



Summer Internship Report

at

**Fortis Hospital, Greater Noida**

A STUDY OF DISCHARGE PROCESSES &  
METRICS TO OPTIMIZE TURNAROUND TIME  
AT A MULTI- SPECIALTY CARE HOSPITAL

(1<sup>st</sup> May to 1<sup>st</sup> July, 2024)

A Report

By

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### **ACKNOWLEDGEMENT:**

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I am equally thankful to **Dr. Hema(the Medical Superintendent)**, **Mr. Abhishek Singh**, and **Dr. Yasir** for their continuous support and assistance during my internship. They generously shared their knowledge and experiences, helping me to build networks with key professionals and stakeholders in the hospital.

I would also like to express my gratitude to **Dr. Anandhi Ramachandran** for her mentorship, under which this report was prepared.

This internship has been a tremendous learning experience, and I truly appreciate the support and guidance provided by everyone at Fortis Hospital, Greater Noida. I am eager to use the knowledge and skills I've gained in my future endeavours.

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## **ACRONYMS/ABBREVIATION**

**TAT:** Turnaround time

**TPA:** Third Party Administrator

**LAMA:** Leave against medical advice

**ECHS:** Ex- servicemen Contributory Health Scheme

**SWOT:** Strengths, Weaknesses, Opportunities, Threats analysis

**PDCA:** Plan, Do, Check, Act cycle

**MS:** Medical Superintendent

**AMS:** Assistant Medical Superintendent

**ICU:** Intensive Care Unit

**SOP:** Standard Operating Procedure

**CAUTI:** Catheter Associated Urinary Tract Infection

**CLABSI:** Central Line- Associated Blood stream Infection

**NABH:** National Accreditation Board for Hospitals and Healthcare Providers

**ICN:** Infection Control Nurse

**LASA:** Look- alike, Sound-alike drugs

**CQI:** Continuous Quality Improvement

**O&M:** Operations & Maintenance

## **ORGANIZATION PROFILE**

**Fortis Healthcare Limited**, a part of IHH Healthcare Berhad, is a prominent integrated healthcare service provider in India. The company operates 28 healthcare facilities, 4,500+ beds (including O&M facilities), and over 400 diagnostic centers (including joint ventures), making it one of the largest healthcare organizations in India. Fortis has a presence not only in India but also in the UAE, Nepal, and Sri Lanka, and is listed on the BSE Ltd and NSE of India. With the support of its parent company IHH, Fortis focuses on delivering outstanding patient care and maintaining clinical excellence. The company employs approximately 23,000 people (including Agilus Diagnostics Limited) who share its vision of becoming the most trusted global healthcare network. Fortis provides a comprehensive array of healthcare services, ranging from basic clinics to advanced quaternary care and numerous supporting services.

### **Vision**

To create a world-class integrated healthcare delivery system in India, entailing the finest medical skills combined with compassionate patient care.

### **Mission**

To be a globally respected healthcare organisation known for Clinical Excellence and Distinctive Patient Care.

## **OBSERVATIONAL LEARNING**

### **Description of the 2 months internship journey:**

#### **Quality Policy, Procedures, and Functioning of the Quality Department**

Throughout my internship, I gained a deep understanding of the **Quality Policy, procedures, and the functioning of the Quality Department** at Fortis Hospital. The Quality Department plays a critical role in ensuring that the hospital adheres to national and international healthcare standards. The department's core focus is on **patient safety, clinical excellence, and continuous improvement** in healthcare delivery.

The **Quality Policy** includes clear guidelines on patient care, infection control, and risk management, ensuring that all hospital practices align with best practices and regulatory requirements. I learned that the procedures within the Quality Department are designed to monitor performance, conduct audits, manage patient complaints, and implement corrective actions when necessary. The department also plays a vital role in staff training, ensuring that all employees are well-versed in the hospital's quality standards and protocols.

The Quality Department operates through regular audits, performance evaluations, and the collection of patient feedback. It works closely with other hospital departments to maintain and improve the quality of care. The department also ensures that **accreditation standards** are met and provides ongoing support for quality initiatives across the hospital.

This insight into the **functioning of the Quality Department** helped me appreciate the multi-faceted approach used to deliver high-quality, patient-centered care while promoting a culture of safety and continuous improvement.

#### **1. Daily Rounds with the Head of Quality and Department Supervisors**

During my internship at Fortis Hospital, I participated in daily rounds with the **Head of Quality**, my supervisor, as well as professionals from various departments. These rounds were essential for gaining a comprehensive understanding of patient care protocols and the overall functioning of the hospital. Every day, the rounds were conducted to assess patient conditions, identify any potential risks, and ensure that the departments were adhering to the hospital's standard operating procedures (SOPs).

I observed how the **Quality Department** actively monitors care delivery on hospital floors, ensuring that best practices are followed for patient safety. Discussions during these rounds also covered areas for improvement, such as patient care gaps, medication administration errors, and potential delays in treatments. I learned that these rounds are integral to upholding the **quality of care** and continuously improving healthcare practices.

#### **2. Bio-Medical Waste (BMW) Management and Cleanliness**

A significant part of my internship experience was observing and participating in **Bio-Medical Waste (BMW) Management** at the hospital. This process involves the careful segregation, storage, and disposal of bio-medical waste to prevent contamination, spread of infections, and ensure a clean environment in the hospital.

I learned that **BMW management** is an essential component of **infection control practices**, especially in healthcare settings. Fortis Hospital follows strict guidelines for the management of medical waste, with specific bins and containers for different categories of waste (e.g., infectious, sharps, pharmaceuticals). Regular checks were carried out to ensure compliance with these protocols. Additionally, I helped assess the **cleanliness** of various hospital areas to ensure a sanitary environment was maintained.

Monitoring BMW management and cleanliness ensured **alignment with NABH guidelines** for waste management and infection control.

### 3. Death within 48 Hours Protocol and Report Writing

During my internship, I was introduced to the **Death Within 48 Hours Protocol**, which is activated when a patient dies within 48 hours of admission. This protocol involves a comprehensive review of the patient's care journey, including their initial complaint, treatment administered, and the effectiveness of interventions.

