

**A STUDY ON TURNAROUND TIME (TAT) IN SHIFTING PATIENTS FROM
EMERGENCY DEPARTMENT TO THE WARD OR ICU OR CATH LAB AT
MEDANTA HOSPITAL, GURGAON, HARYANA**

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

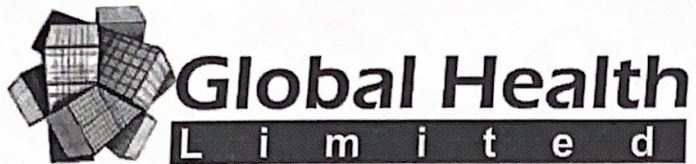
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2024



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TO WHOMSOEVER IT MAY CONCERN

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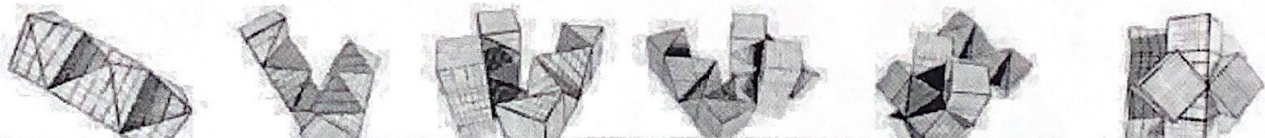
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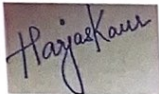
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DECLARATION BY STUDENT

I hereby declare that this dissertation titled **“A Study on Turnaround Time (TAT) in Shifting Patients from the Emergency Department to the Ward or ICU or Cath Lab at Medanta Hospital Gurgaon, Haryana”** 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 Information derived from the published or unpublished work of others has been duly acknowledged in the text.



(Signature)

Dr Harjas Kaur

Date: 1/07/24

CERTIFICATE

This is to certify that dissertation titled **“A STUDY ON TURNAROUND TIME (TAT) IN SHIFTING PATIENTS FROM EMERGENCY DEPARTMENT TO THE WARD OR ICU OR CATH LAB AT MEDANTA HOSPITAL, GURGOAN, HARYANA”** is a record of the research work undertaken by **Dr. Harjas Kaur** 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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Sincerely,

Dr Harjas Kaur

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LIST OF ABBREVIATIONS

S.No.	Abbreviation	Full form
1.	ATS	Australasian Triage Scale
2.	BSL	Blood Sugar Level
3.	CATH LAB	Cardiac Catheterization Lab
4.	CMS	Centers for Medicare & Medicaid Services.
5.	ED	Emergency Department
6.	ENT	Ear Nose Throat
7.	GCS	Glasgow Coma Scale
8.	GDA	General Duty Assistants
9.	GI	Gastrointestinal
10.	GRE	Guest Relations Executive
11.	HR	Heart Rate
12.	ICU	Intensive Care Unit
13.	IV	Intravenous
14.	LAMA	Leave Against Medical Advice
15.	LOC	Loss of Consciousness
16.	LOS	Length of stay
17.	MI	Myocardial Infarction
18.	NHS	National Health Services

19.	OT	Operation Theatre
20.	TAT	Turn Around Time
21.	TPA	Third Party Administrator

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ABSTRACT

TITLE

“A Study on Turnaround Time (TAT) in Shifting Patients from the Emergency Department to the Ward or ICU or Cath Lab at Medanta Hospital Gurgaon, Haryana”

AUTHOR’S NAME- Dr. Harjas Kaur

ADVISOR’S NAME- Dr. Alok Kumar Mathur

KEY WORDS- Turnaround Time (TAT), Patient transfer, Emergency Department (ED), ICU, Cath Lab, Wards, Delay factors.

BACKGROUND

Efficient patient flow from the Emergency Department (ED) to definitive care units is crucial for optimizing healthcare delivery. This study investigates the factors influencing the turnaround time (TAT) in shifting patients from the ED to wards, the Cath Lab, or the Intensive Care Unit (ICU) at Medanta Hospital, Gurgaon.

OBJECTIVES

1. To study the current process of patient transfer from the ED to wards/ICU/ Cath Lab at Medanta Hospital.
2. To identify factors affecting TAT in patient shifting.
3. To trace the reasons for delays, if any.

METHODS

A cross-sectional observational study was conducted in April, focusing on patients recommended for admission by ED physicians. Real-time data were collected through direct observation of 106 patient movements, recorded in an Excel spreadsheet, from the point of admission recommendation to transfer completion. Convenience sampling was employed, including patients arriving between 9:00 am and 5:30 pm, excluding those arriving outside these hours and on Sundays, as well as brought-in-death cases.

RESULTS

Of the 106 patients observed, 33 were transferred within 1 hour, 53 within 1 to 2 hours, and 20 took more than 2 hours. The TAT ranged from a minimum of 9 minutes to a maximum of 7 hours and 16 minutes, with an average TAT of 1 hour and 28 minutes. Payment methods included cash payment (36 patients), government panels (43 patients), insurance TPA (26 patients), and international cash payment (1 patient). Patient destinations included the Cath Lab (20 patients), ICU (40 patients), and various wards (46 patients).

Key factors influencing delays were identified as attendant delays (22%), nursing delays (24%), secondary cross-reference delays (7%), panel approval delays (30%), unavailability of shifting staff (11%), and pending investigation reports (6%).

CONCLUSION

This study highlights significant factors impacting TAT in patient transfers from the ED.

Recommendations include increasing manpower to reduce nursing and shifting staff delays, implementing a digital panel approval system accessible from the emergency department, designating specific staff members to assist with panel procedures, enhancing communication among nurses to avoid confusion, and increasing staffing levels or redistributing nursing resources to ensure adequate coverage for sample collection and patient care. These measures aim to improve healthcare delivery efficiency and patient outcomes at Medanta Hospital, Gurgaon.

ABOUT – MEDANTA The Medicity

Medanta-The Medicity, founded by Dr. Naresh Trehan, was established to address the urgent need for an advanced super-specialty medical facility in India. Medanta was born out of the problems Indian patients face because the treatment abroad was too expensive for them. Realising this necessity, Dr Trehan felt the need to provide high-quality healthcare, combining advanced technology with a mix of ancient Indian medicine and modern practices on one platform at an affordable price. The vision culminated into laying the foundation stone of Medanta, which emerged as India's first private hospital. Under the astute visionary leadership of Dr Trehan and institution's resolute quest to attain ideals, Medanta today has grown into being India's foremost private hospital.

Medanta aimed solely to provide affordable health services and on principles at the core of which lay an accessible provision of health services to all. Their vision is to help healthcare become within the reach of all sick. Its vision is to provide world-class health care through development of centres of excellence in integrated health care, medical education, and research.

Medanta's core values are the very centre of operations and ethos that would help in sustaining leadership and excellence. Outstanding outcomes can be delivered through exemplary actions and behaviors. Integrity and courage are essential, as the hospital sustains high ethical standards by safeguarding the interest of patients and showing the courage to do what is right. Building a culture in which everyone is committed to exceeding expectations in patient care and service to their families, compassion, and service also play a big role. Finally, Medanta encourages teamwork, embraces change, fosters creativity, and relentlessly seeks improved methods to achieve its goals through the promotion of collaboration, learning, and innovation.

Medanta's healthcare delivery model enables super-specialized doctors to provide the highest quality care through a collaborative, team-based approach. The hospital environment is designed to be safe and welcoming, with patient-centric features, advanced equipment, and technology to support complex diagnostics and treatments. The clinical team includes award-winning doctors, many of whom have received training at leading medical institutions and have been mentored in the Medanta way.

Medanta believes in teamwork; the culture here calls for cooperation with integrated multispecialty care. The departmental structure at Medanta allows subspecialization and integrates all departments

into one team with no lacuna. A full-time doctor engagement model, whereby most doctors practice exclusively through Medanta's hospitals promotes teamwork in care delivery, in part through a joint reward system.

○ Specialties:

- Institute Of Musculoskeletal Disorders and Orthopedics
- Cancer Institute
- Breast Cancer
- Head and Neck: Oncology
- Medical and Haematoma Oncology
- Radiation Oncology
- Institute of Critical Care and Anesthesiology
- Institute of Digestive and Hepatobiliary Sciences
- Gastroenterology
- GI Surgery, GI Oncology and Bariatric Surgery
- Institute of Chest Surgery-Chest Onco Surgery and Lung Transplantation
- Heart Hospital
- Institute of Obstetrics and Gynaecology
- Clinical and Preventive Cardiology
- Cardiac Surgery
- Electrophysiology and Pacing
- Interventional Cardiology
- Kidney and Urology Institute
- Nephrology
- Urology and Andrology
- Institute of Liver Transplantation and Regenerative Medicine
- Institute of Neurosciences
- Ayurvedic Medicine
- Clinical Immunology and Rheumatology
- Dental Sciences
- Dermatology
- Emergency and Trauma Care
- Endocrinology and Diabetology

- Gynecology and Gynae Oncology
- Internal Medicine
- ENT, Head & Neck Surgery Hospital
- Laboratory Medicine. Pathology and Blood Bank
- Ophthalmology
- Internal Medicine
- ENT, Head & Neck Surgery Hospital
- Laboratory Medicine. Pathology and Blood Bank
- Ophthalmology
- Paediatrics
- Peripheral Vascular and Endovascular Sciences
- Radiology and Imaging
- Respiratory and Sleep Medicine
- Plastic, Aesthetic and Reconstructive SurgeryFacilities
and Services offered:
- Emergency & Trauma Care
- Critical Care Units
- Lab Tests & Diagnostics
- Wards & Rooms
- eCLINIC-Telemedicine Services
- Day Care
- Home Sample Collection
- Patient Support Services
- Homecare Services
- Medicine Delivery

