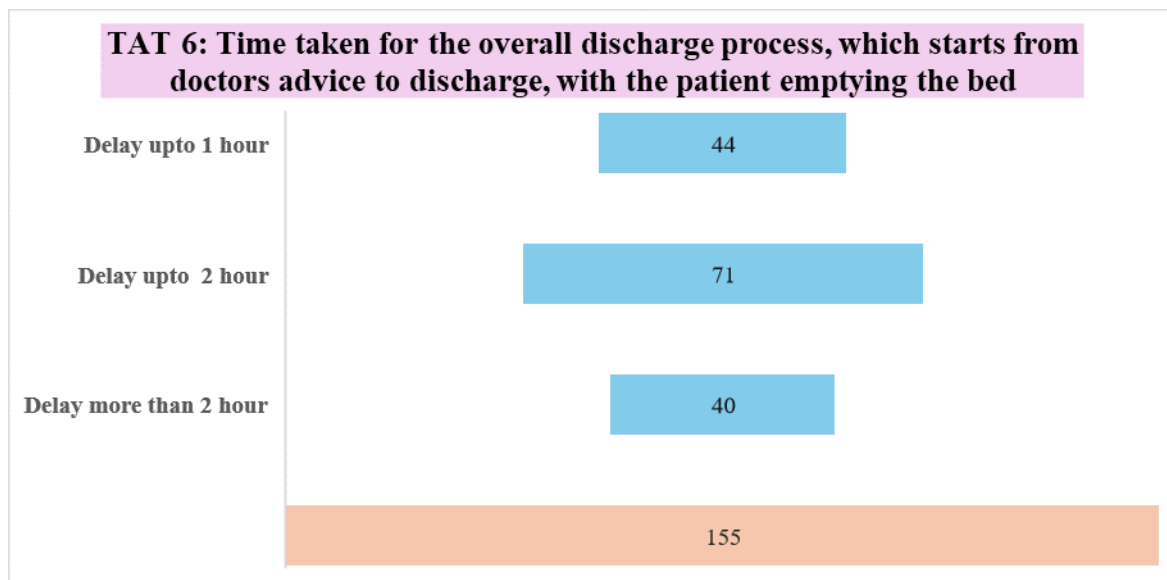


Figure 4.11 : Table depicting time delay for TAT 6

According to Table 4.11, out of a total of **155** delayed cases, 28% experienced delays of up to one hour beyond the ideal time of 270 minutes for the complete discharge process, from the doctor's advice to the final patient discharge. Additionally, 45% of the cases were delayed by up to 2 hours, and 25% were delayed by more than 2 hours.