I learned how the hospital monitors such cases meticulously and ensures that all treatments and interventions are documented accurately. I was trained to **write detailed reports**, outlining key aspects such as the **chief complaint**, **diagnosis**, and the **treatment modalities** followed. This helped me understand how quality control measures are applied to monitor the effectiveness of healthcare services and identify areas for improvement in patient care.

### 4. Documentation and Review of Standard Operating Procedures (SOPs)

An important aspect of my internship was reviewing and reading the **Standard Operating Procedures (SOPs)** followed at Fortis Hospital. SOPs ensure that healthcare professionals follow consistent practices for maintaining high standards of care. I specifically reviewed SOPs related to **Surgical Site Infections (SSI)**, **Needle Stick Injuries (NSI)**, **Catheter-Associated Urinary Tract Infections (CAUTI)**, **Central Line-Associated Bloodstream Infections (CLABSI)**, **Mechanical Ventilator-Associated Pneumonia (VAP)**, **bed sores**, and **Death Within 48 Hours**.

I learned that SOPs are critical to ensuring the safety of patients and staff. They provide clear guidelines on prevention, treatment, and documentation, reducing the risk of complications and improving overall patient outcomes. Reviewing these protocols allowed me to understand the importance of consistency and clarity in healthcare operations.

### 5. Emergency Code Drills: Code Pink, Code Blue, and Code Red

I participated in several **mock drills** that simulated emergency situations such as **Code Pink** (pediatric emergencies: infant abduction or abduction of child under 1 year of age), **Code Blue** (cardiac or respiratory arrest), and **Code Red** (fire emergencies). These drills were vital in ensuring that hospital staff is prepared to respond swiftly and effectively during actual emergencies.

I observed the hospital's approach to emergency management, from **initial response** to **patient stabilization**. I also noted the importance of **teamwork**, **communication**, and **coordination** across various hospital departments in these high-pressure situations. The mock

drills ensured that all staff members were familiar with their roles and responsibilities during a crisis.

## **6. Code FAST: Acute Stroke Management**

### **Report on Code FAST**

As part of my internship, I documented a Code FAST incident, which is activated when a patient experiences an acute stroke. My report detailed the timeline from the patient's fall to the team's response, including initial stabilization, diagnostic tests (blood tests, CT scan, and MRI), and transfer to the ICU. The report emphasized the criticality of rapid action to minimize disability risks and improve patient outcomes. This hands-on experience enhanced my understanding of stroke management and the importance of timely interventions. Through this experience, I learned about the critical importance of **early intervention** in stroke cases. Quick actions can reduce the chances of long-term disability, and delays in seeking care can lead to worse outcomes. The urgency and systematic approach involved in managing such cases was a crucial learning point during my internship.

## **7. Documentation Audits:**

I actively participated in **documentation audits** across multiple hospital departments. These audits were aimed at **reviewing patient records** to ensure that all **clinical documentation** was complete, accurate, and up-to-date. Audits are a key part of quality control processes in healthcare institutions.

Auditing documentation in hospitals is essential to verify the accuracy, thoroughness, and adherence of medical records to established standards. These audits are crucial for safeguarding patient safety, ensuring compliance with legal and regulatory requirements, and enhancing the overall quality of healthcare services.

Through this process, *I learned how inconsistencies in documentation could lead to miscommunication, errors in treatment, or poor patient outcomes.* I also observed how these audits help identify gaps or errors, which are then addressed through corrective actions and staff training to improve overall patient care.

## **8. Identifying CAUTI and CLABSI Cases with the Infection Control Nurse (ICN)**

During my internship, I worked closely with the **Infection Control Nurse (ICN)** to monitor and identify **Catheter-Associated Urinary Tract Infections (CAUTI)** and **Central Line-Associated Bloodstream Infections (CLABSI)** in hospitalized patients. These infections are common healthcare-associated risks, and early identification is crucial in managing and preventing their spread.

I participated in reviewing patient records to identify potential risk factors for CAUTI and CLABSI. Additionally, I learned how **preventive measures** such as **strict hand hygiene, aseptic techniques during catheter insertion, and proper monitoring** can reduce the incidence of these infections.

## **9. Auditing in the Operating Theater (OT)**

As part of my internship, I was involved in **auditing** the **Operating Theater (OT)**, where both planned and unplanned surgeries are conducted. This involved reviewing patient records, surgical protocols, and ensuring compliance with sterile procedures.

I observed how the hospital conducts regular audits to ensure **patient safety** and **surgical quality**. I learned about the importance of using **surgical checklists** to prevent errors and maintain a high standard of care. The audit also helped ensure that post-operative care protocols were followed and any complications were recorded.

## **10. Basic Life Support (BLS) Training**

I was involved in the **Basic Life Support (BLS) training** sessions conducted for the nursing staff. These training sessions focused on **CPR**, **airway management**, and **early defibrillation**. I learned about the importance of BLS in saving lives, especially in emergency situations.

By participating in these training sessions, I saw first-hand how **continuing education** for healthcare professionals is critical for maintaining competency and ensuring that staff can **respond effectively** in life-threatening situations. The training emphasized the importance of **quick decision-making** and **correct techniques** during medical emergencies.

**11. Counting and crushing the vial bottles of high-risk drugs:** Witnessed Counting and crushing the vial bottles of high-risk drugs in hospitals is a critical process to ensure patient safety, proper medication administration, and adherence to established medical protocols. This was done in the presence of the Nursing Head, Quality Head, and Medical Superintendent (MS) for several important reasons:

1. **Prevention of Medication Errors:** High-risk drugs, such as chemotherapy agents, anticoagulants, or other potent medications, can cause severe side effects or harm if administered incorrectly. The process of counting and crushing these drugs ensures that the correct dosage and medication are being prepared and administered to patients, minimizing the risk of errors.
2. **Ensuring Accurate Dosage:** High-risk medications often require precise measurement and careful handling. Counting and crushing in the presence of key medical personnel ensures the dosage is accurate and that the medication is prepared properly.
3. **Compliance with Protocols:** Hospitals adhere to strict guidelines and safety protocols for handling high-risk drugs. The involvement of the Nursing Head, Quality Head, and MS helps ensure compliance with these protocols, verifying that proper procedures are followed to maintain quality control and patient safety.
4. **Minimizing Cross-Contamination and Risks:** Some high-risk drugs can have dangerous interactions or require special handling (e.g., crushing tablets that might release toxic fumes). The presence of these senior staff members ensures that proper precautions are taken to avoid contamination and protect both patients and healthcare workers.
5. **Quality Control and Accountability:** The involvement of senior healthcare professionals helps to maintain accountability and transparency in the preparation process. This also ensures that there is oversight in the handling of high-risk drugs, further reducing the chance of errors and improving the overall quality of care.

