

Dissertation

At

Manipal hospital, Gurugram

(3rd Mar To 3rd Jun 2025)

“A study on discharge process turnaround time of dialysis unit”

By

Javed Ansari

(PG/23/042)

Under the guidance of

Dr. Anandhi Ramachandran

PGDM (Hospital and Health Management)

2023-25



International Institute of Health Management Research

New Delhi

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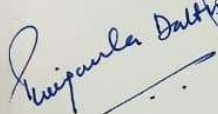
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TO WHOMSOEVER IT MAY CONCERN

The certificate is awarded to **JAVED ANSARI** in recognition of having successfully completed his dissertation in the department of "**OPERATIONS**" and has successfully completed his Project on "**A study on discharge process turnaround time of dialysis unit**" from **3rd MAR TO 3rd JUN 2025** at **MANIPAL HOSPITAL, GURUGRAM**.

He comes across as a committed, sincere & diligent person who has a strong drive & zeal for learning. We wish him all the best for future endeavors.



Ms. Priyanka Datta
Head of Operations Department
Manipal Hospital, Gurugram

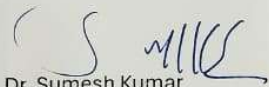
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This is to certify that **Mr Javed Ansari** student of PGDM (Hospital & Health Management) from International Institute of Health Management Research, New Delhi has undergone internship training at **Manipal hospital** from **3rd Mar'25 to 3rd Jun'25**.

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

The Internship is in fulfilment of the course requirements.

I wish him all success in all his/her future endeavours.



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



Dr. Anandhi Ramachandran
Professor,
IIHMR, New Delhi

Certificate from Dissertation Examination Committee

Certificate of Approval

The following dissertation titled **"A study on discharge process Turn Around Time (TAT) of Dialysis Unit"** at **"Manipal Hospital, Gurugram"** is hereby approved as a certified study in management carried out and presented in a manner satisfactorily to warrant its acceptance as a prerequisite for the award of **PGDM (Hospital & Health Management)** for which it has been submitted. It is understood that by this approval the undersigned do not necessarily endorse or approve any statement made, opinion expressed or conclusion drawn therein but approve the dissertation only for the purpose it is submitted.

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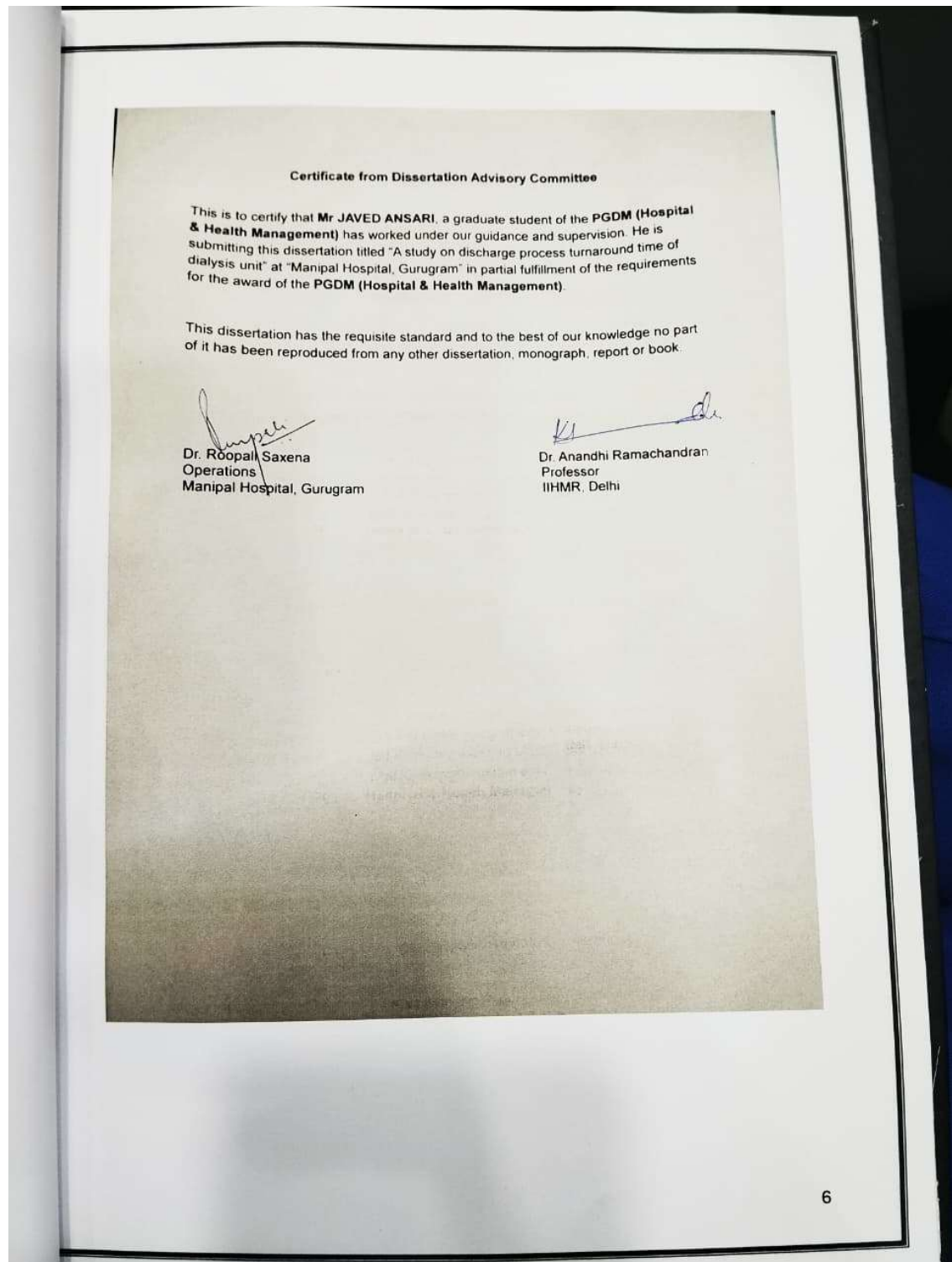
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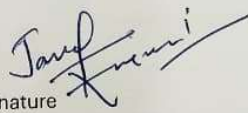
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CERTIFICATE BY SCHOLAR

This is to certify that the dissertation titled "**A study on discharge process turnaround time of dialysis unit**" and submitted by **Mr Javed Ansari**, Enrolment No. **PG/23/042** under the supervision of **Dr. Anandhi Ramachandran** for award of PGDM (Hospital & Health Management) of the Institute carried out during the period from **3rd March, 2025** to **3rd June, 2025** embodies my original work and has not formed the basis for the award of any degree, diploma associate ship, fellowship, titles in this or any other Institute or other similar institution of higher learning.