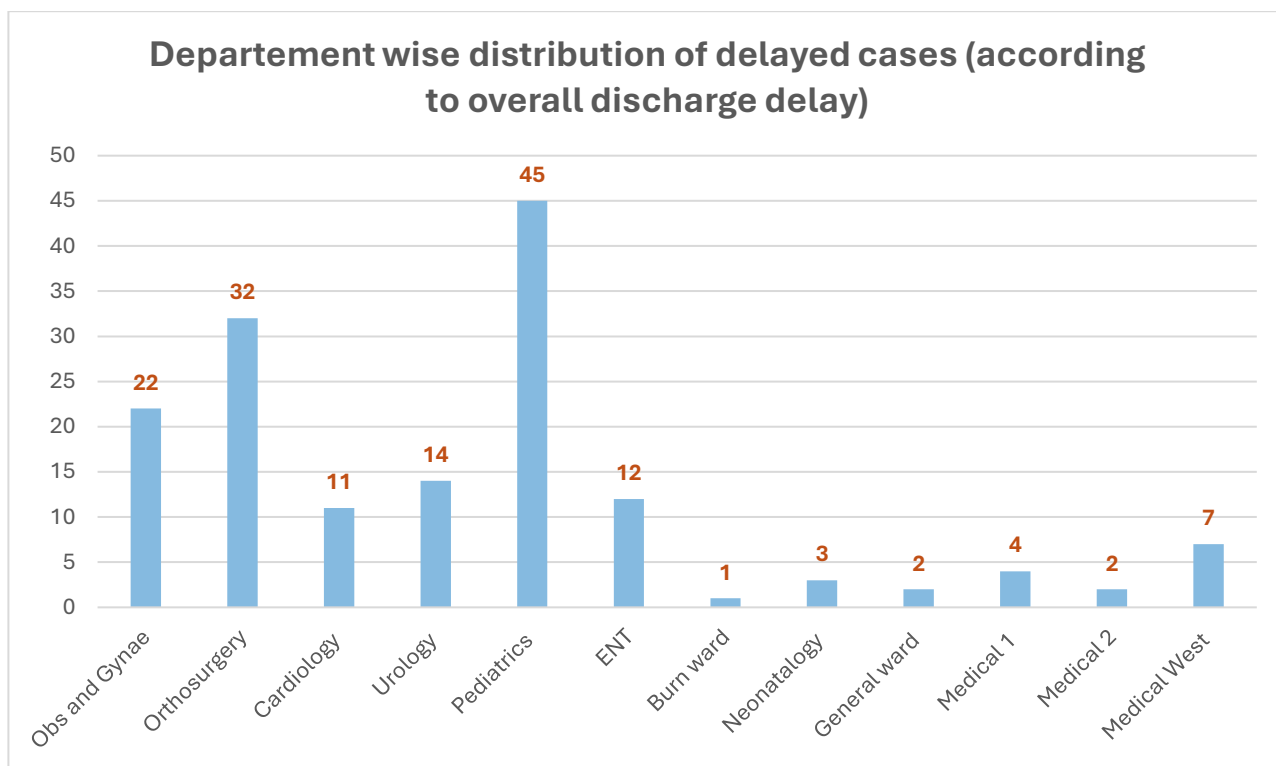


Figure 4.12: Departement wise distribution of delayed cases

According to figure 4.12, the maximum number of delays in the overall discharge process are from Pediatrics, Ortho surgery and Obs and Gynae department of the hospital. Other wards experience fewer delays in overall discharge process.

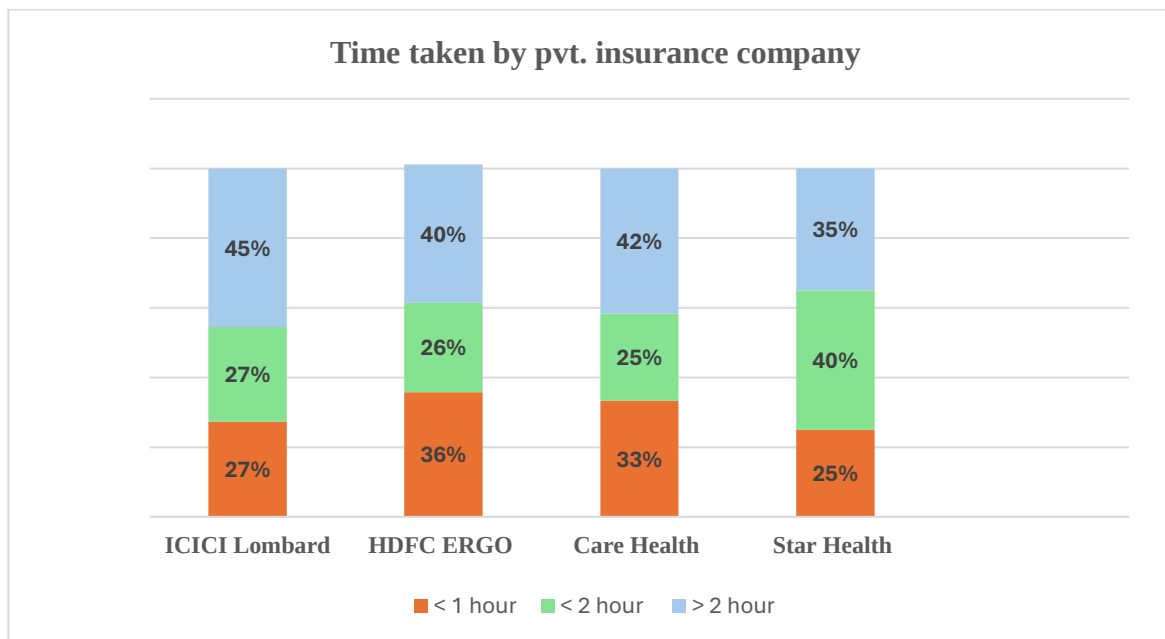


Figure 4.13 Time taken by top private insurance company to send final approval

According to the figure 4.13, 45% of all approvals are received after more than two hours, while 27% of cases receive approval within one hour. This indicates that ICICI Lombard generally takes the longest to send approvals. In comparison, Star Health has 35% of cases receiving approval after more than two hours, and HDFC ERGO sends 36% of approvals within one hour.