## 12. Medical Records Department (MRD) and Supply Chain Management

I spent time in the **Medical Records Department (MRD)**, where I learned about the management and storage of **patient records**. Proper handling of patient information is essential for ensuring confidentiality and effective care delivery. I also observed the **supply chain management system**, which ensures that necessary **medical supplies**, equipment, and pharmaceuticals are always available to meet patient care needs.

I learned that MRD plays a crucial role in ensuring accurate and timely record-keeping, while supply chain management ensures that the hospital is always equipped with the necessary materials for patient care. Efficient systems in both areas contribute significantly to the overall functioning of the hospital.

## 13. Procedure/Surgical Audits in the MRD Department

I participated in **surgical audits** within the MRD department to ensure that all surgeries were conducted according to protocol and that the documentation was in compliance with hospital standards. Auditing patient records and surgery reports helped **identify discrepancies in documentation** and ensured that patient care was appropriately documented.

I learned that surgical audits not only improve documentation but also enhance patient care by identifying areas for improvement in surgical processes and **post-operative care**.

## 14. ICU Audits: Medication Errors and Patient Files

In the ICU, I was involved in **auditing patient files** to identify any **medication errors** or **gaps** in treatment protocols. I worked with the ICU team to review patient histories, medications administered, and outcomes. This audit helped identify areas where there could be improvements in **medication management** and patient care protocols.

Through this audit, I understood the importance of accurate medication administration, particularly in the high-risk ICU environment, where errors can have serious consequences.

## 15. LASA Drugs (Look-Alike, Sound-Alike Drugs)

I learned about the risks associated with **LASA drugs** (Look-Alike, Sound-Alike drugs). These drugs, due to their similar names or appearances, are prone to errors in administration. I observed how the hospital ensures that **LASA drugs** are **carefully stored, clearly labelled, and separated** to minimize the chances of medication errors.

I learned that proper labelling, clear communication among staff, and double-checking medications are essential to preventing LASA-related errors.

## 16. Emergency Department Audit

I participated in an **Emergency Department (ED) audit** that focused on patient flow, **response times**, and quality of care during emergencies. I observed the triage process, where patients are quickly assessed and prioritized based on the severity of their condition. The audit aimed to ensure that patients receive prompt and appropriate care in emergency situations.

This experience highlighted the importance of **quick response times** in the ED and the need for **well-trained staff** to handle critical cases efficiently.

## 17. Crash Cart Checklist Audit:

A **crash cart checklist** is a comprehensive inventory used in hospitals and healthcare settings to ensure that the emergency crash cart is properly stocked and ready for use at all times. A crash cart is a mobile unit equipped with the essential supplies and medications required to respond to medical emergencies, such as cardiac arrests or respiratory distress.

### Components of a Crash Cart Checklist

1. **Emergency Medications:**
  - Adrenaline (epinephrine), atropine, amiodarone, naloxone, and other life-saving drugs.
  - Drugs for cardiac arrest, anaphylaxis, and severe hypotension.
2. **Airway Management Supplies:**
  - Endotracheal tubes, laryngoscopes, bag-valve-mask (BVM), oxygen masks, and nasal cannulas.
3. **Defibrillator:**
  - Fully functional defibrillator with charged batteries and appropriate paddles or pads.
4. **IV Supplies:**
  - IV catheters, syringes, needles, and saline or dextrose solutions.
5. **Cardiac Monitoring Supplies:**
  - ECG leads, electrodes, and a portable ECG monitor.
6. **Basic Emergency Equipment:**
  - Suction devices, glucometers, and pulse oximeters.
7. **Documentation Tools:**
  - Code blue documentation forms, drug dosage charts, and reference protocols.
8. **Miscellaneous Items:**
  - Scissors, clamps, adhesive tape, gloves, and antiseptic wipes.

### Purpose of the Checklist

1. **Readiness:** Ensures the cart is fully stocked and functional for emergencies.
2. **Accountability:** Helps staff verify the availability of necessary supplies regularly.
3. **Safety:** Minimizes delays and errors during emergency interventions.
4. **Compliance:** Adheres to hospital policies and regulatory standards, such as NABH or JCI guidelines.

### Regular Audits:

Crash cart checklists are audited periodically by clinical pharmacists, nurses, or the quality team to replenish expired or used items and maintain equipment functionality. This ensures the cart is always prepared to deliver immediate, life-saving care.

## 18. Discharge Audit

Lastly, I participated in **discharge audits**, which involved reviewing patient discharge documents to ensure that they are complete and accurate. The audit checks that patients are provided with appropriate post-discharge instructions, prescriptions, and follow-up care recommendations.

I learned that thorough discharge planning is essential for preventing **readmissions** and ensuring that patients have a smooth recovery process after leaving the hospital.

### **Mode of Data Collection:**

1. **Direct Observations:**  
Observing daily activities, procedures, and protocols in various departments, including ICU, OT, Emergency, and Quality Management.
2. **Interviews and Interactions:**  
Discussions with supervisors, nursing staff, infection control officers, and quality team members to understand workflows, challenges, and compliance measures.
3. **Document Audits:**  
Reviewing patient files, discharge summaries, infection control reports, and SOPs to identify gaps and ensure adherence to protocols.
4. **Participation in Mock Drills:**  
Actively engaging in emergency mock drills such as Code Pink, Code Blue, and Code Red to evaluate staff preparedness and response times.
5. **Report Writing and Review:**  
Drafting reports on incidents like Code FAST and death within 48 hours, followed by reviews and feedback from supervisors.
6. **Audits and Checklists:**  
Conducting departmental audits (e.g., crash cart, emergency department, BMW management) using standardized checklists to ensure quality and safety compliance.