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Name of the Student: Javed Ansari

Name of the Organisation: Manipal Hospital, Gurugram

Area of Dissertation: operations

Attendance: Regular

Objectives achieved: Identified turn around time of dialysis

Deliverables:

Strengths: Patience, Sincere & disciplined

Suggestions for Improvement: Soft skills.

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


Signature of the Officer-in-Charge/ Organisation Mentor (Dissertation)

Date: 20 August 2025

Place: Manipal Hospital, Gurugram



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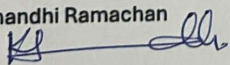
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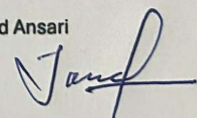
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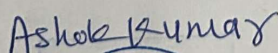
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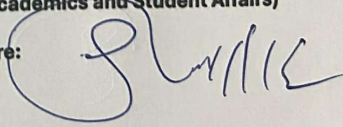
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ACKNOWLEDGEMENT

First and foremost, I express my sincere gratitude to **MANIPAL HOSPITAL, GURUGRAM** for providing me the platform and opportunity to undertake this study titled *“A Study on the Discharge Process Turnaround Time (TAT) of the Dialysis Unit.”* This experience has significantly enriched my academic journey and understanding of hospital operations.

I would like to extend my heartfelt thanks to my hospital mentor, **DR. ROOPALI SAXENA**, for her valuable guidance, encouragement, and continuous support throughout the project. Her insights, timely feedback, and practical suggestions played a crucial role in shaping this study.

I am equally grateful to my academic mentor, **DR. ANANDHI RAMACHANDRAN**, for her constant encouragement, constructive criticism, and mentorship, which helped me maintain a strong academic approach and ensure that the research was conducted with the utmost rigor and discipline.

A special word of thanks to **Mr Vinod Kumar** and the entire staff of the dialysis unit at Manipal Hospital, including nurses, technicians, and administrative personnel, who cooperated during the data collection process and shared their insights despite their busy schedules.

Lastly, I thank my family and peers for their continuous support.

ABSTRACT

Background

In modern hospital management, **Turnaround Time (TAT)** is a critical performance metric that reflects operational efficiency, especially in departments like dialysis units where patient inflow and outflow are tightly scheduled. Dialysis patients typically require multiple sessions per week, and each session is resource-intensive in terms of time, equipment, and staff. Therefore, a delay in the discharge process not only affects patient satisfaction and safety but also has cascading effects on bed and machine availability, staff scheduling, and ultimately, the number of patients that can be accommodated each day.

The **discharge process in dialysis units** involves multiple steps: post-dialysis observation, final documentation, billing, nursing handover, and transport coordination. If any of these steps are delayed—due to staff unavailability, lack of standard workflow, or communication gaps—it extends the TAT. Prolonged discharge TAT leads to **longer patient waiting times**, underutilization of dialysis machines, and **revenue loss** as fewer sessions may be completed within available hours.

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MANIPAL HOSPITAL, GURUGRAM

CHAPTER 1: INTRODUCTION

Manipal Health Enterprises, commonly known as Manipal Hospitals, is an Indian for-profit private hospital network headquartered in Bangalore, Karnataka. The hospitals trace their origins to the Kasturba Medical College, founded by T. M. A. Pai in 1953. Manipal Hospitals is the second largest healthcare provider in India, with a network of 33 hospitals. Manipal Hospitals is part of the Manipal Education and Medical Group.

Manipal Hospitals provide services in gastroenterology, orthopaedics, cardiology, neurology, and a variety of other medical disciplines. The facilities are outfitted with state-of-the-art machinery and cutting-edge medical technology to give patients the finest possible care. Manipal Hospitals' highly qualified and competent medical team, many of whom obtained their training at some of the finest medical schools in the world, is an additional plus.

Manipal Hospitals do more than only provide medical care; they also do research and instruct medical students. The hospital network works with several international organisations and has been involved in a lot of research projects.

In general, Manipal Hospitals is a reputable and well-known healthcare institution in India that provides excellent medical services to individuals from all over the country and abroad.

1.1 HISTORY

In 1953, T. M. A. Pai founded Kasturba Medical College in coastal Karnataka. The college operated as a public-private partnership utilizing the government hospitals in Mangalore. Dr. Pai was an Indian doctor, educationist, and philanthropist who was awarded the Padma Shri by the Government of India in 1972.

In 1991, Manipal Hospitals opened its first branch in Bangalore. The branch, a quaternary care institution with 600 beds, houses more than 60 specialties. Manipal Hospitals, Mangalore was founded in 1997. KMC Hospital, a 251-bed tertiary care hospital, is a teaching hospital for Kasturba Medical College, Mangalore.

For 2,100 crore, Manipal Hospitals successfully acquired Columbia Asia's 11 hospitals in India in 2021. All Columbia Asia hospitals were rebranded as Manipal Hospitals. For 350 crore, Manipal Hospitals purchased Bangalore's Vikram Hospital in 2021.

In 2023, Manipal Hospitals acquired an 84% controlling stake in AMRI Hospitals for ₹2,300 crore (US\$270 million).

1.2 INFRASTRUCTURE OF MANIPAL HOSPITAL, GURUGRAM

- The multispecialty hospital with 100 beds.
- The cardiology department is equipped with modern Cath labs.
- The hospital also has modular seamless operation theatres with laminar air flow and laminar shields.
- It has partnered with Microsoft to evolve a next-generation cloud ready hospital management system to meet its emerging enterprise needs.
- Some other notable facilities are emergency room, ICU, dialysis unit, lab & delivery suites, pharmacy, and ambulance service.
- Wi-Fi is accessible throughout the hospital premises.
- Free cost estimation facility before the commencement of treatment.
- Availability of accommodation for international patients at nominal prices.
- International cuisine available inside the premises itself.
- Life support system equipped ambulance services.

1.3 QUALITY OF SERVICE

- **Patient-Centric Approach:** The hospital prioritizes patient dignity, comfort, and satisfaction. Patients are encouraged to share feedback through various platforms, which is regularly reviewed and acted upon by the quality team.
- **Skilled and Trained Staff:** Doctors, nurses, and allied health professionals undergo regular training to update their clinical knowledge and enhance soft skills, ensuring that both medical and interpersonal aspects of care are addressed.