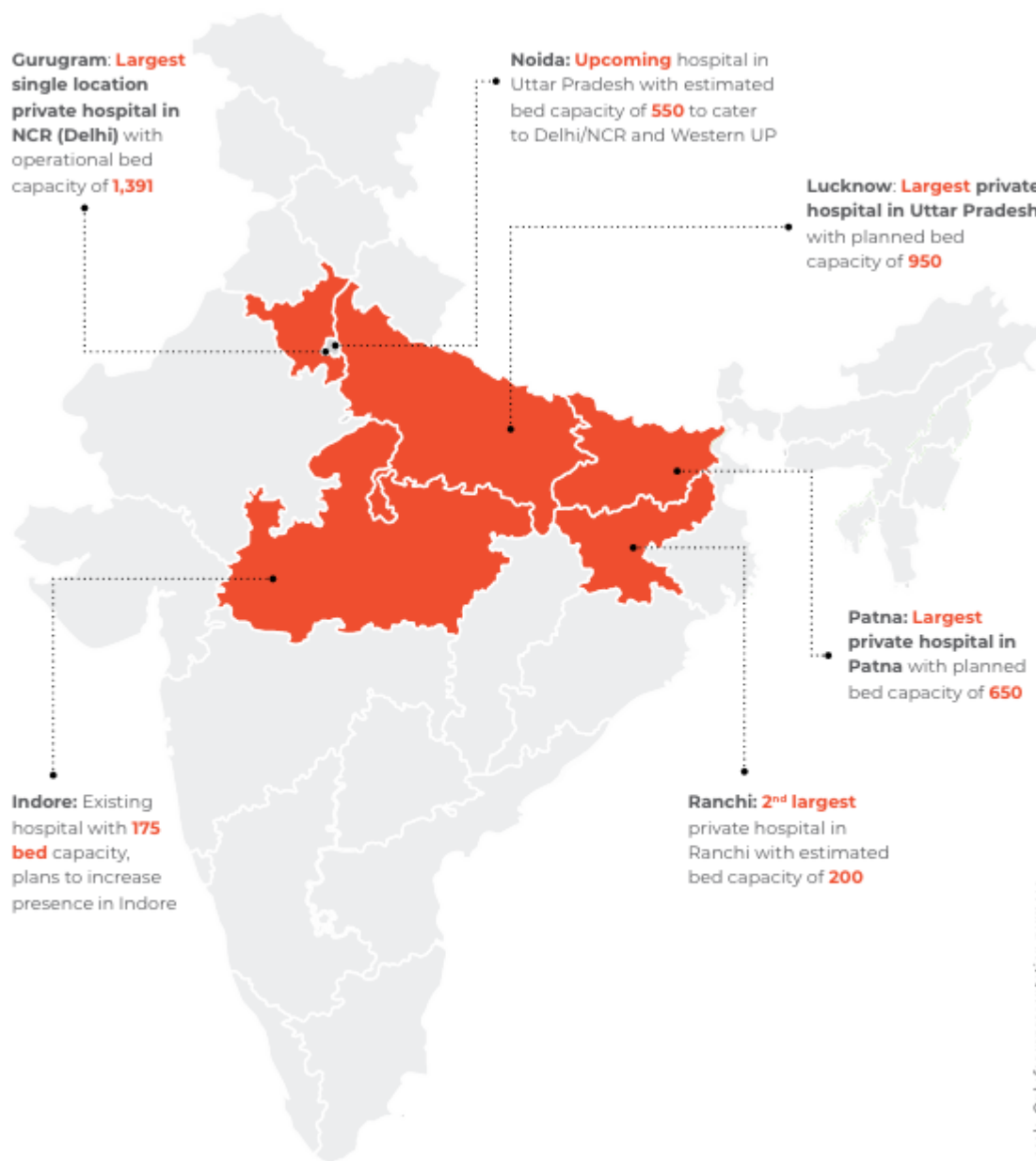
Medanta Mediclinic is basically an extended arm of Medanta with the vision to bring super-specialized healthcare to people conveniently through a network of outpatient clinics. The hospitals, with state-of-the-art medial technologies and skillful medical professionals, offer services regarding consultation, diagnosis, and medication for different diseases. These clinics would treat patients whose problems, though not serious enough to warrant hospitalization, would call for specialized treatment by doctors within the comfortable ambience of formal consultation, examination, diagnostic testing, and minor operations. Fully equipped with the latest state-of-the-art medical facilities and state-of-the-art

technology, the clinics are fully equipped to obtain accurate diagnostics and execute effective treatment plans to uphold the excellence of practice set by Medanta—The Medicity.

These medical disciplines include Cardiology, Endocrinology, Gastroenterology, and Orthopedics, Neurology, and Pulmonology, among many others. With the strong team-based approach to treatment of patient conditions, specialists in this clinic look at the whole aspect and treat the patient according to his or her needs. This model brings better care quality to the patient and helps him or her benefit from the collective expertise of truly world-class clinicians at Medanta. This is where visitors to Medanta Mediclinics will get personalized attention for a comprehensive range of services, from routine checkups and specialized consultations to follow-up care. Taking the much-adorned healthcare services offered by Medanta beyond the hospital, Medanta Mediclinic increases ease of access to quality healthcare for more people.

Units	Overview
Medanta –The Medicity, Gurugram	Flagship facility of Medanta - Established in 2009 1,391 installed beds 280 ICU beds
Medanta Hospital, Lucknow	- Established in 2019 410 installed beds 93 ICU beds
Medanta Abdur Razzaque Ansari Memorial Weavers’ Hospital, Ranchi	- Started Operations under “Medanta” brand in 2015 200 installed beds 68 ICU beds
Medanta Super Speciality Hospital, Indore	- Started Operating under “Medanta” brand in 2015 200 installed beds 68 ICU beds
Jai Prabha Medanta Super Specialty Hospital, Patna	- Commenced operations under the "Medanta" brand in 2014. Inpatient services launched in 2021 - Designed to accommodate over 500 beds, 112 ICU beds
Medanta Hospital, Noida	- Commencement in FY25 300 expected installed beds

Table 2.1 Various units of Medanta



Note: Medanta operate 6 clinics in addition to hospital network

Map not to scale. Only for representation purpose

Fig 2.1

CHAPTER 1

INTRODUCTION

An emergency department is essential to any healthcare system and may be viewed as the first line of care for acute and urgent medical conditions. This specialized hospital unit is designed to deliver immediate assessment, diagnosis, and treatment for patients with various medical conditions, from minor injuries to critical emergencies. The primary purpose of an ED is to stabilize patients, address urgent health problems, and ensure quick transfer to appropriate inpatient units, like hospital wards or the Intensive Care Unit (ICU), for those needing further treatment.

The Emergency Department at Medanta Hospital, Gurgaon, is a state-of-the-art facility providing 24 X 7 Emergency and Trauma Care. It is subdivided into several sections to ensure efficient patient handling and care:

- **Emergency Reception:** This area is manned 24X7 by receptionists and facilitators responsible for admission and billing processes.
- **Triage:** The triage section consists of 18 beds, with 2 beds designated for Category-1 patients (resuscitation beds) and 16 beds allocated for patients in Categories 2, 3, 4, and 5.
- **Observation:** This section includes 14 beds and 1 isolation bed for patients requiring continuous monitoring.

For emergency access, Medanta Hospital provides a dedicated number: 0124-4141414, with extensions 2411 and 2197. The Ambulance Base Station can be reached at 0124-1068 or via mobile at 9560398953.

The purpose of this study is to investigate the factors influencing the turnaround time (TAT) in shifting patients from the ED to the ward or ICU at Medanta Hospital, Gurgaon, and to propose strategies aimed at enhancing the efficiency of this process. There are several reasons why effective transfers from the emergency department need to be facilitated.

Timely patient shifting is an extremely important determinant in reducing morbidity and mortality rates by ensuring that the initiation of treatments, interventions, and monitoring protocols programmed for the patient are carried out in time. Delaying the process of patient transfer may worsen current medical

conditions, enhance the possibility of contracting complications, and worsen the prognosis of a patient at admission. Expedited transfers may, therefore, reduce the intensity of various illnesses and participate in improving general patient prognosis.

Besides improving patient safety, it is essential to reduce ED congestion for eased financial pressure on patients and health systems. With increased ED stay, healthcare becomes more burdensome to the patients and a waste of hospital resources, which in turn affects resource allocation and utilization. Optimizing patient flow with minimum turnaround time will streamline resource utilization, improve operational efficiency, and reduce avoidable healthcare costs.

Timely transfers of patients to the Intensive Care Unit significantly impact the length of stay. This ensures access to specialized care that enables timely interventions, which would have helped prevent a worsening disease process and thus reduce the high mortality associated with extended critical care. This will not only optimize the chances of patient survival but also ensure good utilization of ICU beds, so they are available for more critically ill patients requiring such urgent care.

Decongesting the Emergency Department (ED) improves the overall patient experience by cutting down wait times, reducing overcrowding, and ensuring timely, appropriate care. Efficient transfers allow patients to receive the necessary attention and treatment more quickly, leading to higher satisfaction and better interactions with healthcare providers.

By creating more space in the ED, hospitals can better accommodate incoming patients who need urgent medical attention, ensuring prompt access to care and reducing the risk of treatment delays or adverse outcomes. This enhances the delivery of comprehensive and timely healthcare services to all patients, ultimately contributing to improved population health outcomes and the sustainability of the healthcare system.

A variety of factors may influence TAT in patient disposition, including the availability of resources in a hospital, ED crowding, staffing levels, and communication protocols, and bed availability in receiving units, as well as the complexity of patients' conditions. Each one of these variables is able to interact with each other in complicated ways, consequently having an impact on the efficiency of the transfer process at large. All these factors need scrutiny if effective strategies for reducing TAT and smoothing patient flow are to be designed.

Overview of Patient flow in Emergency Department

The patients come to the Medanta Hospital ED either by ambulances, from other hospitals or private clinics, or directly by walking in. The patient would then be quickly assessed by the doctor and assisted by the GDA staff members who facilitate an initial triage process.