### **General Findings on Learning – Department-wise Observations**

#### *1. Quality Department*

- **Critical Factors:**
  - Inconsistencies in documentation practices across departments.
  - Need for more frequent audits to identify and rectify compliance gaps.
- **Observation:**  
Daily rounds revealed areas requiring improvement in cleanliness, infection control, and staff adherence to SOPs.

#### *2. ICU*

- **Critical Factors:**
  - High-risk of medication errors and infections like CAUTI and CLABSI.
  - Documentation gaps in patient monitoring charts and medication records.
- **Observation:**  
Detailed audits helped in identifying areas needing stricter aseptic techniques and better staff training.

### *3. Operating Theatre (OT)*

- **Critical Factors:**
  - Challenges in ensuring timely availability of resources during unplanned surgeries.
  - Need for stricter compliance with preoperative and postoperative protocols.
- **Observation:**

Audits emphasized the importance of standardized surgical safety checklists for planned and unplanned cases.

### *4. Emergency Department*

- **Critical Factors:**
  - Inadequate triage documentation.
  - Delays in emergency care workflows affecting patient outcomes.
- **Observation:**

Auditing improved patient flow and minimized delays during critical emergencies.

### *5. Infection Control Unit*

- **Critical Factors:**
  - Underreporting of healthcare-associated infections (HAIs).
  - Insufficient training on aseptic techniques for staff.
- **Observation:**

Identification of CAUTI and CLABSI cases highlighted the importance of regular monitoring and prompt corrective actions.

## **Section 4: Conclusive Learning**

### **1) Importance of Compliance:**

Adhering to NABH standards is vital for maintaining quality care and patient safety.

### **2) Role of Documentation:**

Accurate and comprehensive documentation plays a critical role in audits, quality monitoring, and medico-legal cases.

### **3) Preparedness and Training:**

Regular training sessions and mock drills improve staff readiness to handle emergencies effectively.

### **4.1 Limitations:**

#### **1) Time Constraints:**

Limited time in each department restricted a deeper exploration of all processes.

#### **2) Access to Information:**

Confidentiality policies limited access to certain patient files and critical decision-making processes.

### **3) Staff Resistance:**

Resistance to audits and feedback from some staff affected the pace of quality improvement initiatives.

## **4.2 Suggestions for Improvement:**

### **1) Strengthening Training Programs:**

Conduct regular refresher courses for staff on infection control, medication safety, and emergency response protocols.

### **2) Enhanced Use of Technology:**

Implement digital tools for real-time documentation, tracking of HAIs, and audit processes to minimize human errors.

### **3) Regular Feedback Mechanisms:**

Establish feedback loops to ensure that audit findings lead to actionable improvements and compliance.

### **4) Focus on Interdepartmental Collaboration:**

Promote collaboration among departments to streamline workflows and improve patient outcomes.

### **5) Dedicated Audit Teams:**

Form dedicated teams for frequent and detailed audits to ensure continuous compliance and accountability.

## **Project Report**

### **A study of Discharge processes and metrics to optimize Turnaround time**

#### **Section 1: Introduction to Discharge audit:**

- A discharge audit refers to the systematic review or examination of the discharge process of patients leaving a hospital post treatment.
- The primary purpose of discharge audit is to assess the quality, efficiency and Compliance of the discharge process against the quality standards and protocols.

#### **1.1 Importance of an efficient discharge in a hospital:**

**1) Enhancing patient experience:** A swift discharge is crucial for ensuring a positive experience for patients, leading to higher patient satisfaction and improved outcomes.

**2) Hospital Operations:** Efficient discharges contribute to better bed management, reducing waiting times and overall operational effectiveness.

**3) Financial implications:** Streamlining the discharge process can lead to cost savings and improved resource allocation.

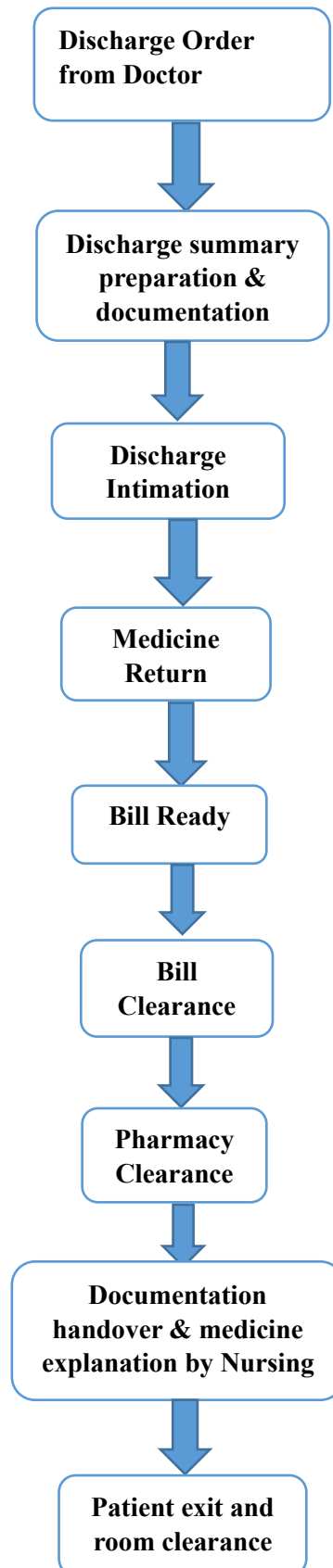
#### **Current challenges in Discharge Turnaround Time:**

- **Average Discharge time:** Analysis reveals that the average discharge times for Cash and TPA Patients are significantly higher than the standard, impacting patient flow and satisfaction.
- **Bottlenecks and delays:** Identification of common bottlenecks and delays in the discharge process is essential for devising target improvement strategies.
- **Patient feedback:** Insights from patient feedback can help in improvement, guiding the focus of quality enhancement initiatives.