- **Advanced Infrastructure:** Equipped with state-of-the-art medical equipment and digital systems like **TrakCare** (for electronic health records), the hospital ensures accurate diagnostics, streamlined workflows, and prompt service delivery.
- **Infection Control & Safety Measures:** Manipal Hospital follows strict infection control protocols, especially crucial in sensitive units like dialysis, ICUs, and operation theatres. The quality and infection control departments conduct regular audits and training.
- **Operational Efficiency:** The hospital consistently works to reduce delays in services such as admissions, diagnostics, surgery scheduling, and discharges. This is especially relevant in the dialysis unit, where **discharge turnaround time (TAT)** is an important metric of operational performance.
- **Accreditations and Compliance:** Manipal Hospital, Gurugram complies with NABH (National Accreditation Board for Hospitals & Healthcare Providers) and other relevant certifications, reflecting its adherence to high standards of quality, safety, and ethics.
- **Use of Technology:** From appointment booking to discharge, digital tools and hospital information systems enhance coordination between departments, minimize human error, and improve transparency in the care process.

1.4 VISION

The goal of Manipal Hospitals is to become a preeminent healthcare organisation recognised for its cutting-edge facilities, patient-cantered approach, clinical excellence, and research and innovation. They want to be known as a trusted partner in their patients' healthcare journeys and to offer them high-quality, inexpensive, and easily accessible healthcare services. Manipal Hospitals is working to accomplish this goal by utilising cutting-edge medical technology, adopting best practises, and assembling a group of compassionate and highly skilled healthcare workers.

1.5 MISSION

The objective of Manipal Hospitals is to offer patient-cantered healthcare services that are high-quality, accessible, and affordable. By utilising the most advanced medical technologies,

implementing best practises, and assembling a group of highly skilled and sympathetic healthcare professionals, they provide the greatest results for their patients. Manipal Hospitals also pledges to support medical innovation and research, educate, and develop its staff and medical students, help the underprivileged in the community, and advance environmental sustainability by eco-friendly techniques.

1.6 CORE VALUES

Manipal Hospitals are committed to clinical quality, patient-centricity, and ethical standards. The high calibre of team of medical practitioners demonstrates our dedication to clinical excellence. Having team of experienced nursing staff and paramedical specialists who provide great support to clinical team. Our medical services are customized to our patient's requirements. Manipal offer a compassionate and supportive environment for patients and their caregivers. We attach the highest importance to ethical practices which is evident in our professional conduct, honesty, trust, and confidentiality. Manipal Hospital provides unparalleled clinical excellence and a positive patient experience to its national and international patients. Manipal Hospitals Global is one of the top multi-specialty hospitals in India, well-equipped with advanced medical appliances and the latest technology available for different procedures and treatments. Strive to create a unique environment with outstanding facilities, courteous staff, and cutting-edge medical procedures.

1.7 SPECIALITIES

1.7.1 MEDICAL SPECIALITIES

- Cardiology
- Neurology
- Orthopaedics
- Medical Oncology
- Nephrology
- Gastroenterology
- Pulmonology
- Obstetrics
- Paediatrics
- Neonatology
- Endocrinology

- Dermatology
- ENT
- Ophthalmology
- Rheumatology
- Psychiatry
- Physical Medicine & Rehabilitation
- Critical Care
- Emergency Medicine
- Transfusion Medicine
- Haematology

1.7.2 SURGICAL SPECIALISTS

- Cardiothoracic Surgery
- Neurosurgery
- Joint Replacement Surgery
- Surgical Oncology
- Gastrointestinal Surgery
- Thoracic Surgery
- Gynaecologic Surgery
- Paediatric Surgery
- Urology
- ENT Surgery

PROJECT

A study on discharge process turnaround time of dialysis unit

CHAPTER 2: INTRODUCTION

The discharge process is a crucial yet often underemphasized aspect of hospital operations, especially in specialty departments like dialysis. In a dialysis unit, the patient discharge process is not simply the act of allowing a patient to leave the facility; rather, it is a coordinated sequence of clinical, administrative, and logistical steps that determine how efficiently patients can be managed and how effectively resources are utilized.

At Manipal Hospital, Gurugram, the dialysis unit caters to a high volume of patients suffering from chronic kidney disease (CKD) who require regular haemodialysis sessions. These patients often follow a strict schedule, attending two to three sessions per week, and the demand for dialysis beds and machines is continuous. Hence, a delayed discharge can create a bottleneck in the entire treatment process, affecting not only the current patient but also incoming patients waiting for their sessions.

Discharge Turnaround Time (TAT) refers to the time taken from the completion of dialysis treatment to the actual exit of the patient from the unit. Prolonged TAT may arise due to multiple reasons—clinical clearance delays, incomplete discharge summaries, unavailability of billing staff, pharmacy issues, or lack of communication among the care team.

Moreover, in the context of a busy urban hospital like Manipal, where every minute and bed is valuable, improving discharge TAT can have significant operational and financial implications. It helps in:

- Reducing patient wait time.
- Improving satisfaction and safety.
- Increasing machine and bed turnover.
- Enhancing staff productivity.
- Generating more revenue by accommodating additional sessions.

2.1 Discharge Process in Dialysis Unit

Completion of Dialysis Session

- The dialysis session typically lasts 3–4 hours.
- Nurses monitor patient vitals throughout the session.
- At the end of dialysis, the nurse records the "dialysis end time."

Post-Dialysis Observation

- Patients are observed for at least 15–30 minutes post-dialysis for any complications (e.g., hypotension, bleeding).
- Nursing staff records vitals and checks for stability.

Informing the Doctor

- Once the patient is clinically stable, the nurse informs the nephrologist or on-duty junior doctor for final evaluation.

Final Clinical Assessment

- The nephrologist/junior doctor performs the final check-up.
- Any lab results or medications are reviewed.
- If the patient is deemed fit, discharge is approved.

Preparation of Discharge Summary

- The doctor or assigned staff initiates and completes the discharge summary.
- It includes treatment details, post-care instructions, and follow-up advice.

Medication Preparation

- If prescribed, the nurse coordinates with the pharmacy to arrange discharge medications.
- Patients or attendants may collect the medicines before leaving.

Billing Clearance

- Billing staff initiates and completes the billing based on services provided.
- This includes dialysis charges, consumables, and any other services.

Attendant Coordination

- Patients wait for family members or attendants to assist them.
- In some cases, delay occurs due to unavailability of transport or escorts.

Housekeeping and Bed Clearance

- Once the patient leaves, the bed is marked as vacant only after housekeeping sanitizes the area.
- This step is important to reduce infections and prepare for the next patient.