Triage is an important step in ED where a doctor, assisted by GDA staff, assesses the condition of the patient to gauge the seriousness and urgency of his or her medical requirement. One of the attendants of the patient goes for registration formalities at the registration desk and billing counter simultaneously. All this should be taken care of so that the details of the patient get recorded in the hospital's database and administrative work is tackled efficiently.

Based on the triage assessment, the doctor decides how urgent the case is. This is followed by an initial evaluation by a nurse and a doctor that goes with measurements of vital signs, taking a history, and preliminary physical examination. Medication-related initial interventions are carried out to stabilize the patient.

Further diagnostic tests and intervention follow the initial evaluation, based on the patient's needs. This might include performing laboratory tests and imaging studies and other investigative procedures to develop a proper diagnosis of the patient's condition. If necessary, the ED staff contacts other professional, medical specialty departments to cross-refer patients for complete treatment.

Once the emergency treatment and diagnostics are completed, the patient's disposition is determined based on their condition. If the patient has stabilized and no longer requires immediate medical attention, they may be discharged from the ED with appropriate follow-up instructions. In cases where the patient or their family decides not to pursue further treatment despite medical advice, the patient is processed for Leave Against Medical Advice (LAMA).

Patients who need urgent surgical intervention or cardiac procedures are immediately transferred to the Operating Theatre or the Catheterization Lab. Those that require further medical care are transferred to appropriate inpatient units. Stable patients are sent to the general ward, while patients who need close monitoring and treatment are referred to the Intensive Care Unit.

Key Stakeholders in ED

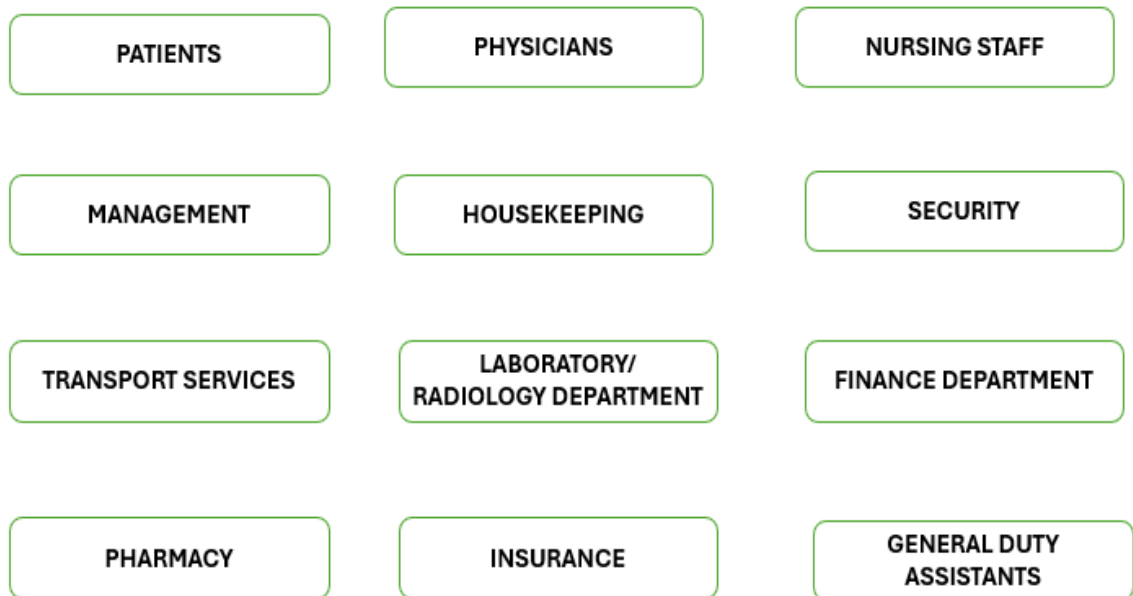


Fig. 4.1

OVERVIEW OF PROCESS IN THE EMERGENCY DEPARTMENT

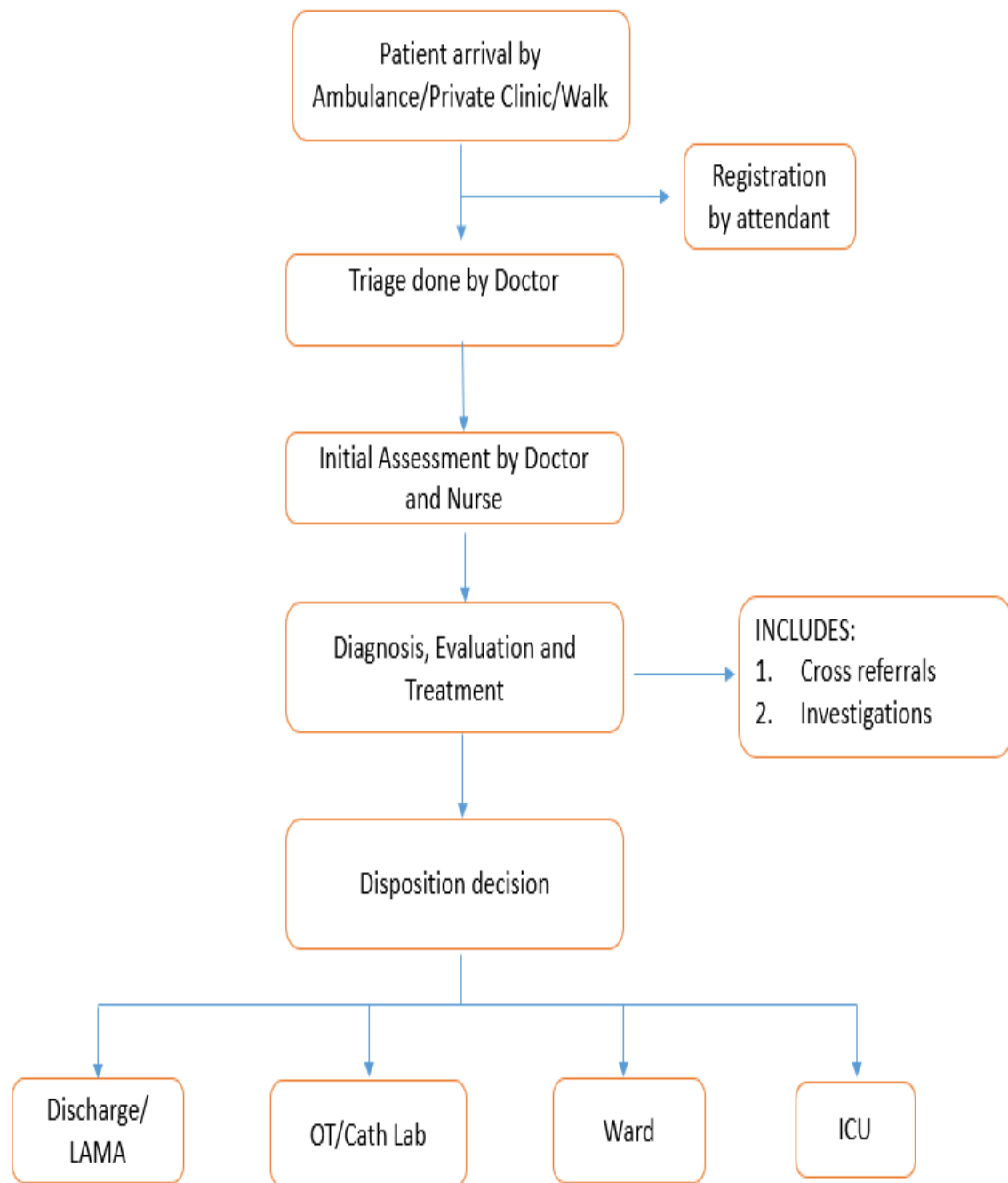


Fig. 4.2

AUSTRALASIAN TRIAGE SCALE

The Australasian Triage Scale is a triaging tool used to sort patients upon presentation into levels of acuity requiring treatment in the emergency room. It consists of a five-level triage scale developed by and supported the Australasian College for Emergency Medicine. The categories of ATS are set with respect to physiological acuity, for example, airway, breathing, circulation, and disability, together with the waiting time within which treatment must commence.

ATS Category	Response	Category Description	Clinical Descriptors
Category 1	Immediate simultaneous assessment & treatment	Immediately life-threatening Conditions that endanger life and necessitate prompt, intensive intervention.	Conditions that pose an imminent threat to life, requiring prompt and intensive intervention. Examples include: • Cardiac arrest • Respiratory arrest • Imminent airway risk, such as respiratory rates below 10 breaths per minute • Severe respiratory distress • Blood pressure below 80 in adults or signs of severe shock in children/infants • Unresponsiveness or only responding to painful stimuli (GCS less than 9) • Prolonged ongoing seizures • IV overdose resulting in unresponsiveness or hypoventilation • Severe behavioral disorder posing an immediate threat of

			violent behavior
Category 2	Assessment & treatment within 10 mins (assessment & treatment often simultaneously)	Imminently life-threatening conditions" mean those wherein the patient's condition is either severe or rapidly deteriorating with a potential threat to life or threat of organ failure if not treated within ten minutes of arrival, including conditions wherein immediate treatment, in the nature of thrombolysis or antidote administration, for instance, can make a profound difference in clinical outcomes when it is begun within a short time after the patient's arrival in ED. This principle underlines that alleviation of extreme pain or distress should take a maximum of 10 minutes and forms the	Airway concerns, such as severe stridor or drooling with associated distress, severe respiratory distress, circulatory compromise (e.g., clammy or mottled skin, poor perfusion, heart rate below 50 or above 150 in adults, hemodynamically impactful hypotension, severe blood loss), chest pain likely originating from cardiac issues, intense pain of any origin, low blood sugar levels below 3 mmol/l, drowsiness or reduced responsiveness (GCS less than 13) due to any cause, acute hemiparesis or dysphasia, fever accompanied by lethargy (in any age group), suspected meningococemia, eye exposure to acid or alkali requiring irrigation, major multi-trauma necessitating a swift and coordinated team response, severe localized trauma like major fractures or amputations, high-risk medical histories, significant ingestion of sedatives or other harmful substances, and severe or dangerous envenomation.