#### **Defined TAT for patients in tertiary care hospital as per the SOP (Standard Operating Procedure):**

- TAT For TPA Patients: **240 minutes**
- NON TPA/ Cash/ Gov. / Panel Patients: **90 minutes**

**Discharge Process:**



### 1.2 Objectives of the study:

- To analyze the current discharge process and identify factors contributing to delays in achieving the standard turnaround time (TAT) for Cash and TPA patients.
- To evaluate the discharge metrics and measure their alignment with the hospital's established standards.

### Section 2: Mode of data collection

The mode of data collection for this study involves a **time-motion observational study** using pre-designed **audit sheets** to record step-wise turnaround time (TAT) for each stage of the discharge process. Data has been gathered by **directly observing inpatient discharges**, supplemented by information from the **Hospital Information System (HIS)**. **Interviews with staff** involved in the discharge process and **patient feedback** has also been collected to identify inefficiencies and bottlenecks. Additionally, **document reviews** will verify compliance with established hospital standards.

### Section 3: Methodology

#### • Study Design

The study employs an **observational time-motion study** approach, focusing on analyzing the discharge process for **Cash and TPA patients**. It aims to measure turnaround time (TAT) for each step in the discharge workflow and identify bottlenecks and inefficiencies.

#### • Data Collection Tool

A **pre-designed audit sheet** was utilized to record detailed, step-by-step TAT data for all discharge processes. This tool ensures comprehensive and standardized data collection across all observed cases.

#### Improvement Framework

The study incorporates the **Plan-Do-Check-Act (PDCA) Cycle** to monitor and enhance the effectiveness of improvement measures.

- **Plan:** Identify the specific stages of delay and formulate strategies for improvement.
- **Do:** Implement the identified strategies for improvement in the discharge process.
- **Check:** Measure the outcomes and compare them against hospital standards.
- **Act:** Standardize successful interventions and refine processes as needed.

#### • Study Population

The study population includes **inpatients** undergoing the discharge process.

#### • Sample Size and Sampling Method:

- **Sample Size:** Data from **72 discharge cases** were analyzed.
- **Sampling Method:** **Convenience sampling** is employed, focusing on easily accessible cases while ensuring representative diversity in patient categories.

#### • Exclusion Criteria:

- Patients classified as **LAMA** (Leave against Medical Advice).
- **Expired patients.**

- Patients undergoing **day-care procedures**.

### • Mode of Study:

Data was collected through **direct observation** of the discharge process, supplemented by relevant information from the hospital's **Hospital Information System (HIS)**. Each step of the discharge process was carefully monitored to ensure accurate recording of TAT metrics.