Final Exit

- The patient physically exits the unit.

- Nurse documents "actual discharge time" and updates records in the TrakCare system.

2.2 Type of Patients

Cash Patients

- These patients pay out-of-pocket for their dialysis services.
- Payment is usually made before the start of the dialysis session.
- Since no external approval is required, the billing process is straightforward and quick.
- Bills for cash patients are closed daily, ensuring faster financial clearance and discharge.
- Discharge process for these patients is usually faster compared to others.

ECHS Patients (Ex-Servicemen Contributory Health Scheme)

- These patients receive dialysis under the ECHS scheme for ex-servicemen and defence personnel.
- Before dialysis, patients are required to submit a valid ECHS card and referral slip.
- The billing process for ECHS is more complex, often involving multiple verifications and documentation.
- It generally takes 6 to 7 months for the hospital to receive payment settlement from the ECHS authorities.
- ECHS bills are closed only twice a month, specifically on the 15th and 30th, to streamline bulk submission to the ECHS billing department.
- Delays in discharge can occur if referral slips are not available or if approvals are pending.

TPA Patients (Third Party Administrator – Insured Patients)

- These patients are covered under health insurance policies managed by TPAs.
- Before dialysis, patients must submit their insurance card and relevant policy documents.
- The hospital then sends a pre-authorization request to the TPA for approval before proceeding with dialysis.
- Sometimes, treatment begins while approval is awaited, but financial clearance depends on TPA response times.
- TPA bills are also closed twice a month, on the 15th and 30th, similar to ECHS billing.
- Discharge can be delayed if pre-auth approvals are late or if any insurance-related clarifications are pending.

3. OBJECTIVE OF THE STUDY

- To understand and map the existing dialysis discharge workflow in the hospital
- To study the turnaround time of the dialysis service, quantify time delays from the end of dialysis to actual patient discharge.
- To identify the bottlenecks and inefficiencies in the discharge process
- Based on the above suggest recommendations for quality improvement of the dialysis discharge process.

4. LITERATURE REVIEW

Patients in dialysis units often have multiple comorbidities and require close monitoring and structured discharge protocols. Prolonged discharge processes can delay the next shift of patients, increase waiting time, and strain hospital resources (**Mishra et al., 2018**). Reducing discharge TAT in dialysis units is essential for enhancing operational efficiency and patient flow.

A study by **Bhattacharya et al. (2020)** in a tertiary care hospital in India identified key factors influencing discharge delays, such as late decision-making by doctors, waiting for test results, and administrative delays. In dialysis settings, additional factors include clearance from nephrologists, dieticians, and pharmacy coordination (Choudhury & Singh, 2019).

According to **Narayanaswamy & Kumar (2021)**, discharge delays often result from poor coordination among departments. Their study in an Indian hospital emphasized implementing standardized discharge checklists and involving multidisciplinary teams early in the process. In dialysis units, effective communication between nephrologists, nursing staff, and pharmacy plays a vital role in timely discharge (**Goyal & Arora, 2020**).

The role of Health Information Technology (HIT) in improving discharge efficiency has been noted by **Wang et al. (2015)**, who found that implementing Electronic Health Records (EHR) with real-time discharge tracking reduced TAT by up to 30% in critical care units, including dialysis

Quality improvement tools such as Lean Six Sigma have been successfully implemented to reduce discharge TAT. **Patil et al. (2022)** demonstrated how process mapping and workflow reengineering reduced average discharge time in a nephrology ward by 30%. Similarly, the implementation of electronic discharge summaries and automated alerts to pharmacy and billing departments have shown positive results (Kumar & Joshi, 2017).

Improved discharge TAT directly correlates with higher patient satisfaction, reduced hospital-acquired infections, and better resource utilization (Saxena & Tiwari, 2021). For dialysis patients who require regular and timely access to care, delays in discharge can compromise their dialysis schedule and continuity of care.

According to **Shetty and Fernandes (2020)** focused on the unique challenges faced by dialysis patients availing services through government health schemes and third-party

insurance providers in a high-volume urban hospital in Mumbai. Their study involved a retrospective analysis of 150 discharge cases over a three-month period, combined with focused interviews with dialysis nurses, billing clerks, and hospital administrators.

The study found that patients under state-funded schemes (such as ECHS, CGHS, and state insurance programs) faced significantly longer discharge turnaround times compared to cash-paying patients. The delays were primarily attributed to non-clinical administrative, including: unavailability or late bottlenecks submission of referral slips or pre-authorizations, lengthy document verification processes by the insurance or government panels, delayed coordination between the dialysis unit, billing department, and scheme processing counters. They reported an average discharge TAT of 3.5 to 4 hours for government scheme patients compared to 1.5 to 2 hours for cash patients.

Another critical insight from the study was that many of these administrative processes occurred sequentially instead of concurrently, which significantly contributed to the delay. For example, pharmacy dispatch would begin only after billing was completed, and billing would only begin after the discharge summary was fully uploaded — highlighting a lack of process integration.

Shetty and Fernandes recommended:

- Early intimation of discharge to the billing and scheme desks.
- Using parallel processing, where billing, pharmacy, and discharge summaries are handled simultaneously.
- Assigning a dedicated discharge coordinator to follow up on scheme documentation and ensure smoother transitions for insured patients.

Their work emphasizes the need to redesign discharge workflows for insured and scheme-based patients using a more synchronized and automated system.

In a quality improvement initiative titled *"Improving Patient Flow in a Dialysis Unit: A Quality Improvement Initiative"*, **Al-Farsi and Khan (2021)** conducted a prospective observational study in a tertiary care government hospital in Oman. The focus of the study was to enhance the efficiency of the discharge process in a dialysis unit that handled over 100 patients per week, many of whom had comorbidities and were dependent on government-supported care systems.

The researchers observed that a lack of structured discharge protocols and poor interdepartmental communication were leading to significant delays in patient turnover, affecting the unit's ability to schedule back-to-back sessions. Average discharge TAT was found to be over 3 hours, causing overlapping of shifts and increased staff burnout.

To address these issues, the authors implemented a multidisciplinary intervention model:

- They introduced daily “pre-discharge huddles”, which brought together dialysis nurses, nephrologists, a billing officer, and pharmacy representatives before the end of each shift.

- Patients likely to be discharged were flagged early, and necessary actions (such as preparing medication, initiating billing, and printing discharge summaries) were initiated in advance.
- Additionally, a visual discharge board was installed in the dialysis control room to track the status of each patient (e.g., “Observation,” “Cleared,” “Billing in Process,” “Ready for Exit”).