		guiding factor for humane practice.	
Category 3	Assessment and treatment start within 30 mins	In the "Potentially Life-Threatening" category, patients face conditions that could progress to life-threatening situations or result in significant harm to limbs if assessment and treatment do not begin within thirty minutes of arrival. This category also covers cases where timely intervention within this timeframe is crucial to prevent adverse outcomes. Moreover, addressing severe discomfort or distress within thirty minutes is a fundamental aspect of compassionate medical care.	This category encompasses conditions such as severe hypertension, moderate blood loss from any cause, moderate shortness of breath with SAO2 levels between 90% and 95%, blood sugar levels exceeding 16 mmol/l, seizure with the patient now alert, fever in immunosuppressed patients (such as those receiving oncology treatment or steroid therapy), persistent vomiting, dehydration, head injury with brief loss of consciousness but now alert, moderately severe pain necessitating analgesia, moderately severe chest pain not cardiac in origin, moderately severe abdominal pain in patients over 65 years old without high-risk features, moderate limb injuries including deformity, severe laceration, or crush injury, limbs with altered sensation or acutely absent pulse, trauma with a high-risk history lacking other significant risks, stable neonates, children at risk of abuse or suspected non-accidental injury, and behavioral or

			psychiatric issues like severe distress and risk of self-harm, acute psychosis or thought disorders, situational crises or deliberate self-harm, and agitation or withdrawal.
Category 4	Assessment & Treatment start within 60 minutes	In the category of "Potentially serious," the patient's condition may worsen or lead to adverse outcomes if assessment and treatment is not initiated within one hour of arrival at the ED. Symptoms in this category are typically moderate or prolonged. There is also urgency for timely treatment to prevent adverse outcomes within the hour. Additionally, cases in this category often involve significant complexity or severity, requiring thorough evaluation, consultation, and possibly inpatient	Here are examples within this category: mild hemorrhage, foreign body inhalation without breathing problems, chest injury without rib pain or breathing difficulties, difficulty swallowing without respiratory distress, minor head injury without loss of consciousness, moderate pain with some risk factors, vomiting or diarrhea without dehydration, eye irritation or foreign object with normal vision, minor limb injury such as a twisted ankle, possible fracture, or simple laceration requiring assessment or treatment, normal vital signs with low to moderate pain, snug cast without nerve or blood flow issues, swollen, warm joint, nonspecific abdominal discomfort, and behavioral or psychological concerns such as semi-urgent mental health problems and individuals under observation with no immediate threat to themselves or

		care. Moreover, it is considered essential within humane medical practice to alleviate discomfort or distress within one hour.	others.
Category 5	Assessment and treatment start within 120 minutes	This category denotes situations where the patient's condition is either chronic or minor, allowing for a delay of up to two hours in assessment and treatment without significantly affecting symptoms or clinical outcomes. It also encompasses administrative tasks such as reviewing results, issuing medical certificates, and handling prescription requests. Examples include: • Minimal discomfort without high-risk attributes • Low-risk medical history	• Minor discomfort without significant risk factors • Patients with a low-risk medical history and no current symptoms • Mild symptoms associated with a stable, ongoing medical condition • Minor symptoms related to conditions of low risk • Small wounds such as minor abrasions or lacerations that do not necessitate stitches • Scheduled follow-up appointments for wound assessments or dressing changes • Immunization appointments exclusively • Patients dealing with behavioral or psychiatric issues, such as those with established chronic symptoms or experiencing a stable social crisis.

		without current symptoms • Minor manifestations of a stable, ongoing medical condition • Minor symptoms associated with conditions of low risk • Trivial concerns	
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Table 5.1

AIM

To determine the key factors influencing the turnaround time (TAT) in shifting patients from the Emergency Department to the ward at Medanta Hospital, Gurgaon.

OBJECTIVES

1. To study the current process of patient transfer from the ED to wards /ICU/ Cath Lab at Medanta Hospital.
2. To identify factors affecting TAT in patient shifting .
3. To trace the reason for delays, if any.

CHAPTER 2

LITERATURE REVIEW

S.No.	AUTHOR	YEAR	TITLE	FINDINGS
1.	Halland Press, and Fernandes et al.	1996	Factors affecting the service quality of ED	Besides turnaround time, other aspects impacting the quality of service in the ED involve delays (Halland Press, 1996 and Fernandes et al. 1994) experienced by patients during treatment. These delays encompass waiting for essential resources such as nurses, physicians, specialists, and logistical personnel, as well as waiting for bed availability and test results.
2.	La Vonne A. Downey and Leslie S. Zun	2007	Determinates of Throughput Times in the Emergency Department	It investigates the determinants of throughput times in an inner- city level 1 adult and pediatric trauma emergency department. The setting is in the contexts of a global challenge of long ED wait times, perceived as a result of increased volume of patients visiting the emergency room and system-wide problems. Previous studies indicate an increase in emergency department visits, with a corresponding decrease in emergency department availability, causing

				overcrowding and long wait times. Patient perceptions of the quality of care often relate to waiting times, staff attitudes, and provision of information. Satisfaction is more often linked to perceived rather than actual throughput times. It is a summary of studies founding the multifaceted nature of the ED throughput challenges, above all from system-wide problems such as bed availability and access to ancillary services to non-urgent cases. Improvement in ancillary services, in particular times to results in labs, is as promising as collaborative team approaches to redesigning patient flow that reduces wait times and improves satisfaction levels. This is a retrospective study that estimates the various factors that affect throughput: presenting illness type, triage level, waiting time, and patient demographics. The results obtained in this study demonstrate significant differences in times to discharge between different priority groups, indicating increased waiting time among some subgroups of patients who require greater reliance on ancillary services.
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				The present study adds to existing body of literature by identifying specific determinants of inner-city ED throughput and informs targeted interventions aimed at improving ED operations and optimizing patient outcomes
3.	Diercks DB, Roe MT, Chen AY, et al	2007	Prolonged ED wait time and length of visit	Liew D and Kennedy MP (2003) have highlighted that extended wait times and prolonged visits in the Emergency Department (ED) can reduce the quality of care and elevate the risk of adverse events for patients with serious conditions. Similarly, a study by Diercks DB, Roe MT, Chen AY, et al (2007) found that patients with non-ST-elevation myocardial infarction (MI) who spend more than 8 hours in the ED face a higher risk of recurrent in-hospital MI compared to those with shorter stays.
4.	Renaud, Santin, Coma, Camus, Van Pelt, Hayon, Gurgui, Roupie, Herve, Fine, BrunBuisson, &Labarere	2009	Association between timing of intensive care unit admission and outcomes for emergency department patients with community-acquired pneumonia	Renaud et al. (2009) found that patients with delayed transfers had a significantly higher 28- to 16-day mortality rate (23.4% vs. 11.7%) and a longer median hospital stay (13 days vs. 7 days) compared to those who were transferred directly. Notably, patients moved directly to the ICU from the ED had a mortality

				rate of 13.6%, while those experiencing a transfer delay of at least 3 days faced a mortality rate of 19.6%.
5.	Alison Day and Carol Oldroyd	2012	Attempting to reduce the maximum emergency waiting time to 4 hours in England: was the initiative successful?	Alison Day and Carol Oldroyd (2012) in their study titled "Attempting to reduce the maximum Emergency waiting time to four hours in England: Was the initiative successful?" stated that "Long wait times in the emergency department have been recognized as a concern throughout the world demand on services increases. A prolonged ED wait time reduces quality of care and can adversely affect outcome for patients with serious illness. In addition extended wait times and ED crowding contribute to patient dissatisfaction and staff frustration. In response to these issues, The Department of health, England proposed, as a part of National Health Service (NHS) Plan, a maximum waiting time of 4 hours to admission, transfer or discharge."
6.	Bukhari, H., Albazli, K., Almaslmani, S., Attiah, A., Bukhary, E.,	2014	Analysis of Waiting Time in Emergency Department of Al-Noor Specialist Hospital, Makkah,	Bukhari H, Albazli K, et al. (2014) reported an average length of stay (LOS) in the ED of 3 hours and 2 minutes (SD - 5 hours and 3 minutes).