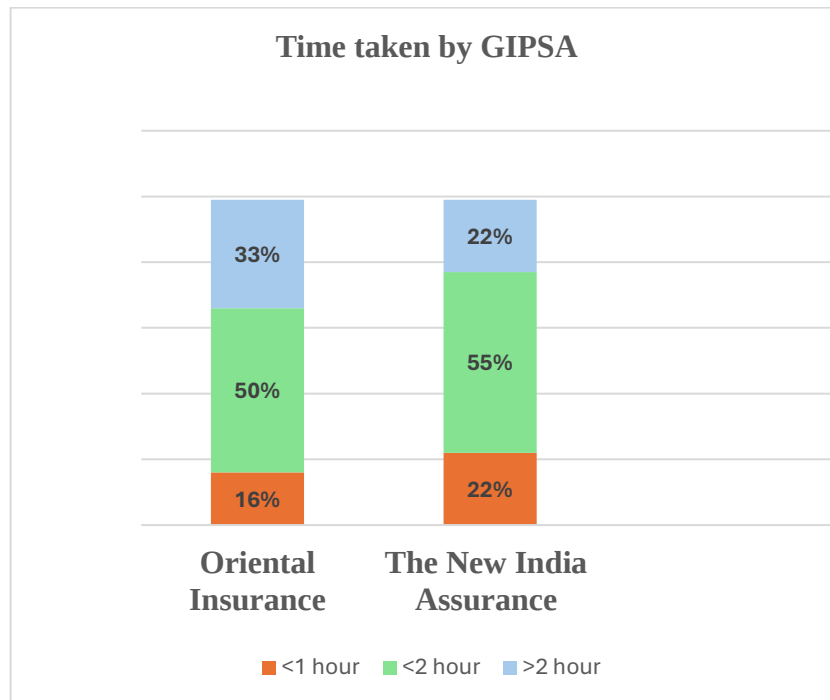


Figure 4.14 Time taken by GIPSA company to send final approval

GIPSA, which includes National Insurance Co. Ltd., New India Assurance Co. Ltd., Oriental Insurance Co. Ltd., and United India Insurance Co. Ltd., represents a negotiated rate or tariff structure with hospitals that public sector insurers have established.

According to the figure 4.14, 50% of all approvals from Oriental Insurance are received within two hours, and 16% are received within one hour. In comparison, New India Assurance approves 22% of cases in less than one hour.

To find out what sub process affects the overall discharge process, Pearson correlation was carried out and is depicted in Table 4.3

|         | <b>TAT 1</b> | <b>TAT 2</b> | <b>TAT 4</b> | <b>TAT 5</b> |
|---------|--------------|--------------|--------------|--------------|
| TAT 6   | 0.353912     | 0.095356     | 0.72199      | 0.44924      |
| p value | .0001        | .153         | .0001        | .0003        |

Table 4.3 : Correlation between TAT 6 and TAT 1,2,4 and 5

$p < .05$ , Hence from the table 4.3 TAT 1, TAT 2, TAT 4 and TAT 5 have strong positive correlation with the TAT 6 i.e. the overall TAT whereas TAT 2 has weak correlation with TAT 6. This shows that, Time taken for the discharge summary to be delivered from the ward to the in-house TPA department (TAT 1), Time taken by the external TPA to provide final approval after receiving the AL (TAT 4), Time taken for the final patient discharge after receiving approval from the external TPA (TAT 5) significantly impact the overall discharge process (TAT 6). Whereas the time taken to forward the final Authorization Letter (AL) to the external TPA department does not a significant impact on overall discharge process.