Post-intervention, the study recorded a 25% reduction in discharge turnaround time, improved staff satisfaction, and better preparedness for incoming shifts. Importantly, patient satisfaction scores also improved due to decreased wait times and smoother discharge experiences.

5. RATIONALE

While several hospitals have adopted Lean and Six Sigma methodologies to streamline inpatient and emergency discharge processes, **dialysis-specific discharge process mapping remains underexplored**. Given that dialysis is a scheduled and repetitive service, any time saved through improved process efficiency can directly increase session volume and revenue potential.

Moreover, with the **rising prevalence of chronic kidney disease (CKD)** in India, the demand for dialysis services is expected to grow. Hospitals must prepare for this by optimizing their current workflows. Manipal Hospital, Gurugram caters to number of dialysis patients in a single day and is looking for opportunities to bring in efficiency and optimization of its dialysis services.

In this context, this research aims to study the dialysis discharge process followed in the hospital, identify systemic delays and offer actionable solutions for **operational improvement and better patient throughput**.

6. RESEARCH METHODOLOGY

Study Area: Dialysis Unit, Manipal hospital, Gurugram.

Study Design: This is a cross-sectional mixed study (qualitative and quantitative)

Sample Size: 210 patients from dialysis, taken 16 Cash, 20 ECHS and 34 TPA Patients. Total 70 patients so, in 3 months it would be 210 patients.

Sampling method: Purposive method

Duration of study: March to June

Source of Data: Information gathered from patient’s electronic medical records through trakcare software used in Manipal hospital and dialysis flow sheet.

Data Collection Tools:

All the time intervals were noted on observation check list, created, and input into an excel spreadsheet.

Data was recorded in this sequence in the discharge process TAT observation checklist:

- S No.
- Date
- UHID
- Patient's Name
- Age
- Sex
- Bed Number
- TAT for Discharge Intimation.
- TAT for Nursing Clearance.
- TAT for Pharmacy Clearance.
- TAT for Bill Settlement.
- TAT for Bill Preparation.
- TAT for Bed Release.

7. DATA ANALYSIS

Process Mapping:

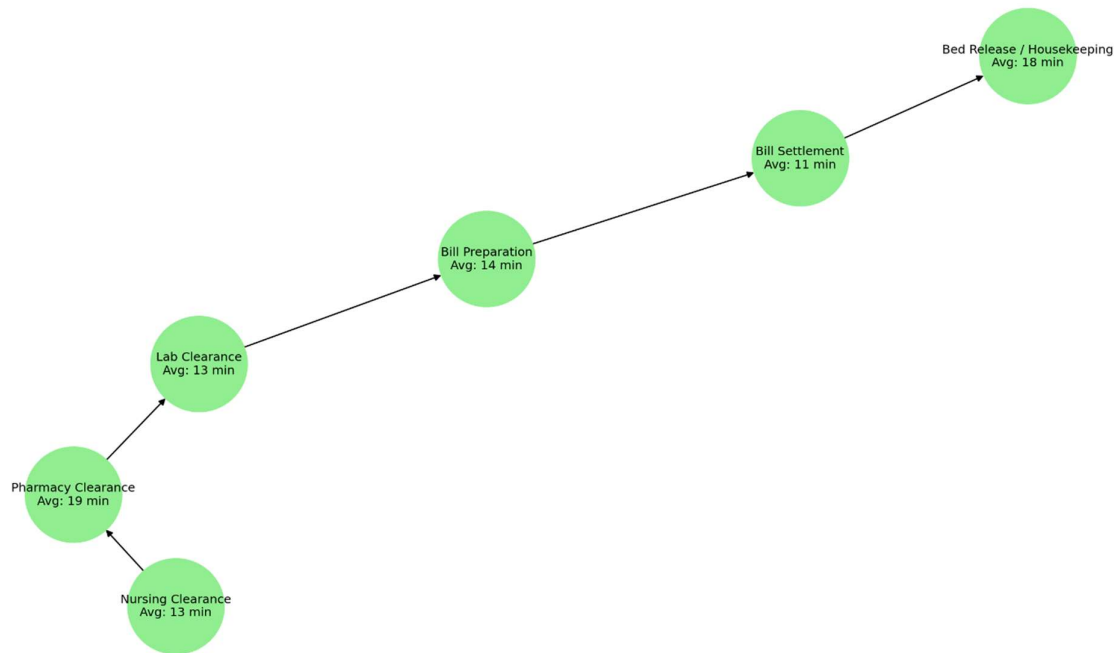


Figure: 1

Total average time: This process map suggests a discharge turnaround time (TAT) of approximately 88 minutes (i.e., 1 hour 28 minutes), from nursing clearance to bed release in Manipal hospital, Gurugram

Data Organisation: Organised the data in a spreadsheet. Includes columns for Patient UHID, Age, Sex, Bed number, TAT for every step and average time taken in minutes or hours.

Data Comparison: Each step was compared against an ideal time benchmark (60 minutes)

- According to NABH, benchmarks for dialysis or day care units range from 30 minutes to 2 hours, depending on patient stability, documentation, and pharmacy/lab clearance.
- The number of patients discharged within and beyond the ideal TAT was recorded and converted into percentages.

Standard time:

Showed visual diagram of standard time/ ideal time benchmark in every step i.e. 60 minutes.