	Najjar, F., et al.		Saudi Arabia	Additionally, they observed that 23.4% of ED visits had LOS delays exceeding four hours. These extended stays were associated with longer times for laboratory tests and consultations, admissions to observation or trauma units, management of critical care patients, and delays from the final decision to the initiation of physical response.
7.	Paul Richard Edwin Jarvis	2016	Improving emergency department patient flow.	Paul Richard Edwin Jarvis conducted a literature review at the Emergency Department of Calderdale & Huddersfield NHS Foundation Trust in West Yorkshire, UK. The review sought to identify evidence-based strategies to reduce patient waiting times and improve patient flow, thereby alleviating ED overcrowding. Strategies such as doctor triage, rapid assessment, streaming, and integrating primary care clinicians into the ED have proven effective in enhancing patient flow. Moreover, the effective use of point-of-care testing has been shown to reduce ED stay times. Implementing

				new work patterns and introducing technologies like point-of-care testing are also effective in improving departmental efficiency and reducing crowding in the ED.
8.	Puneet Freibott DNP, RN, NEA-BC, CCRN-K'S	2017	Optimizing Emergency Department Throughput Using Best Practices to Improve Patient Flow	The project aimed to enhance Emergency Department (ED) efficiency at a tertiary acute care hospital by addressing overcrowding and operational inefficiencies. It implemented evidence-based interventions and structural changes, including training ED charge nurses as patient flow coordinators to prioritize evaluations in the waiting room, supported by improved communication and collaboration strategies. Structural adjustments involved creating an assessment area within the ED waiting room and reallocating resources. Methods included auditing patient charts per CMS guidelines and analyzing throughput data, resulting in significant improvements: reduced time to diagnostic evaluation, decreased ED diversion rates, and lower rates of patients leaving without being

				seen. The project emphasized collaborative efforts, cultural shifts among ED physicians, and strategies to overcome barriers. It underscored the global challenge of ED overcrowding and emphasized the critical role of throughput in enhancing care quality. In conclusion, the initiative successfully optimized ED operations, providing valuable insights into enhancing care delivery amidst rising patient numbers and resource constraints.
9.	George M, Jose J, Varughese J	2019	Determinants of emergency department turnaround time: A study from a tertiary care hospital in South India	The study analyzed 1,010 patients in a South Indian tertiary care hospital's emergency department and found factors affecting turnaround time (TAT). Patients arriving by ambulance had longer TAT, while higher triage category and night shift assessment were associated with longer TAT. Age and gender did not significantly impact TAT. Interventions include streamlining triage, optimizing physician staffing, and improving coordination between emergency medical services and the ED

10.	Ramani S, Devi L, Yedidi RS	2019	Analysis of factors affecting emergency department turnaround time: a study from a tertiary care hospital in South India	The study analyzed data from 1,300 patients over a one-year period. Identified several factors that significantly impacted TAT, including the mode of arrival (ambulance arrivals had longer TAT) patient category (referrals from other hospitals had longer TAT), time of arrival (night-time arrivals had longer IT), and time of physician assessment (assessments during night shifts led to longer TAT). Challenges related to staffing, diagnostic testing delays, and patient referrals were also identified. The study recommended interventions such as optimizing staffing during night shifts, improving coordination with referring hospitals and expediting diagnostic testing to reduce TAT and enhance the efficiency of care in the ED.
11.	Gupta S, Singh S, Kashyap A	2020	Reducing turnaround time for critical patients in the emergency department.	The study aimed at enhancing the efficiency of ED workflow to deliver care at the right time to critically ill patients and The interventions aimed at reducing TAT for critical patients in the ED were implemented, which showed major improvement. These

				interventions resulted in a significant decrease in TAT and better management of critical patients. It emerges from the findings that process optimization and targeted interventions are important in enhancing emergency care delivery in the ED.
12.	Thakur A, Gupta S, Sharma R	2020	Study of patient flow and turnaround time in the ER in a tertiary care hospital	This was a retrospective study conducted using data from 1,128 patients over a period of six months. The authors have identified delays in triage, inadequate staffing during peak hours, longer waiting times for diagnostic tests, and delays in decision making regarding patient disposition, all accounting for an increased TAT. Interventions such as optimizing staffing levels, streamlining triage processes, improving communication and coordination, and expediting diagnostic testing and decision making associated with improving TAT changed the efficiency of care in ED.

Table 7.1

CHAPTER 3

METHODOLOGY

This was an observational study, entailing real-time analysis of patient flow within the Emergency Department (ED) of Medanta Hospital, Gurgaon. The design used was a cross-sectional and carried out over April 2024.

The research focuses on patients who were recommended for admission to either the wards, Cath Lab, or Intensive Care Unit (ICU) by attending physicians within the ED. Data collection was carried out throughout the month of April 2024, capturing essential details regarding the turnaround time (TAT) for shifting patients from the ED to the respective inpatient units.

DATA COLLECTION METHOD

Real-time data collection was executed through direct observation of patient movements, meticulously recorded in an Excel spreadsheet, from the point of physician recommendation for admission to the subsequent transfer to either the ward, Cath Lab or ICU.

SAMPLE SIZE

In April 2024, a total of 2361 patients were registered in the Emergency Department at Medanta Hospital, Gurgaon, Haryana. Out of these, 1062 patients were admitted to inpatient units, including the cath lab, wards, and ICU.

Average patients registered in ED in last 3 months = 2361

Average patients admitted to IP units in last 3 months = 1062

Sample size = 10% of the average patients admitted to inpatient Units.

= 10% of 1062

=106

SAMPLING TECHNIQUE

This study utilizes a convenience sampling method to ensure feasible data collection within the given timeframe and resources, ensuring that the sample is representative of the entire population of admitted patients. This approach helps in maintaining the integrity and accuracy of the collected data, which is paramount to the validity of the study. By selecting a 10% sample size, we aim to maintain a balance

between statistical validity and practical feasibility, ensuring that the study outcomes are both reliable and actionable.

This study covered patients who came to the ER from 09:00 am to 05:30 pm. However, arrival before 9:00 am, after 5:30 pm, and on Sundays were excluded. The brought-in dead cases were also excluded.

Data analysis was done with the help of Microsoft Excel software, using descriptive statistics like mean, median, and standard deviation, to summarize the TATs and show the striking patterns or trends.

By following this meticulously designed methodology, the study aims to provide valuable insights into the factors influencing patient flow and turnaround times within the ED of Medanta Hospital, Gurgaon. The findings are expected to enhance healthcare delivery efficiency and patient outcomes, ultimately benefiting both the hospital and its patients.

Turnaround Time (TAT) for shifting = Time at which patient was physically shifted - Time at which admission was advised

Fig 8.1 TAT

Brainstorming sessions were organized for identifying the causes of delay. A Fish Bone Diagram was used to get a more detailed understanding of these causes. This gave a structured method for analyzing and really pinpointing the factors causing the delays.

ETHICAL CONSIDERATIONS

In our study on turnaround time (TAT) for patient transfers from the Emergency Department (ED) to the ward/ICU at Medanta Hospital, several ethical considerations must be carefully managed.

The gathering of information must, therefore, be done with strict regard to patient confidentiality and privacy. Any identifying information that directly or indirectly refers to the patients' details, such as their medical records and personal identifiers, should be treated as confidential and kept under thorough security measures to avoid unauthorized access and disclosure.

Because the foreseen study treatment is observational in nature, informed consent to be gotten from each participant or his/her legal representative is particularly vital. Written informed consent must be sought after informing participants of the purpose of the study, procedures, and risks or benefits expected prior to their inclusion into the research.

Additionally, steps should be taken to minimize any potential harm or discomfort to participants during data collection. This includes using non-intrusive observation methods and respecting patients' autonomy and dignity.

Biasness in the study

Certain steps were taken to help overcome some of these biases in this study.

First, no secondary data has been collected from the nursing registers; rather, real-time data has been collected to avoid bias due to secondary information.

Moreover, the sample of data collection was based on convenience sampling and includes all types of payment modes and all types of in-patient dispositions. This ensured that the sample was wider and more diverse, which would identify patterns of delay across different scenarios.

Moreover, the random and variable timing avoided the Hawthorne effect because the personnel was unaware of when they were being observed, and hence their normal workflow was not disturbed.

Limitations:

Probably one of the limitations of this study is the time-based sample bias, considering only patients visiting the Emergency Department from 9:00 a.m. to 5:30 p.m. and not those visiting the Emergency Department outside these hours and on Sundays. It might be biased by the exclusion of all patients coming in at night shifts and on weekends, such data may reveal variations in different patterns of patient

flow, staff availability, and TAT at these times.

This study involves convenience sampling. Patients were selected in the study because they happened to be in the ED at certain hours. This may not give an accurate reflection of the general patient population. For instance, patients who attend during busy hours might differ in their acuteness—in other words, in their need for medical attention—therefore getting different delays than their off-peak-hour counterparts.

CHAPTER 4

RESULTS

The results of this study elaborate on factors that influence TAT in patient transfers from the ED to the ward or ICU at Medanta Hospital, Gurgaon.

Disposition to definitive care unit (time duration)	No. of Patients
Within 1 hour	33
1 to 2 hours	53
More than 2 hours	20
Minimum TAT	9 minutes
Maximum TAT	7 hours 16 min
Average TAT	1 hour 28 min

Table 9.1

From January to March 2024, the Emergency Department at Medanta Hospital, Gurgaon, saw an average of 2,361 patient registrations. On average, 1,062 patients were admitted to inpatient units, including the Cath Lab, wards, and ICU. The sample size for this study was determined as 10% of the average number of patients admitted to inpatient units, resulting in a sample size of 106.

- Approximately 33 patients were shifted to the required ward, ICU, or Cath Lab within 1 hour.
- 53 patients were shifted within 1 to 2 hours.
- 20 patients took more than 2 hours to be shifted.

The minimum recorded TAT was 9 minutes, while the maximum was 7 hours and 16 minutes. The average TAT for all 106 patients was 1 hour and 28 minutes.

In Medanta's Emergency Department, the benchmark for turnaround time (TAT) from the arrival of a patient to final disposition (inpatient, LAMA, discharge) is set at 4 hours. This benchmark excludes

certain patients with clinical indications that require extended observation, such as those with kidney stones, gastrointestinal pain, or fever management.

This study focuses on identifying delays occurring in the administrative sub-process, specifically from Request for Admission (RFA) generation to the physical shifting of the patient. For this process, the baseline time for administrative procedures is set at 1 hour.

Out of the 106 patients observed, 33 patients were shifted within the baseline time of 1 hour, which constitutes approximately 31.1% of the sample. This indicates that administrative delays extend beyond the 1-hour baseline for the remaining 68.9% of patients, highlighting areas where improvements can be made to enhance the efficiency of patient transitions within the Emergency Department.