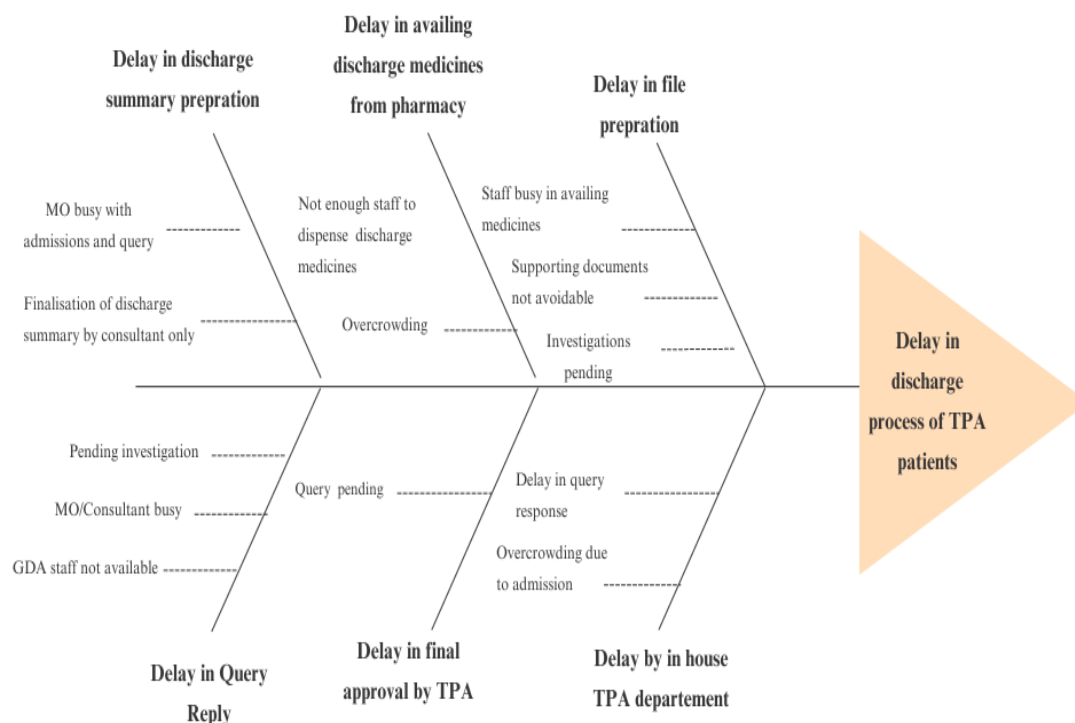


Table 4.15 Fishbone diagram depicting reasons for delay in discharge process of insurance patients

Delays in the discharge process for TPA patients are multifaceted, involving issues at various stages, including discharge summary preparation, medicine dispensation, file preparation, query replies, and TPA approval processes. Each category includes specific causes such as staffing issues, pending investigations, document availability, and high patient volumes. By addressing these underlying causes, the hospital can streamline the discharge process and reduce delays for TPA patients.

## CHAPTER 5: DISCUSSION

From Table 2, we observe a strong positive correlation between the overall discharge process and its sub-processes. Notably, there is a significant positive correlation with TAT 1, which is the time taken for the discharge summary to be delivered from the ward to the in-house TPA department.

Further analysis reveals that TAT 1, representing the time taken for the discharge summary to reach the in-house TPA department, experiences the most significant delay, exceeding two hours in 20% of cases. The reasons for this delay include:

1. Medical Officers (MOs) responsible for creating discharge summaries often oversee multiple wards, leading to delays in typing the summaries on days with numerous discharges.

- 1.1. From the table, we observe that the highest number of cases originate from the Pediatric ward. This is due to a single Medical Officer (MO) being responsible for three wards: Orthopedics, Pediatrics, and Neonatology.

2. There are delays in completing necessary medical investigations. These delays can hold up the discharge process as doctors await the results to finalize the discharge summaries and make informed decisions regarding patient discharge.

3. The process of reviewing, signing, and stamping discharge summaries by doctors is time-consuming, as doctors are frequently in their outpatient departments (OPD) after morning rounds.

4. When doctors review and make corrections to the summaries, the documents must be sent back to the medical transcriptionist. After corrections are made, the summaries require a final review and signature by the doctors, resulting in additional rework and delays.

5. Obtaining discharge medication from the pharmacy is time-consuming, with inpatient department (IPD) staff often waiting in long queues during peak hours.