### Section 3: Data findings and interpretation:

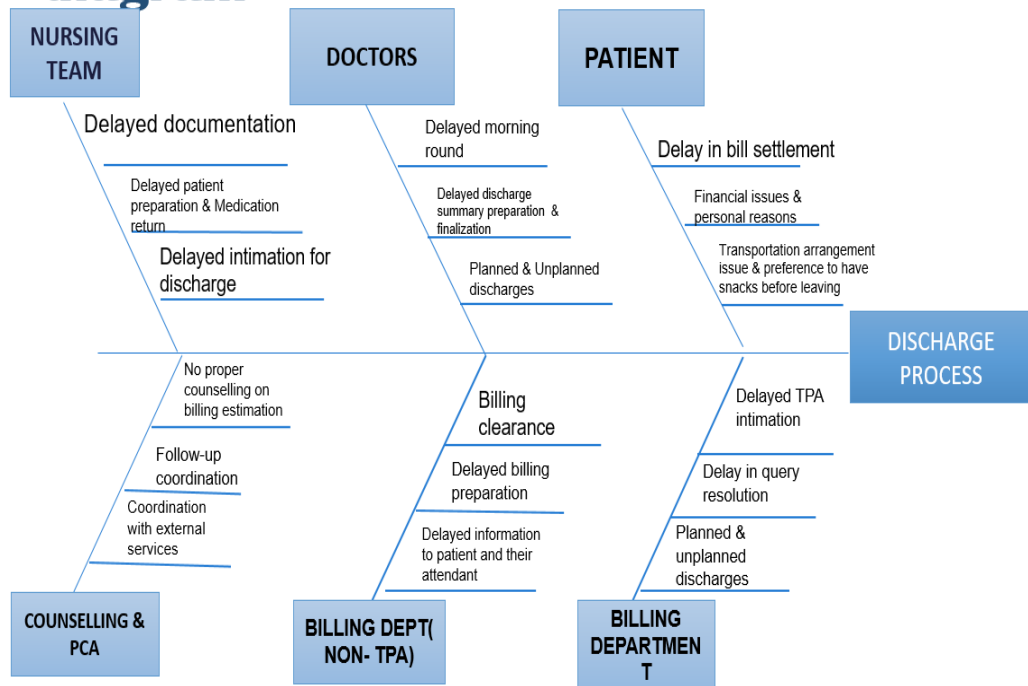
| Sl. No. | Hospital Name                  | Patient Name | Episode No.  | IBED    | Planned / Unplanned Discharge | Episode Type | Date of Admission    | Time of Admission | Ward     | Bed Name   | Payer Type         | LOS | Primary Consultant       |
|---------|--------------------------------|--------------|--------------|---------|-------------------------------|--------------|----------------------|-------------------|----------|------------|--------------------|-----|--------------------------|
| 1       | Fortis Hospital, Greater Noida |              | 250294244001 | 1.2E+07 | Unplanned Discharge           | IPD          | *****                | 1:46:29 PM        | WARD 6TH | 607 Single | CGHS               |     | 31 Dr.Atampreet Singh    |
| 2       | Fortis Hospital, Greater Noida |              | 250294244001 | 1.2E+07 | Unplanned Discharge           | IPD          | *****                | 1:27:21 PM        | WARD 6TH | 643        | ECHS               |     | 23 Dr.Apurva Pande       |
| 3       | Fortis Hospital, Greater Noida |              | 250547244001 | 375094  | LAMA                          | IPD          | Sunday, May 19, 2024 | 11:11:11 AM       | WARD 6TH | 617        | Domestic Insurance |     | 13 Dr.Dinesh Kumar       |
| 4       | Fortis Hospital, Greater Noida |              | 250547244001 | 375094  | LAMA                          | IPD          | Sunday, May 19, 2024 | 6:18:46 PM        | WARD 6TH | 647        | CGHS               |     | 15 Dr.Dinesh Kumar       |
| 5       | Fortis Hospital, Greater Noida |              | 250607244001 | 1.3E+07 | Planned Discharge             | IPD          | *****                | 5:09:43 PM        | WARD 6TH | 641        | Domestic Insurance |     | 15 Dr.Rajesh Kumar Gupta |
| 6       | Fortis Hospital, Greater Noida |              | 250607244001 | 1.3E+07 | Planned Discharge             | IPD          | *****                | 6:31:41 PM        | WARD 6TH | 645        | ECHS               |     | 22 Dr.Dinesh Kumar       |
| 7       | Fortis Hospital, Greater Noida |              | 308294244001 | 1.3E+07 | Unplanned Discharge           | IPD          | *****                | 11:34:12 AM       | WARD 6TH | 638        | CGHS               |     | 14 Dr.Dinesh Kumar       |
| 8       | Fortis Hospital, Greater Noida |              | 308294244001 | 1.3E+07 | Unplanned Discharge           | IPD          | *****                | 8:45:30 PM        | WARD 6TH | 642        | ECHS               |     | 18 Dr.Rajesh Kumar Gupta |
| 9       | Fortis Hospital, Greater Noida |              | 308412444001 | 1.3E+07 | Planned Discharge             | IPD          | Friday, May 24, 2024 | 6:19:43 AM        | WARD 6TH | 646        | ECHS               |     | 11 Dr.Dinesh Kumar       |
| 10      | Fortis Hospital, Greater Noida |              | 308032444001 | 1.3E+07 | Planned Discharge             | IPD          | Friday, May 24, 2024 | 1:10:25 PM        | WARD 6TH | 609        | Cash               |     | 17 Dr.Alok Kumar Dubey   |
| 11      | Fortis Hospital, Greater Noida |              | 308432444001 | 1.3E+07 | Unplanned Discharge           | IPD          | Friday, May 24, 2024 | 2:50:39 PM        | WARD 6TH | 644        | ECHS               |     | 9 Dr.Sarika Bansal IOSPL |
| 12      | Fortis Hospital, Greater Noida |              | 308602244001 | 1.3E+07 | Unplanned Discharge           | IPD          | Friday, May 24, 2024 | 4:23:04 PM        | WARD 6TH | 603        | CGHS               |     | 10 Dr.Arjun Dhyani IOSPL |
| 13      | Fortis Hospital, Greater Noida |              | 311742444001 | 1.3E+07 | Unplanned Discharge           | IPD          | *****                | 5:17:20 PM        | WARD 6TH | 630        | ECHS               |     | 18 Dr.Rajesh Kumar Gupta |
| 14      | Fortis Hospital, Greater Noida |              | 311942444001 | 1.3E+07 | Planned Discharge             | IPD          | *****                | 9:33:01 PM        | WARD 6TH | 630        | Cash               |     | 16 Dr.PRASHANT AGARWAL   |
| 15      | Fortis Hospital, Greater Noida |              | 312032444001 | 1.3E+07 | Planned Discharge             | IPD          | *****                | 6:25:33 PM        | WARD 6TH | 631        | ECHS               |     | 11 Dr.PRASHANT AGARWAL   |
| 16      | Fortis Hospital, Greater Noida |              | 313062444001 | 1.3E+07 | Planned Discharge             | IPD          | *****                | 9:53:46 AM        | WARD 6TH | 613        | ECHS               |     | 7 Dr.Sharad Goswami      |
| 17      | Fortis Hospital, Greater Noida |              | 314232444001 | 1.3E+07 | Planned Discharge             | IPD          | *****                | *****             | WARD 6TH | 614-Single | CGHS               |     |                          |