In this study, the modes of payment and the number of patients using each mode were recorded for 106 patients admitted to the Emergency Department (ED) of Medanta Hospital, Gurgaon, who were subsequently recommended for admission to either wards or the Intensive Care Unit (ICU) or Cath Lab. The breakdown of payment methods is as follows:

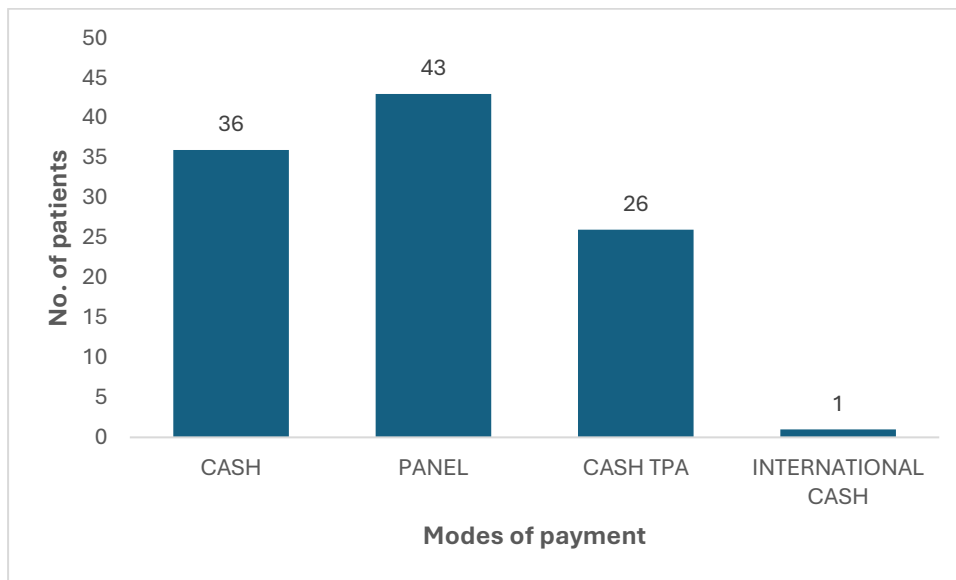


Fig. 9.1

1. **Cash Payment:** 36 patients
2. **Government Panels (Empaneled):** 43 patients
3. **Insurance TPA:** 26 patients
4. **International Cash Payment:** 1 patient

Cash payments accounted for approximately one-third of all admissions, indicating that a significant portion of patients prefer or rely on direct payment methods.

The largest group, comprising about 40.57% of the patients, were those empanelled under various government schemes. This suggests a strong reliance on governmental support for healthcare costs among the patient population.

About a quarter of the patients utilized insurance TPA for their payments.

The Emergency Department (ED) at Medanta Hospital, Gurgaon, recorded the admission dispositions for 106 patients, broken down as follows:

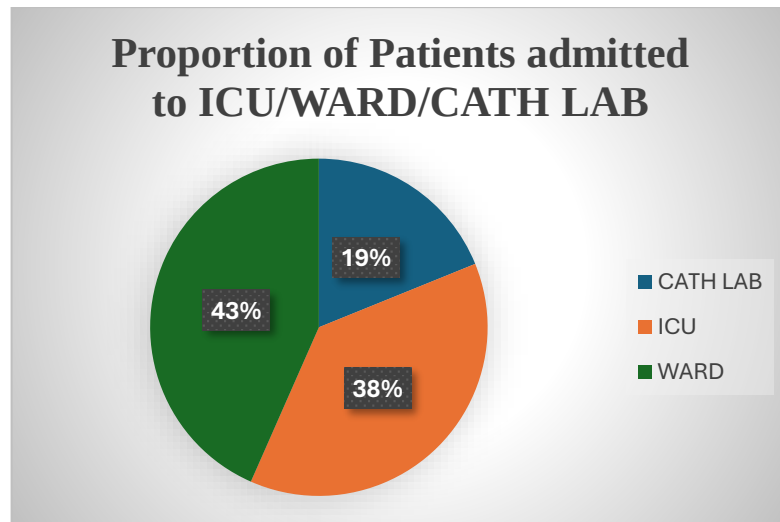


Fig. 9.2

1. **Cath Lab:** 20 patients
2. **ICU** (including ICU 1 to 12 and the Heart Command Centre): 40 patients
3. **Wards** (including specializations such as Neurosurgery, Internal Medicine, Nephrology, Pediatrics, GI Surgery, Cardiology, Musculoskeletal, etc.): 46 patients

Approximately 18.87% of patients were admitted to the Cath Lab, indicating a notable portion requiring immediate specialized cardiac intervention following their ED visit. The ICU accounted for 37.74% of the admissions, reflecting a substantial number of patients in critical condition needing intensive care and monitoring.

The largest group, 43.40% of patients, was transferred to various wards, signifying a high number of patients needing continued but less intensive care compared to those in the ICU.

The figure highlights the varying turnaround times for patient transfers from the ED to different departments within Medanta Hospital.

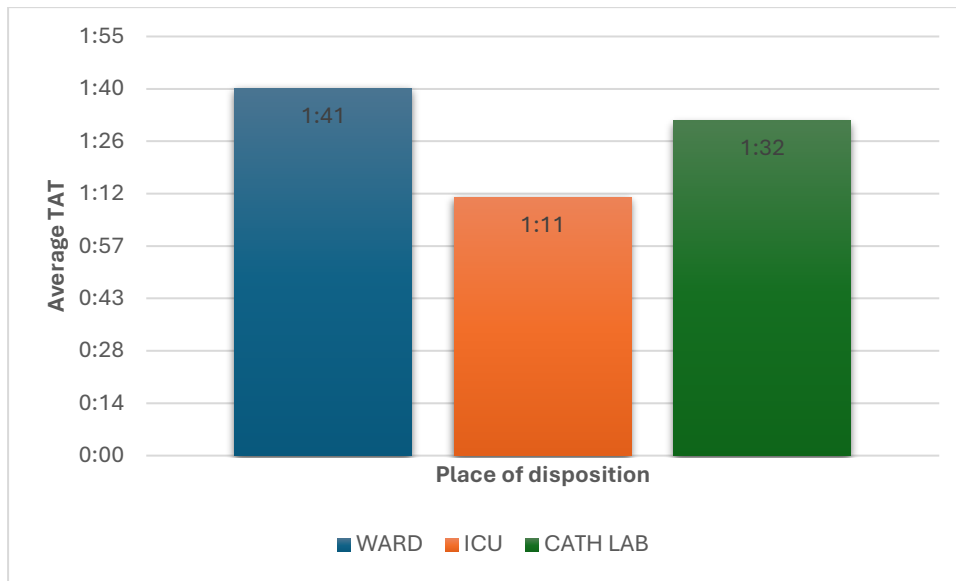


Fig 9.3

The average TAT for patients being shifted to various wards (including Neurosurgery, Internal Medicine, Nephrology, Pediatrics, Gastrointestinal Surgery, Cardiology, Musculoskeletal, etc.) was recorded at **1 hour and 41 minutes**.

For ICUs, the average TAT for patients being transferred to the ICU (covering various specialities as required by the patient's condition) was **1 hour and 11 minutes**.

The shorter TAT for ICU admissions was attributed to the prioritized handling of critical patients, although some delays were noted due to the readiness of ICU beds and coordination among medical teams.

The average TAT for patients being moved to the Cath Lab was observed to be **1 hour and 32 minutes**.

The delays for Cath Lab admissions were often due to the preparation time needed for the specialized procedures in the Cath Lab and occasional waiting times for the availability of the lab and required medical personnel.

The findings show that the ICU had the shortest TAT, reflecting the urgency of care required for critically ill patients, whereas the wards and Cath Lab had longer TATs due to factors such as bed availability and

preparation times. Addressing these delays could lead to improved patient flow and overall efficiency in hospital operations.

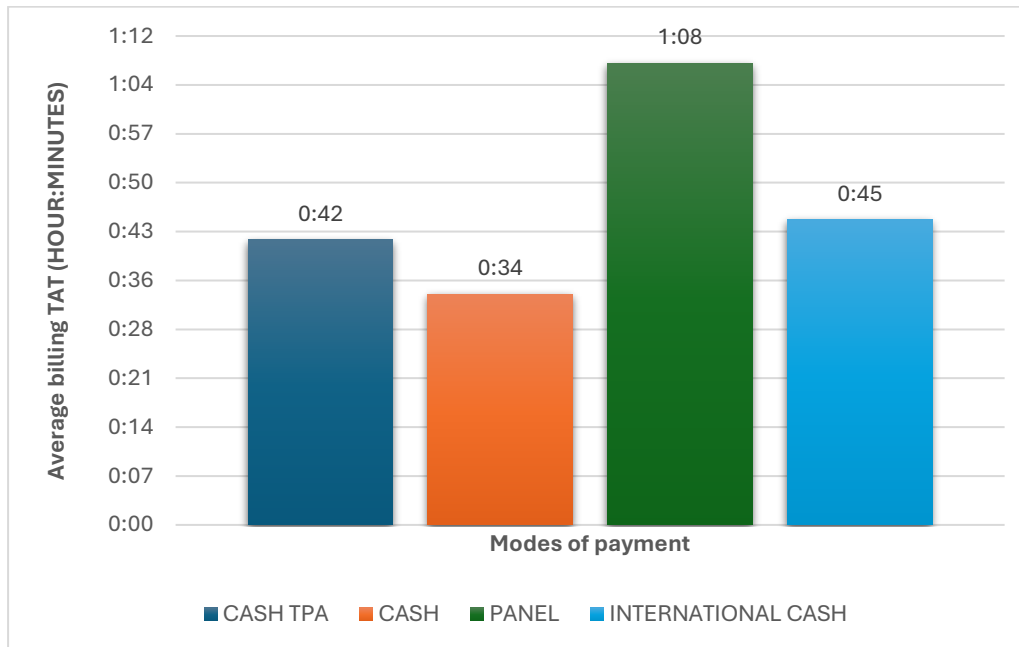


Fig 9.4

The figure illustrates the average billing time based on the mode of payment. Patients using insurance TPA have an average billing time of 42 minutes, while those paying by cash experience a shorter billing time of 34 minutes.