6. Consultants frequently request last-minute investigations that must be reverified before the discharge can be approved.

7. Lack of specific format of discharge summary

- 7.1 While most wards in the hospital adhere to a standardized format for discharge summaries, certain wards require deviations due to specific instructions or demands from consultants. For example, in the Pediatric ward, Medical Officers (MOs) are required to include a comprehensive patient history in the discharge summary. This additional section, which is not part of the standard format, increases the time and effort needed to complete the discharge documentation. These customized requirements can

lead to inconsistencies and delays in the discharge process, as MOs must tailor the summaries to meet the unique needs of different consultants

8. Obtaining discharge medication from the pharmacy is time-consuming, with inpatient department (IPD) staff often waiting in long queues during peak hours.

9. Consultants frequently request last-minute investigations that must be reverified before the discharge can be approved.

We also observe from Table 2 a positive correlation between the overall discharge process and TAT 4, which measures the time taken by the external TPA to provide final approval after receiving the authorization letter (AL). TAT 4 is considered an external and uncontrollable factor, as it depends on the time the external TPA takes to approve the submitted bill and discharge summary.

Delays often arise due to a communication gap between the in-house TPA department and the external TPA. Additionally, the external TPA may take longer to send approval due to unresolved queries. The observed reasons for delays in query responses include:

1. Unavailability of GDA staff.
2. MOs or consultants being occupied with preparing the discharge summary or attending to OPD duties.
3. Additional time required to arrange documents requested by the external TPA from the ward.

Table 2 also indicates a positive correlation between the overall discharge process and TAT 5, which is the time taken for the final patient discharge after receiving approval from the external TPA. The observed reasons for delays in TAT 5 include:

1. Disruptions in payment for clearing dues on non-medical items.
2. Delays in the patient's preparation for discharge.
3. Late approval by the external TPA.
4. Delays in providing discharge information to the patient's attendant.

## CHAPTER 6: CONCLUSION

Based on the observed data, it is evident that the discharge process is significantly influenced by various time-associated factors. The strong positive correlation between the overall discharge process and sub-processes such as TAT 1, TAT 4, and TAT 5 highlights the areas requiring attention to enhance efficiency.

For reducing the TAT 1, which is the time taken for the discharge summary to be delivered from the ward to the in-house TPA department following things can be implemented,

1. **Assign dedicated MO** for discharge summary preparation for each ward so that discharge summary preparation is always covered, even on days with a high number of planned discharges.
2. **Discharges should be planned.** If a patient is scheduled to be discharged the next day or requires further investigations, this should be communicated the night before. This allows the investigations to be performed first thing in the morning, with samples sent to the lab during the 6 AM slot. Additionally, the MO on night duty should prepare the discharge summary, so it can be reviewed and signed by consultants during their morning rounds.
3. **Implement E-Signature Systems:** Introduce secure electronic signature systems within the EHR to allow doctors to sign, edit or make changes in the discharge summaries remotely and at their convenience.
4. **Management in Pharmacy :** Pharmacy 95, which handles the dispensing of discharge medications for the entire hospital, should distribute this workload among other retail pharmacies within the hospital to ensure efficiency. Initially it will increase the inventory carrying cost but will prove to be beneficial in the long run for the hospital.
5. A communication channel can be established between pharmacy and wards, so that the pharmacy can prepare discharge medicine in advance
6. In pharmacy 95, during peak hours, the staff involved in dispensing of discharge medicine shouldn't get involved to dispense OPD medicine (exceptions can be made under special circumstances)
7. **Create detailed, standardized templates for discharge summaries** that include all necessary sections, such as patient details, diagnosis, treatment given, medications prescribed, and follow-up instructions. By implementing a uniform template across the entire hospital, which accommodates variations like including medical history for specific wards, the process will be significantly streamlined and more efficient.
8. Designate specific times during the day for doctors to review and sign discharge summaries, ensuring minimal interruption to their OPD duties.

9. Create detailed checklists to address the most frequent queries generated by the external TPA. These checklists should be tailored to cover all common areas of concern, ensuring that submissions are thorough and accurate.

10. Regular Audits: Conduct regular audits of the discharge process to identify inefficiencies, compliance issues, and areas for improvement

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