| Discharge Initiation Date | Discharge Initiation Time | IP Pharmacy Clearance | TAT for IP Pharmacy Clearance | Main Consignment Store Clearance | TAT for Main Consignment Store Clearance | Medical Consumable Store Clearance | TAT for Consumable Store Clearance | TAT for Pharmacy Clearance | Average time taken for Discharge | Financial Disch | Bill Ready | Bill Clearance | Physically moved time |
|---------------------------|---------------------------|-----------------------|-------------------------------|----------------------------------|------------------------------------------|------------------------------------|------------------------------------|----------------------------|----------------------------------|-----------------|------------|----------------|-----------------------|
| 1                         | 3-Jun-2024                | 15:53:17              | *****                         | 00:02:23                         | *****                                    | 00:02:45                           | 01-Jun-2024 04:01 PM               | 00:02:38                   | 00:02:32                         | *****           | *****      | *****          | 5:54:17 PM            |
| 2                         | 3-Jun-2024                | 11:20:35              | *****                         | 00:03:39                         | 06-Jun-2024 11:30 AM                     | 00:10:16                           | 06-Jun-2024 11:32 AM               | 00:06:56                   | 00:06:16                         | *****           | *****      | *****          | 11:54:02 AM           |
| 3                         | 3-Jun-2024                | 12:22:03              | *****                         | 00:14:38                         | 01-Jun-2024 12:38 PM                     | 00:16:24                           | 01-Jun-2024 12:22 PM               | 00:00:44                   | 00:11:35                         | *****           | *****      | *****          | 4:22:44 PM            |
| 4                         | 3-Jun-2024                | 12:32:36              | *****                         | 00:06:10                         | *****                                    | 00:06:23                           | 03-Jun-2024 12:37 PM               | 00:04:46                   | 00:05:48                         | *****           | *****      | *****          | 1:51:40 PM            |
| 5                         | 4-Jun-2024                | 17:40:44              | *****                         | 00:04:21                         | *****                                    | 00:04:52                           | 04-Jun-2024 05:44 PM               | 00:04:12                   | 00:04:28                         | *****           | *****      | *****          | 3:59:00 PM            |
| 6                         | 4-Jun-2024                | 12:51:36              | *****                         | 00:01:17                         | 11-Jun-2024 12:53 PM                     | 00:01:46                           | 11-Jun-2024 12:53 PM               | 00:01:39                   | 00:01:34                         | *****           | *****      | *****          | 1:05:15 PM            |
| 7                         | 5-Jun-2024                | 12:56:10              | *****                         | 00:13:57                         | 05-Jun-2024 01:16 PM                     | 00:19:32                           | 05-Jun-2024 12:57 PM               | 00:01:23                   | 00:16:36                         | *****           | *****      | *****          | 1:32:27 PM            |
| 8                         | 10-Jun-2024               | 17:32:37              | *****                         | 00:01:09                         | *****                                    | 00:01:12                           | 10-Jun-2024 06:36 PM               | 00:02:34                   | 00:01:38                         | *****           | *****      | *****          | 5:58:36 PM            |
| 9                         | 4-Jun-2024                | 13:19:53              | *****                         | 00:11:09                         | 04-Jun-2024 01:31 PM                     | 00:11:32                           | 04-Jun-2024 01:26 PM               | 00:05:28                   | 00:05:21                         | *****           | *****      | *****          | 2:06:37 PM            |
| 10                        | 10-Jun-2024               | 14:50:57              | *****                         | 00:02:41                         | *****                                    | 00:03:12                           | 10-Jun-2024 03:03 PM               | 00:12:10                   | 00:06:02                         | *****           | *****      | *****          | 3:17:25 PM            |
| 11                        | 2-Jun-2024                | 13:59:16              | *****                         | 00:03:45                         | *****                                    | 00:03:51                           | 02-Jun-2024 01:53 PM               | 00:03:32                   | 00:03:43                         | *****           | *****      | *****          | 2:10:17 PM            |
| 12                        | 3-Jun-2024                | 11:45:11              | *****                         | 00:14:02                         | *****                                    | 00:14:51                           | 03-Jun-2024 12:01 PM               | 00:16:12                   | 00:16:02                         | *****           | *****      | *****          | 1:30:03 PM            |
| 13                        | 12-Jun-2024               | 17:35:56              | *****                         | 00:04:16                         | 12-Jun-2024 05:41 PM                     | 00:05:16                           | 12-Jun-2024 05:38 PM               | 00:03:01                   | 00:04:11                         | *****           | *****      | *****          | 7:45:34 PM            |
| 14                        | 10-Jun-2024               | 14:04:45              | *****                         | 00:04:06                         | *****                                    | 00:04:39                           | 10-Jun-2024 02:05 PM               | 00:03:39                   | 00:03:06                         | *****           | *****      | *****          | 11:02:16 AM           |
| 15                        | 10-Jun-2024               | 11:43:39              | *****                         | 00:05:08                         | 05-Jun-2024 11:43 AM                     | 00:05:30                           | 05-Jun-2024 11:45 AM               | 00:01:45                   | 00:04:07                         | *****           | *****      | *****          | 11:55:17 AM           |
| 16                        | 3-Jun-2024                | 11:26:37              | *****                         | 00:02:27                         | 03-Jun-2024 11:29 AM                     | 00:02:56                           | 03-Jun-2024 11:32 AM               | 00:05:28                   | 00:03:37                         | *****           | *****      | *****          | 11:48:11 AM           |
| 17                        | 4-Jun-2024                | 13:43:45              | *****                         | 00:02:31                         | *****                                    | 00:02:56                           | 04-Jun-2024 01:10 PM               | 00:01:54                   | 00:02:08                         | *****           | *****      | *****          | 10:05:14 AM           |

The provided images illustrate a breakdown of the discharge process for Cash and TPA patients, presented in sequential steps. This information is specifically collected to analyse the turnaround time (TAT) for each stage of the discharge workflow and assess areas of potential delays.

## Root Cause Analysis: Fishbone diagram



The study involved 72 participants split between TPA and non-TPA patients.

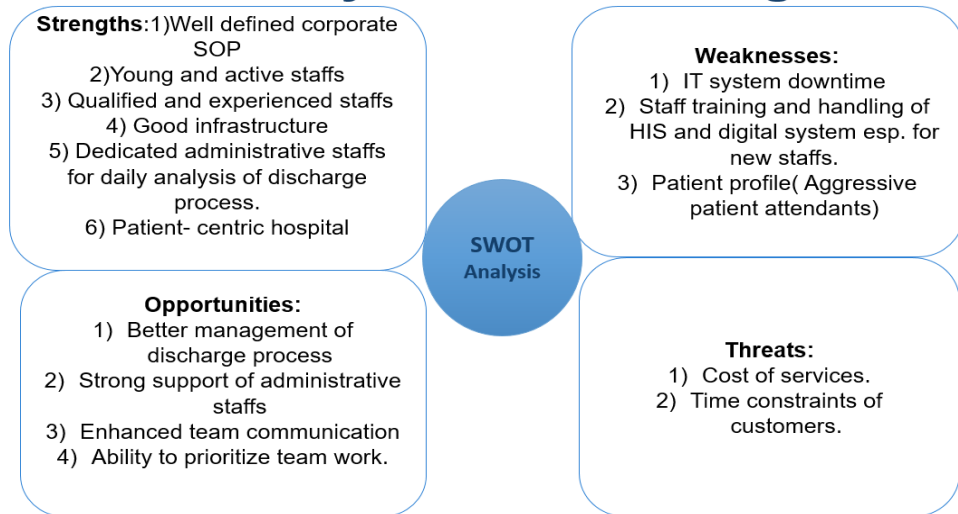
7 out of 38 TPA patients exceeded the discharge TAT of 240 minutes, indicating delay in discharge process. 31 out of 38 TPA patients were discharged within the given TAT of 240 minutes, indicating timely discharges.

3 out of 34 Non- TPA Patients exceeded the discharge TAT of Non- TPA, i.e. of 90 minutes, suggesting delay in discharge process. 31 out of 34 Non-TPA patients were discharged within the standard TAT of Non- TPA (within 90 minutes) indicating timely discharges.