Empaneled patients, who pay through government panels, have the longest average billing time at 1 hour and 8 minutes. This extended billing time is primarily due to the need for approvals for specific admissions and procedures from their parent bodies, which involves going to the upper ground platinum desk, requiring additional time.

Additionally, insurance TPA patients must present the relevant insurance card and documents to claim their insurance and complete the TPA form after admission. Cash patients also require time to arrange the necessary cash. Deficiencies in documentation further contribute to increased billing times across all payment methods.

Data collection and analysis identified key reasons for delays (as mentioned in Fig 9.5) in shifting of patients from Emergency Department to the definitive care unit (ICU/WARD/CATH LAB)

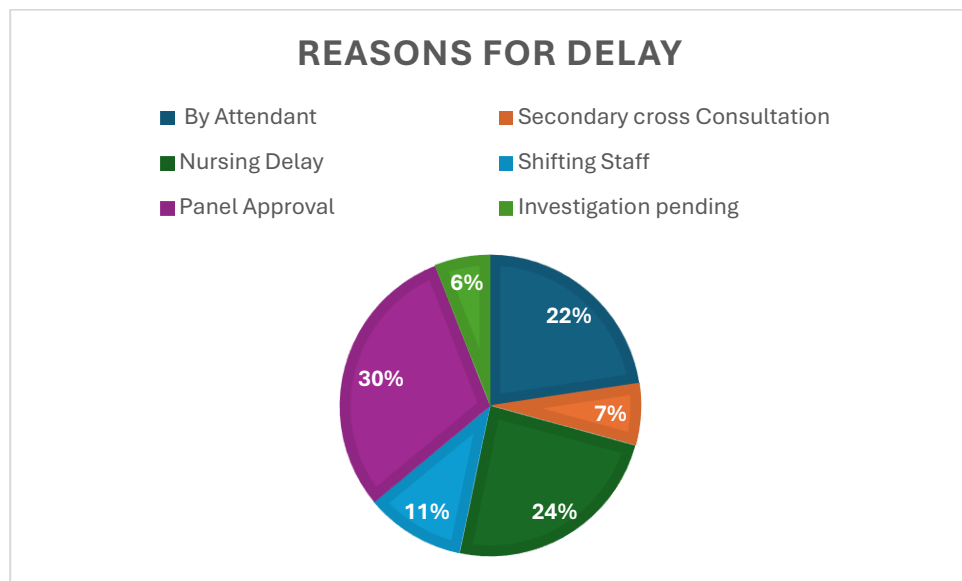


Fig 9.5

The study identified several key areas contributing to administrative delays. Attendant delays, accounting for 22% of the cases, were primarily due to financial issues such as arranging cash, deficiencies in TPA documentation, unavailability of attendants, and a lack of proper guidance about the process. Nursing delays, which comprised 24% of the delays, were linked to issues such as competency in sample collection, staff shortages (with only 64 out of the assigned 84 staff working), and nurse-to-patient ratios not meeting requirements, as well as nurses being occupied with other patients.

Secondary cross consultations contributed to 7% of the delays, often caused by the availability of physicians, scheduling conflicts, and the complexity of patient cases requiring extensive consultations. Panel approvals were responsible for 30% of the delays, due to the complexity of the panel approval process, lack of clear guidelines, attendant availability, knowledge gaps, communication breakdowns between staff and attendants, and documentation deficiencies.

Additionally, shifting staff unavailability accounted for 11% of the delays, while pending investigation reports contributed to 6%. These factors collectively highlight critical areas for improvement in the administrative processes within the Emergency Department.

CHAPTER- 5

DISCUSSION

In this section, we conduct a root cause analysis of the collected data using Fishbone Analysis. We identify the primary factors contributing to delays in patient transfers. Our findings are then compared with similar studies referenced in the literature review. This comparison highlights common challenges and effective solutions across different healthcare settings.

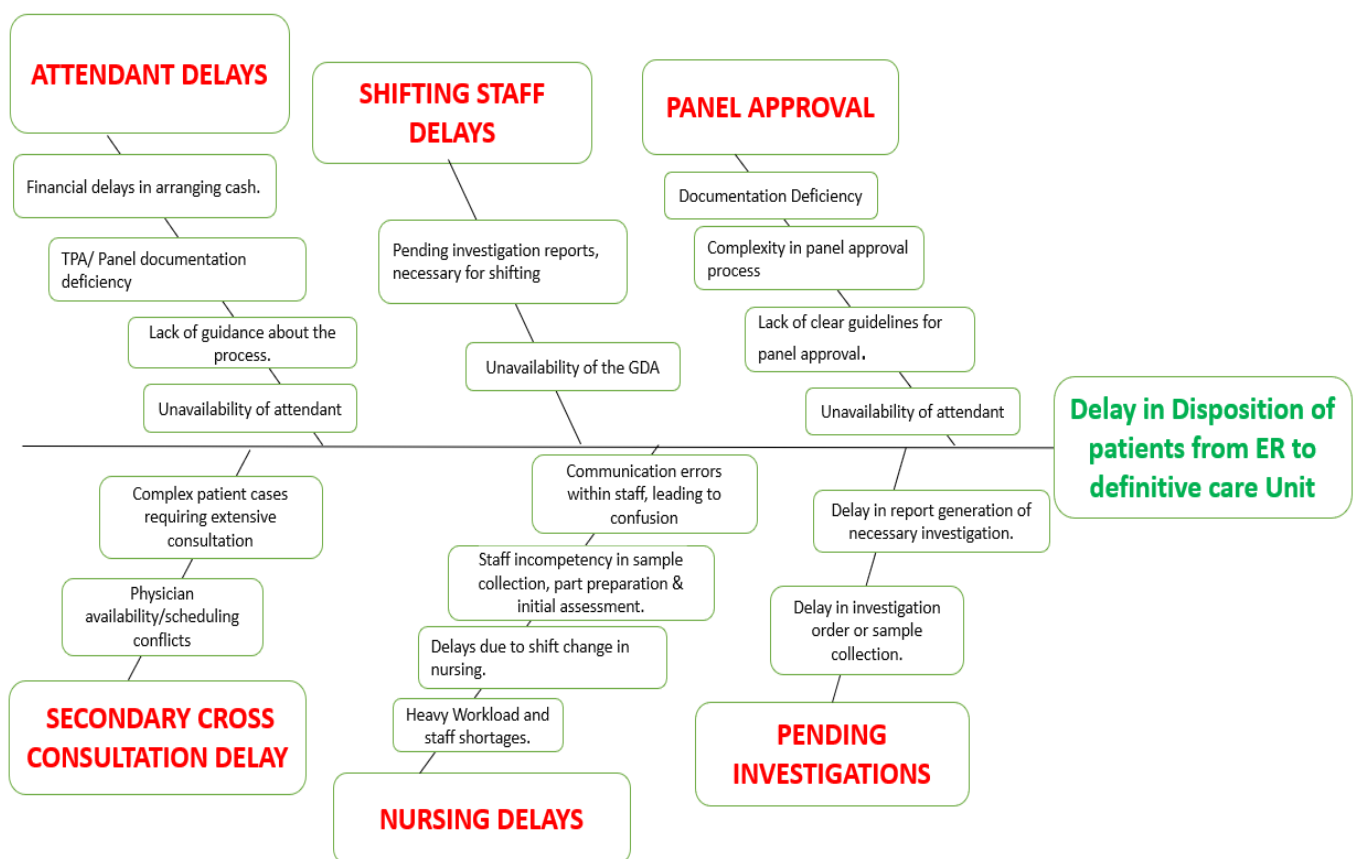


Fig 10.1

The main issue identified in this study is the delay in shifting patients from the Emergency Room (ER) to definitive care units at Medanta Hospital, Gurgaon. Several major reasons and sub-causes contribute to these delays.

Attendant delays include a lack of financial assistance policies, financial delays in arranging cash, TPA documentation deficiencies, unavailability of attendants, lack of proper guidance about the process, and a need to streamline documentation submission procedures. Secondary cross-reference delays stem from physician availability and scheduling conflicts, as well as complex patient cases requiring extensive consultation.

Nursing delays are another significant factor, caused by staff incompetency in part preparation and timely sample collection, initial assessment delays, workload on each nurse, staffing shortages, and communication errors leading to confusion among staff. Panel approval delays are attributed to complex procedures for approval, specific beds or procedures requiring approval from parent organizations, requirements for certain documents and processes, the location of the approval office (situated on the upper ground floor), and attendant availability and knowledge about the complex approval process.

The unavailability of shifting staff, particularly the lack of General Duty Assistants (GDA), is also a critical issue. Additionally, pending investigation reports contribute to delays in receiving necessary reports for patient transfer.

The identified issues in patient transfer at Medanta Hospital, Gurgaon, reflect common challenges faced by emergency departments (EDs) globally, as highlighted in various studies. These challenges impact patient flow, quality of care, and overall ED efficiency. Integrating findings from previous literature, including Downey and Zun (2007), Jarvis (2016), Bukhari et al. (2014), Day and Oldroyd (2012), Renaud et al. (2009), Hall and Press, Fernandes et al. (1996), and Diercks et al. (2007), provides valuable context and insights into addressing these challenges effectively.

Downey and Zun's study emphasizes the multifaceted nature of ED throughput challenges, similar to what we observed in our study. Factors such as patient volumes, system-wide issues, and access to ancillary services contribute to prolonged wait times. Our findings align with this, particularly regarding delays in panel approvals, nursing issues, and attendant-related delays.

Jarvis, in 2016, accepted evidence-based strategies in the pursuit to enhance the flow of patients. Her proposed practices include doctor triage, rapid assessment, and point-of-care testing. Such strategies might be relevant in our case in order to reduce unnecessary delays. Along similar lines, Bukhari et al. in

2014 noticed that laboratories and consultation times did really add to the LOS; their findings are not different from our already made assertions regarding delays in diagnostic testing and panel approvals.