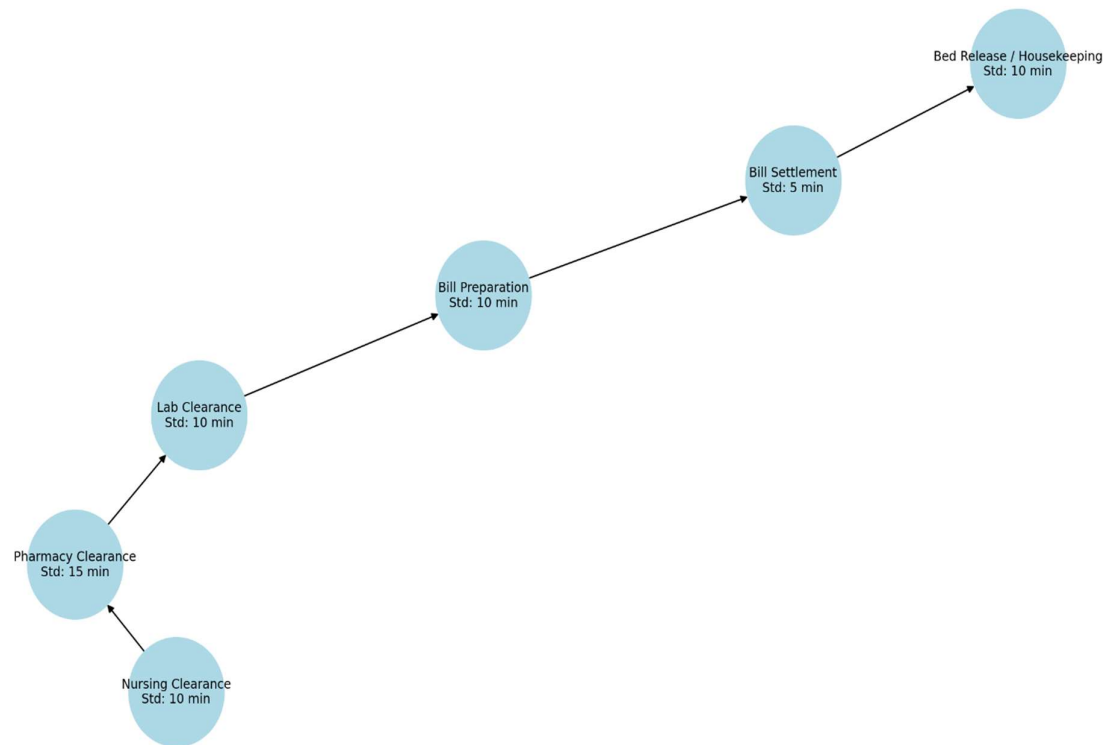


Figure: 2

8. OBSERVATIONS AND FINDINGS

Discharge Step	Ideal Time (min)	Patients Discharged Within Ideal TAT (n)	% Within Ideal TAT	Patients Discharged with Delay (n)	% Discharged with Delay
Nursing Clearance	10	190	95%	10	5%
Pharmacy Clearance	15	176	88%	24	12%
Lab Clearance	10	182	91%	18	9%
Bill Preparation	10	170	85%	30	15%
Bill Settlement	5	160	80%	40	20%
Bed Release / Housekeeping	10	154	77%	46	23%