### Workflow Analysis:

- Mapping the Discharge workflow: highlighting key stages, handoffs and potential areas for optimization
- Staff and Resource Allocation: at different stages of the discharge process to identify areas for inefficiency.
- Patient engagement: Exploring opportunities for enhancing patient improvement and engagement throughout the discharge journey to expedite the process.

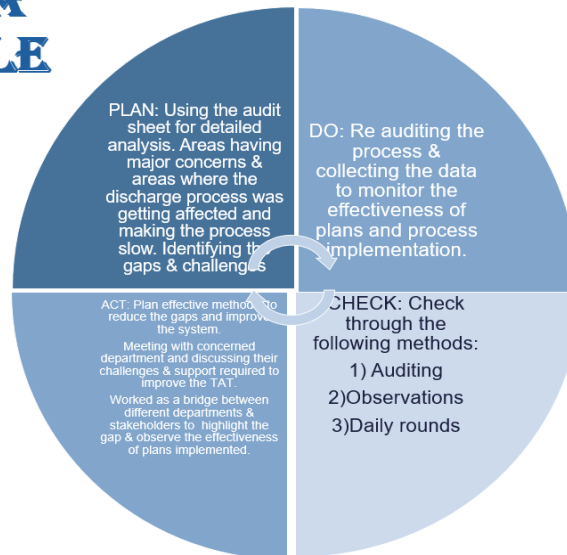
## SWOT Analysis for Discharge



- The findings from the study on the discharge process at the Hospital highlight significant opportunities for improvement in the turnaround time (TAT) for both TPA and non-TPA patients.
- **TPA Patient Delays:** Of the 38 TPA patients, 7 exceeded the discharge TAT of 240 minutes, indicating inefficiencies in the discharge process for this group. The delays can be attributed to various factors such as **waiting for approvals from third-party administrators, finalization of bills, or delays in discharge order processing.** Though 31 TPA patients were discharged on time, these delays need to be addressed for consistency in the discharge process.
- **Non-TPA Patient Delays:** Similarly, among the 34 non-TPA patients, 3 exceeded the standard TAT of 90 minutes, suggesting bottlenecks that hinder a timely discharge. Factors such as **paperwork, doctor's signatures, and clearance from different departments have contributed to delays in these cases.** However, 31 non-TPA patients were discharged within the standard time, reflecting that a majority of discharges can be completed efficiently, but the delays still require attention.
- The data indicates that inefficiencies and delays are present at various stages of the discharge process. To address these challenges, the hospital needs to conduct a deeper analysis of the root causes behind these delays, evaluate each step of the discharge process, and implement corrective measures.

The **PDCA Cycle** helps providing a structured framework for identifying issues, implementing changes and monitoring improvements.

## PDCA CYCLE



### Limitations of the study:

- The study period extends only from 9AM to 6PM. Discharges after 6PM are not incorporated into the research.
- Panel/ Scheme patients (ECHS/CGHS) are not covered in the study.
- Limited timeframe for internship.

### Section 4: Recommendations

- Conduct a Detailed Root Cause Analysis
- Streamline Communication Between Departments
- Optimize the Billing Process
- Staff Training and Awareness: Provide training to the hospital staff, particularly in the discharge team, to emphasize the importance of adhering to TAT guidelines. Training on time management, customer service, and handling delays effectively can improve overall discharge efficiency.

#### 4.1 Conclusion:

- This study underscores the need for continuous evaluation and improvement of the discharge process at the Hospital

- While the discharge process meets the set TAT for a significant portion of patients, a noticeable number of delays among both TPA and non-TPA patients suggest that the process is not entirely optimized.
- The audit process, combined with the use of the PDCA cycle for continuous improvement, has provided valuable insights into the factors contributing to delays in the discharge process.
- By addressing the identified bottlenecks and inefficiencies, the Hospital can ensure that the discharge process is streamlined, leading to quicker patient discharges, better resource utilization, and improved patient satisfaction.

#### References:

- Fortis Hospital. Available from <https://www.fortishealthcare.com/location/fortis-hospital-greater-noida>
- A quality improvement approach to early patient discharge  
<https://pmc.ncbi.nlm.nih.gov/articles/PMC8677894/>
- <https://www.researchgate.net/publication/322434054> Predictive Modelling for Turn Around Time TAT of Discharge Process for Insured Patients in a Corporate Hospital of Pune City
- <https://aihms.in/blog/role-of-quality-manager-in-hospital-for-excellent-hospital-service/>



**With my supervisor (Head of Quality) & AMS at Fortis and the marketing team.**

(Completion of Summer Internship from respective organization)

The certificate is awarded to

**Name: Dr. Angelica Singh**

In recognition of having successfully completed her  
Internship in the department of

**Quality**

and has successfully completed her Project on

Title of the Project

**'A Study of discharge processes and metrics to optimize Turnaround Time at a Multi-specialty  
care hospital'**

**Date: 01<sup>st</sup> May 2024 to 01<sup>st</sup> July 2024**

**Organization: Fortis Hospital Greater Noida**

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

  
Organization Supervisor

  
Head-HR/Department Head

### Certificate of Approval

The Summer Internship Project titled '**A Study of discharge processes and metrics to optimize Turnaround Time at a Multi-specialty care hospital**' 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 **Post Graduate Diploma in Health and Hospital 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 report only for the purpose it is submitted.



**Name of the Mentor**  
**Designation**  
**IIHMR, Delhi**

## FEEDBACK FORM

(Organization Supervisor)

Name of the Student: Dr. Angelica Singh

Summer Internship Institution: Fortis Hospital Greater Noida

Area of Summer Internship: Quality

Attendance: All day's present

Objectives met: Focused on Work Given

Deliverables: Completed all Assignment within Timeline

Strengths: Working beyond technology and practices.

Suggestions for Improvement: Everything is Good Enough

Signature of the Officer-in-Charge (Internship)



Date: 14-Dec-2024

Place: Fortis Hospital Greater Noida

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