Day and Oldroyd (2012) describe how long waiting periods negatively impact patient outcome and satisfaction. Similarly, Renaud et al. (2009) demonstrate this association of delayed ICU admission with increased mortality rates, outlining the critical importance of timely patient transfer and management. Factors that influence service quality in the ED, as identified by Hall and Press and Fernandes et al., include delays in different service delivery points, corroborating our findings of attendant delays, nursing-related issues, and panel approval delays. Moreover, Diercks et al. (2007) establish the negative impact of long waiting in ED on patient outcome, thus putting more pressure on the need to address delays in patient transfer.

The insights from these studies can be integrated to come up with a more directed intervention strategy for the delays identified at Medilla Hospital. Improved triage and rapid assessment protocols would enable fast-tracking patients and avoiding unnecessary delays. Enhanced ancillary services would involve investment in point-of-care testing and streamlining the diagnostic process to reduce delays related to pending investigation reports. Increasing nursing staff, physicians, and other personnel in specific positions like transfer staff for the patient transfer process can help to avoid delays due to inadequate staffing.

Processes streamlined with a digital panel approval system, accessible from the ED, and clearly guiding attendants on the same will fasten the approval processes and thereby reduce attendant-related delays. Timely transfers of patients to definitive care units are especially necessary in critical conditions, which impact patient outcomes and mortality rates. Addressing delays not only helps operational efficiency but also builds patient satisfaction, since long wait times are usually associated with dissatisfaction.

This therefore emphasizes the need to independently develop interventions targeted at improving patient flow and shortening delays in the ED, in this study and using findings from other literatures. Evidence-based tailored strategies will ensure the realization of this need at our hospital, making health delivery effective for the benefit of both patients and the hospital.

CHAPTER 6

RECOMMENDATIONS & CONCLUSION

After elaborate data collection and its subsequent analysis, the identifiable causes of delays in patient transfers were established. With these findings, many recommendations are made to make the ED more efficient in its performance. The recommendations are for a streamlined patient flow, optimized resource use, and enhanced quality in delivered patient care at Medanta Hospital, Gurgaon. The hospital management should consider the following changes:

The following steps should be implemented to remedy such situations of delay in approval by the panels.

First, the development of a digital panel approval system easily accessible from the emergency department will reduce more than ninety percent of the physical movement of attendants, and of course, the approval process itself would be much faster. This electronic approach will quicken approvals and minimize delays.

This would require extensive training for attendants in the panel approval process, which enables them to expedite their understanding and efforts during admissions. When attendants are well-prepared and knowledgeable regarding the panel approval process, then people will spend less time navigating the system, which GRE staff can attend to immediately, thus helping attendants through guidance and other forms of support, which might make this process less awkward and difficult.

An online dashboard or portal in regard to delays around bed-availability confirmation at the admission desk can vastly improve its efficiency and hospital communication. Real-time, correct information about bed availability will be availed to the executives and staff through this dashboard so that they can know its status without having to call— in most cases, not picked due to busy staff.

Finally, to facilitate panel approval procedures on time and in the proper way, some staff or even a team from within the emergency department should solely work for this task, relieving other employees from this administrative burden and bringing more efficiency to work. These changes can very much reduce the delays related to panel approvals, working toward the best possible patient transfer process for Medanta Hospital.

Changes at the procedural level are recommended, as follows, to improve the delays associated with investigation reports and secondary consultations. The consultations ordered by the admitting unit should ideally be assessed in the admitting area itself. It reduces the movement of the patient within the hospital, thereby reducing the waiting period for consultations and hence speeding up the entire process. We hold consultations where patients are first admitted, which helps to improve the workflow and prevents undue delays in assessments.

Second would be the scheduling and performance of non-emergent investigations directly from the ward as much as possible. This practice aims to prevent overload in the ED by not having the patient needlessly fully transportable both forward and backward. Investigations directly from the ward setting will let the ED focus on emergency cases but justly care for the non-emergency ones. This will not only work in managing patient flow but will also help reduce the overall waiting times and increase the efficiency of healthcare delivery.

Considering the delays caused by attendants during the admission process, a number of proactive measures can be adopted to mitigate them. Signages in the premises should be made clearly visible, and the GRE staff needs to be sensitized with regard to effectively guiding the attendant about the admission procedures. Such an initiative would help to bring clarity and easy movement, reduce confusion, and thus probable delays.

Furthermore, there has to be the establishment of financial counseling services in order to solve financial problems for attendants in a timely manner. This will help during the course of an admission process not experiencing a lot of delay due to financial arrangements; it will be already arranged and the attendants are stress-free for the admission.

There has to be a standardized process for documentation. This would entail a checklist or a standardized format of documentation that ensures the completeness and accuracy of all paperwork to avoid incomplete and/or missing documents that cause delay. This helps in assurance over regulatory compliance as well.

In regard to the nursing delays seen to happen in the emergency department of Medanta Hospital, the following changes are pleaded: for better communication channels to be established among nurses so that confusion caused during transfers of patients from one nurse to another is lessened. Notably, good communication will reduce miscommunication and make all nursing staff, including those on duty, aware of their roles and responsibilities and even the condition of each patient. The nursing staff has to be

increased, or there has to be a redistribution of available resources whereby there is appropriate coverage for sample collection and patient care, therefore making the nurse-patient ratio more efficient. This would reduce delays caused by a shortage of staff and help nurses manage their workload effectively.

More importantly, some specific staff can be allocated for shifting patients from the ED to definite care units as per needs. The staff will be responsible for dispatching samples to labs, blood banks, and pharmacies, with triaging duties so more time is left with nurses for the care of patients.

Most delays occur during the shift change between morning and evening staff, as handover duties take time. This transition period can significantly impact patient care. To address this, appointing two general shift nurses with overlapping hours during the handover can be beneficial. These nurses can manage patients during the shift change, ensuring that patient care remains uninterrupted and reducing delays. Implementing these changes can greatly enhance the efficiency and effectiveness of nursing care in the ED at Medanta Hospital.

CONCLUSION

This was a study carried out at Medanta Hospital, Gurgaon, from March 2024 to June 2024, of factors affecting TAT for transfer of patients from the Emergency Department (ED) to definitive care units like wards, Cath Lab, and ICU. This observational study included real-time analysis of patient flow across the ED; ancillary data were recorded in Excel. This yielded a sample of 106 patients for whom attending physicians in the ED recommended admission.

Data analysis revealed an average TAT of 1 hour and 28 minutes, with the shortest and longest transfer times being 9 minutes and 7 hours and 16 minutes, respectively. Department-wise distribution showed 20 patients were transferred to the Cath Lab, 40 to the ICU, and 46 to various wards. The relationship between TAT and mode of payment highlighted that 36 patients paid by cash, 43 through government panels, 26 via insurance TPA, and 1 through international cash payment.

The root cause analysis identified several major reasons for delays. Attendant delays (22%) were attributed to financial issues, TPA documentation deficiencies, the unavailability of attendants, and a lack of proper guidance about the process. Nursing delays (24%) stemmed from staff shortages, inadequate nurse-to-patient ratios, competency issues in sample collection, and initial assessments. Secondary cross consultations (7%) were delayed due to physician availability, scheduling conflicts, and complex patient cases requiring extensive consultation. Panel approvals (30%) were delayed due to the complexity of the approval process, lack of clear guidelines, attendant availability and knowledge, and communication breakdowns between staff and attendants. Additionally, shifting staff unavailability (11%) and pending investigation reports (6%) contributed to the delays.

To address these issues, the study proposed several targeted recommendations. For panel approval delays, it suggested implementing a digital panel approval system accessible from the ED, providing training for attendants on the panel approval process, and designating specific staff within the ED to assist with panel approval procedures. To reduce delays in investigation reports and secondary consultations, consultations should be conducted at the admitting area and non-emergent investigations should be performed from the ward. To mitigate attendant delays, clear signage and guidance within the hospital, financial counseling services, and a standardized documentation process were recommended. For nursing delays, enhancing

communication among nurses, increasing staffing levels, redistributing resources, and assigning specific staff for shifting patients from the ER to definitive care units were suggested.

Through meticulous data collection and analysis, this study identified the average TAT, the longest and shortest transfer times, department-wise distribution, and the relationship between TAT, mode of payment, and area of disposition. The root cause analysis of delays led to targeted recommendations, which aim to streamline patient flow, reduce delays, and enhance overall healthcare delivery and patient outcomes at Medanta Hospital. By implementing these solutions, the hospital can significantly improve efficiency and patient care.

REFERENCES

1. <https://link.springer.com/article/10.1186/1472-6947-11-34>
2. <https://link.springer.com/article/10.1007/s12288-012-0214-3>
3. <https://chemrj.org/download/vol-5-iss-4-2020/chemrj-2020-05-04-62-67.pdf>
4. <https://onlinelibrary.wiley.com/doi/full/10.1111/acem.12565>
5. <https://citeseerx.ist.psu.edu/document?repid=rep1&type=pdf&doi=c7ca91920619c7525d0d200565683dbebb21758f>
6. <https://digitalcommons.library.tmc.edu/cgi/viewcontent.cgi?article=1020&context=uthoustonjqualsafe>
7. <https://www.sciencedirect.com/sdfe/pdf/download/eid/1-s2.0-S073386272030033X/first-page-pd>
8. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5051606/>
9. [https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5325922/#:~:text=Australasian%20Triage%20Scale%20\(ATIS\)%20is,for%20Emergency%20Medicine%20\(ACEM\).](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5325922/#:~:text=Australasian%20Triage%20Scale%20(ATIS)%20is,for%20Emergency%20Medicine%20(ACEM).)
10. <https://www.medanta.org/>

ANNEXURE 1: Data Collection Tools

S N O .	Patient Details	Date/ Time of arrival at ER	Time of Advice for admission	Time of face sheet generation	Billing Time	Received at nursing counter	Shifted to Ward/ICU at	TA T	Reasons for delay (if any)	Ward or ICU