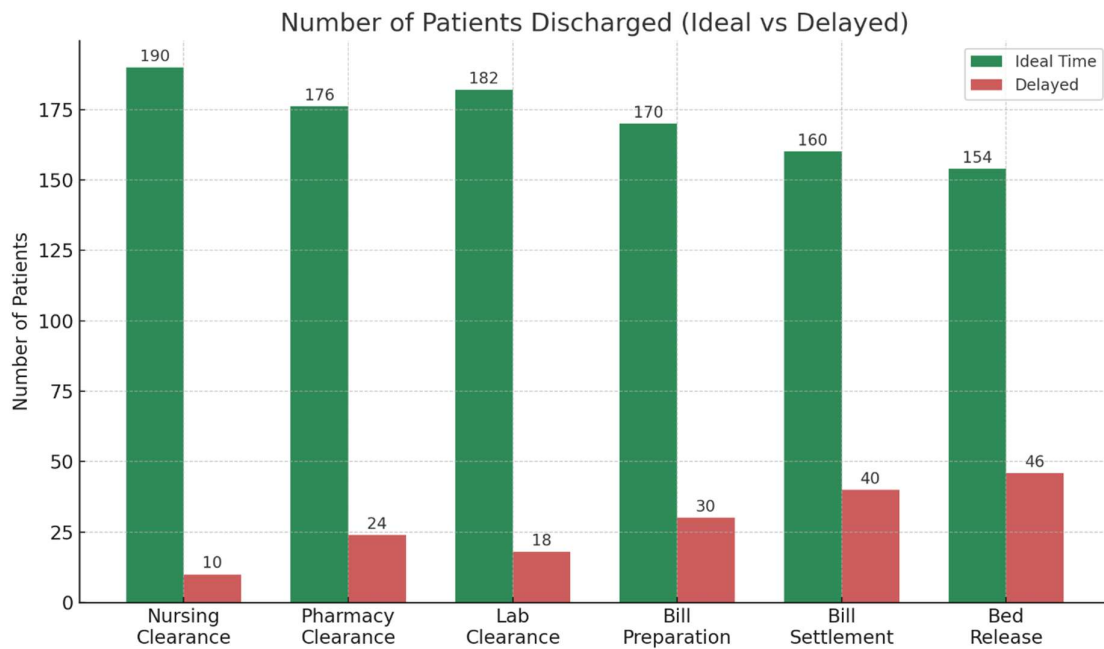


Figure: 3

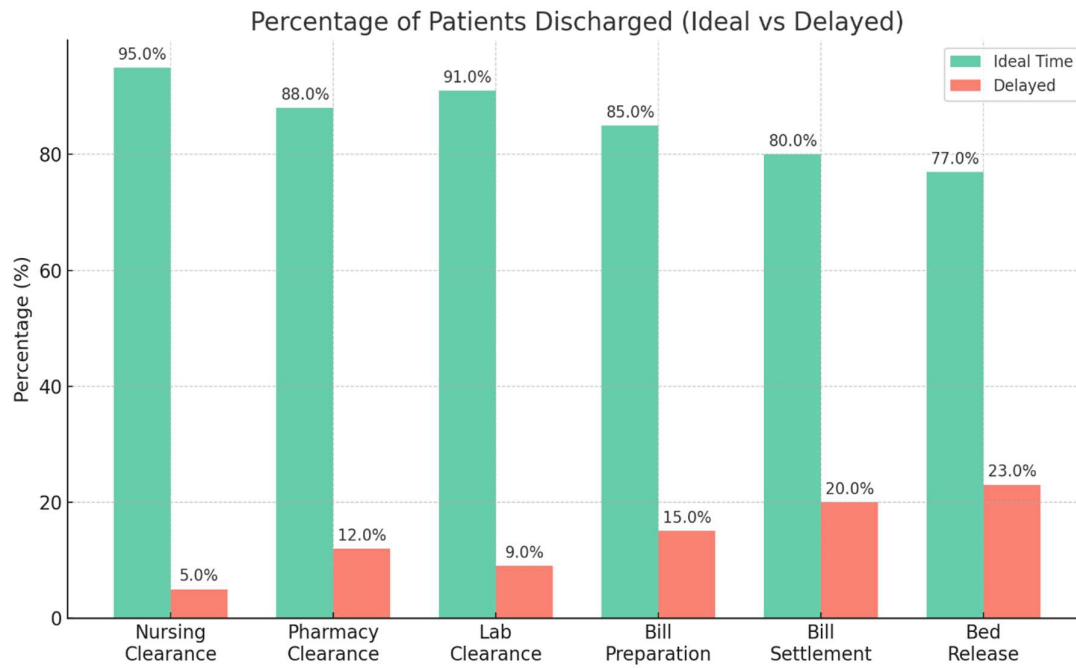


Figure: 4

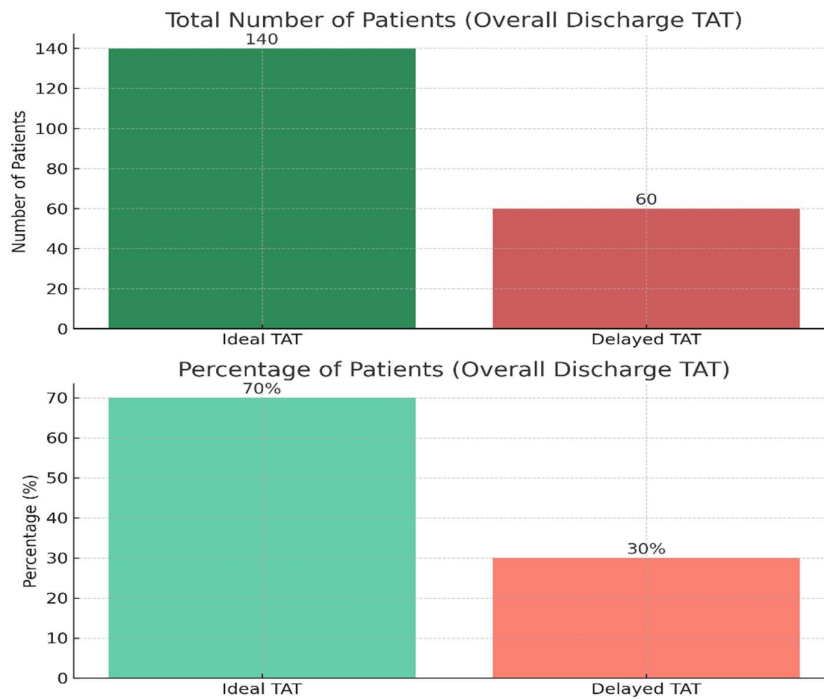


Figure: 5

- The study reveals that **majority of patients 140, (70%)** were discharged within the ideal TAT, reflecting strong overall process efficiency in the dialysis unit. However, **30% experienced delays, i.e. 60 patients**, mainly during non-clinical steps such as billing, pharmacy, and housekeeping.
- **Nursing and lab clearance** steps were observed to be well-structured with minimal delays, suggesting that clinical processes are functioning smoothly.
- Delays in **bill settlement** and **bed release** were often related to administrative workflow inefficiencies or support staff shortages.

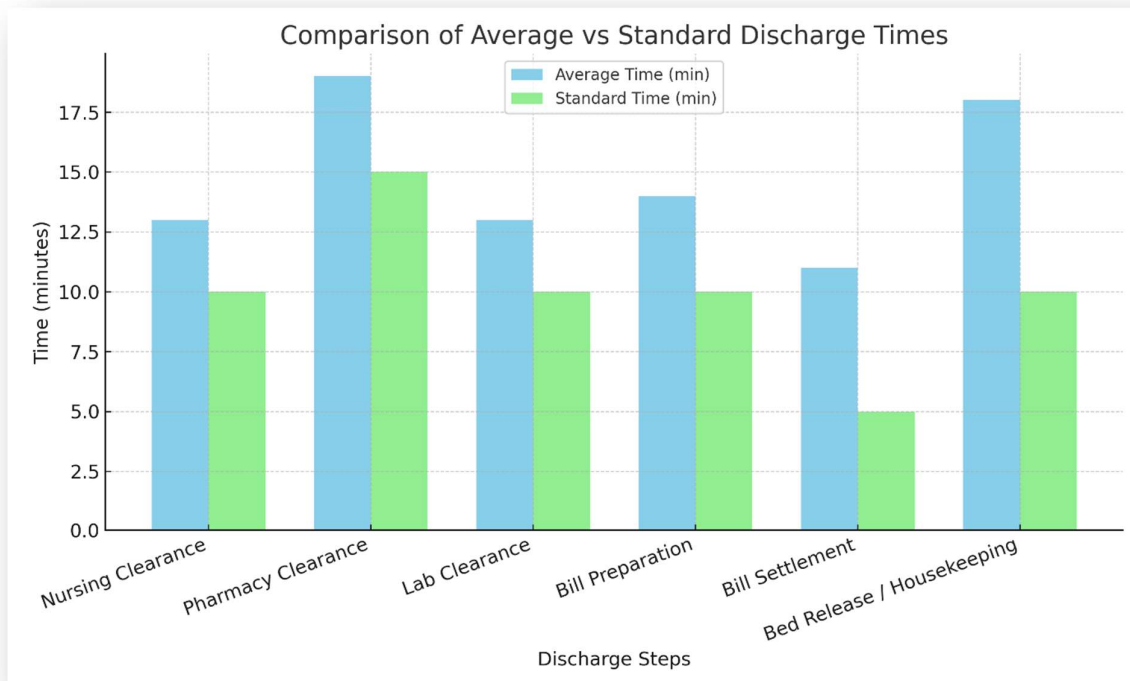


Figure: 6

- The biggest contributors to the delay are **Housekeeping (8 min extra)** and **Bill Settlement (6 min extra)**.
- Other steps (Nursing, Pharmacy, Lab, Bill Prep) have **moderate delays of 3–4 minutes each**, which together accumulate significantly.
- Process inefficiencies and coordination issues appear across the workflow, but the **end stages (Billing & Bed Release)** cause the **most critical delays**.

9. REASONS FOR LONGER DISCHARGE TAT FOUND DURING STUDY:

9.1 Billing & Documentation Delays

- **Complex Billing Process:** Dialysis patients often undergo multiple investigations, consumables, and medicine usage which need to be itemized, making billing more time-consuming.
- **TPA Approval Delays:** For insured patients, final bill clearance requires TPA pre-authorization and final approval, which can take hours depending on query response time.
- **Additional Documentation:** Sometimes, investigation reports, discharge summaries, or special notes are needed to address TPA queries, causing further delay.
- **Coordination Gaps:** Lack of real-time communication between billing, treating doctors, and the TPA desk prolongs the process.

9.2 Pharmacy Clearance Delays

- **Medicine Availability Check:** At times, discharge medicines prescribed by the doctor are not readily available in the pharmacy. Alternate sourcing takes time.
- **Peak Hour Workload:** During peak discharge hours (usually morning to afternoon), pharmacy staff face a heavy rush, leading to dispatch delays.
- **Return & Refund Issues:** For admitted patients, unused medicines must be returned and adjusted in the final bill, adding to the delay.

9.3 Bed Release / GDA Issues

- **Staff Shortage:** At times, GDA (General Duty Assistant) or housekeeping staff are not immediately available to escort patients or clean the bed.
- **Wheelchair/ Stretcher Shortage:** Non-availability of patient transfer equipment causes waiting.
- **Housekeeping Delays:** Bed cleaning and sanitization take time, especially if deep cleaning or fumigation is required.
- **Lack of Coordination:** Delay in notifying housekeeping about patient discharge often extends turnaround time.

9.4 Systemic & Coordination Issues

- **Multiple Department Dependency:** Clearance is needed from billing, pharmacy, nursing, labs, and TPA, making coordination complex.
- **IT/Software Issues:** Sometimes hospital information systems (HIS) lag or face downtime, delaying final bill generation or report uploading.

- **Peak Hour Discharges:** When many patients are discharged around the same time, bottlenecks naturally occur.
- **Communication Gaps:** Lack of a standardized discharge intimation system between departments leads to delays in initiating the process.

10. BOTTLENECKS & INEFFICIENCIES IN DISCHARGE PROCESS

10.1 Billing & Documentation

- Bottleneck: Final bill preparation + TPA approval.
- Inefficiencies:
 - Long dependency on TPA for pre-auth/final approvals.
 - Multiple queries raised by TPA due to incomplete documentation.
 - Delay in submission of discharge summary & reports to billing desk.
 - Lack of automation → manual corrections and adjustments in bills.

10.2 Pharmacy Clearance

- Bottleneck: Issue/return of medicines at discharge.
- Inefficiencies:
 - Stock unavailability of prescribed discharge medicines.
 - Time taken for return/refund of unused medicines.
 - Pharmacy rush hours coincide with peak discharge timings.
 - Manual dependency → delays in prescription clarifications from doctors.

10.3 Nursing Clearance & Clinical Delays

- Bottleneck: Preparation of discharge summary & patient handover.
- Inefficiencies:
 - Doctors delay in finalizing discharge summary/clinical notes.
 - Nursing staff occupied with routine ward work, slowing clearance.
 - Last-minute investigations/tests before discharge.
 - Time-consuming patient/family counselling at the last step instead of in advance.

10.4 Bed Release / Housekeeping

- Bottleneck: Unavailability of GDA/housekeeping at the right time.
- Inefficiencies:
 - Delay in intimation of discharge → late start of bed cleaning.
 - Shortage of housekeeping/GDA staff during peak hours.
 - Wheelchair or stretcher shortage.
 - Delayed turnaround of bed cleaning & fumigation

11. RECOMMENDATIONS

Assign **discharge coordinators** or case managers to follow up on paperwork, especially for insured patients.

Separate Counter for Discharge Medicines: Create a fast-track queue for IPD patients.

Digital Return Process: Use barcode-based medicine return/refund system for quick reconciliation.

Real-time Intimation: Automate notification to Billing staff, pharmacist and GDA/housekeeping once discharge is initiated in Hospital Information System.

Resource Optimization: Keep wheelchairs/stretchers ready during peak discharge hours.

Housekeeping Roster Alignment: Schedule extra staff during morning discharge peak.

Financial Counselling: For TPA/cash patients, assign financial counsellor to explain approvals, coverage, and payment needs.

Pre-discharge Counselling: Educate patient/family about follow-up, medicines, and bills well in advance.

Staff training: Proper training for indenting medicines and consumables can reduce wrong entry.

12. CONCLUSIONS

The study of the dialysis discharge workflow revealed that while the standard discharge process should take around 60 minutes, the actual average time observed was 88 minutes, indicating a 47% delay. The major contributors to this delay were billing and documentation issues, prolonged TPA approvals, pharmacy clearance bottlenecks, and inefficiencies in bed release due to staff or equipment unavailability.

The analysis highlights that discharge delays are multi-factorial and arise from a lack of coordination, inadequate resource allocation, and absence of parallel workflows. Such delays not only affect patient satisfaction but also impact hospital efficiency by slowing down bed turnover and creating congestion in the dialysis unit.

Implementing structured interventions such as advance discharge planning, parallel processing of billing and pharmacy, real-time monitoring and dedicated discharge coordinators can significantly reduce the turnaround time.

13. Ethical Considerations:

- Consents are taken from all patients and staff.
- All patient data (personal details, medical history, billing information) should be kept strictly confidential.
- Transparency is maintained with staff about the purpose of the data collection and how the findings will be used.

14. REFERENCES

- *Bhattacharya, S., Gupta, A., & Chatterjee, P. (2020). Analyzing discharge process delays in a tertiary care hospital in India. Journal of Health Management, 22(4), 457-466.*
- *Narayanaswamy, V., & Kumar, S. (2021). Reducing discharge time using quality improvement methods in Indian hospitals. Indian Journal of Quality in Healthcare, 13(1), 22-30.*
- *Goyal, M., & Arora, N. (2020). Role of nursing coordination in improving discharge turnaround time in a dialysis unit. International Journal of Healthcare Quality, 9(1), 35-40.*
- *Wang, J., Wang, Y., & Liang, H. (2015). Effects of electronic health record systems on discharge efficiency. Health Informatics Journal, 21(3), 196–205.*
- *NABH. (2020). Guidebook to Accreditation for Hospitals. National Accreditation Board for Hospitals and Healthcare Providers. <https://nabh.co/>*
- *Patil, D., Srinivasan, V., & Reddy, B. (2022). Improving discharge time using Lean Six Sigma in nephrology wards. International Journal for Quality Research, 16(2), 201-210.*
- *Walker, R. C., & Howard, K. (2019). "Improving discharge efficiency for hemodialysis patients." Journal of Renal Care, 45(2), 89–95.*
- *Al-Farsi, S., & Khan, M. A. (2021). Improving patient flow in a dialysis unit: A quality improvement initiative. Middle East Journal of Nursing, 15(3), 44–49.*
- *Kumar, A., & Joshi, R. (2017). Technological interventions to reduce discharge delays: Experience from a public hospital in Delhi. Health Informatics India, 6(2), 112-118.*
- *Choudhury, R., & Singh, A. (2019). Challenges in discharge processes in dialysis units: An Indian perspective. Indian Journal of Nephrology Services, 11(2), 88-92.*

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