

**A COMPREHENSIVE STUDY ON THE INTEGRATION AND OPERATIONAL
EFFICIENCY OF PATIENT MANAGEMENT PROCESS IN THE OPERATIONS
DEPARTMENT**

Dissertation Submitted to



The IIHMR University, Jaipur

for the partial fulfillment for the award of the degree of

Master of Business Administration (MBA)

in

Hospital and Health Management

by

Virat Dey

Under the Supervision and Guidance of

Dr. Vidya Bhushan Tripathi

2025

CERTIFICATE

This is to certify that **Mr. Virat Dey** in partial fulfilment of the requirements for the award of the degree of M.B.A. (**Hospital and Health Management**) from the IIHMR University, Jaipur (Rajasthan) successfully completed his internship at **PARAS HEALTH HEC HOSPITAL** during 10th March 2025 – 31st May 2025.

Place: *Ranchi*

Date: *31/05/25*

Head of the Organization: *VARUN SINGH*

Name of the Organization: *PARAS HEALTH*



PARAS HEALTHCARE (RANCHI) PRIVATE LIMITED

Sector 3, Dhurwa, Near JSCA Stadium, Ranchi, Jharkhand - 834004.

Registered Office : 1st Floor, Tower - B, Paras Twin Towers, Golf Course Road, Sector - 54, Gurugram, Haryana - 122002
Tel.: +91 08035358742 | contact.ranchi@parashospitals.com | www.parashospitals.com | CIN : U85110HR2017PTC072032

CERTIFICATE

This is to certify that dissertation titled **A Comprehensive Study on the Integration and Operational Efficiency of Patient Management Process in the Operations Department** is the record of the research work undertaken by **Virat Dey** in partial fulfillment of the requirements for the award of the degree of **M.B.A. (Hospital and Health Management)** from the IIHMR University, Jaipur my guidance and supervision and his approach to the research study has been sincere, scientific and analytical.


Dr. Vidya Bhushan Tripathi

Assistant Professor

IIHMR University, Jaipur

Date: 21/06/2025


Dr. Sanjay Gupta

Dean and Professor

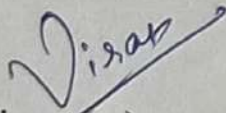
IIHMR University, Jaipur

Date: 21/6/2025

DECLARATION BY THE STUDENT

I hereby declare that this dissertation titled **A Comprehensive Study on the Integration and Operational Efficiency of Patient Management Processes in the Operations Department** 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 Information derived from the published or unpublished work of others has been duly acknowledged in the text.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)

Name of the Student: **VIRAT DEY**

Date: **23/06/25**

ACKNOWLEDGEMENT

Firstly, I would like to thank those who have made this possible with their input.

I take this opportunity to acknowledge the esteemed guidance of **Dr. P. R. Sodani**, an expert statistician and a valued member of the advisory committee. Dr. Sodani currently serves as the President of IIHMR University, Jaipur. With more than two decades of experience as a Health Economist and Public Health academician, he has mentored a wide range of faculty members, students, and research scholars. His contributions reflect strong academic leadership, a clear strategic vision, and expertise in policy formulation and execution. He has played a pivotal role in fostering an environment that supports the growth and development of the university. He much appreciated his support and guidance as he made it easy for me to get the right academic environment necessary for pursuing a career in academics. I would also like to express my mentor to **Dr. Vidya Bhushan Tripathi, Assistant Professor**, my academic mentor who has been supporting and motivating me through various stages of the project.

I would like to thank **Srikant Subodh, Zonal Director – Paras Health HEC Hospital, Ranchi (Jharkhand)**, for his valuable guidance and motivation throughout the entire process of the dissertation writing. His mentorship and thoughts provided the structure for my research.

Additionally, during my time at Paras HEC Hospital, I was supported by **Dr. Nitesh Kumar, Facility Director – Paras Health HEC Hospital** in conducting my research work.

My family deserves more than thanks for their continuous care, love, and encouragement during all these years of education that kept pushing me each day, they believed in more than I believed in myself.

Lastly, I want to acknowledge the invaluable support of **Dr. Kaushik Roy, Medical Superintendent**, his expert guidance, and constant support throughout this endeavor. His mentorship has been truly invaluable.

I am grateful to each of these individuals for their contributions, without which the successful completion of my dissertation would not have been possible.

ABSTRACT

Title:

A Comprehensive Study on the Integration and Operational Efficiency of Patient Management Process in the Operations Department at Paras Health HEC Hospital, Ranchi

Author Name:

Mr. Virat Dey

Enrollment No: IIHMRU/01/1885

M.B.A. Hospital and Health Management

Batch: 2023-2025

Advisor Name:

Dr, Vidya Bhushan Tripathi

Assistant Professor

IIHMR University, Jaipur

Abstract:

This study evaluates the integration and operational efficiency of the patient management process within the operations department at Paras Health HEC Hospital, Ranchi a newly established tertiary care hospital. The aim was to understand how patient movement across departments such as OPD, IPD, ER, OT, Radiology, and Laboratory is coordinated, and how effectively hospital information systems (HIS) are utilized in ensuring seamless service delivery.

Data was gathered from 1370 patients and various departmental staff using observational methods, document analysis, and interviews. The results highlighted multiple operational challenges such as delays in diagnostic test turnaround time (TAT), emergency-to-inpatient coordination gaps, underutilization of HIS tools, and

high Leave Against Medical Advice (LAMA) rates in critical care units. Additionally, the payor mix revealed a dominance of self-paying patients, indicating limited insurance penetration.

This study concludes with the need for enhanced digital integration, structured workflows, improved interdepartmental communication, and better financial counselling. Recommendations include real-time dashboards, HIS training, centralized coordination units, and quality audits, aimed at improving the patient experience and hospital efficiency.

Keywords

Patient Management Process, Operational Efficiency, Hospital Operations, Outpatient Department (OPD), Inpatient Department (IPD), Emergency Services (ER), Hospital Integration, Workflow Optimization, Turnaround Time (TAT), Hospital Information System (HIS), LAMA (Leave Against Medical Advice), Departmental Coordination, Tertiary Care Hospital, Digital Health Systems, Patient Flow Management, Quality Improvement, Clinical and Non-Clinical Services, Health Insurance Penetration, Discharge Planning, Paras Health HEC Hospital

Background:

Hospitals today face growing pressures to deliver timely, coordinated, and patient-centric care. Paras Health HEC Hospital, Ranchi a public-private partnership venture was established to offer high-quality tertiary services in Jharkhand. As part of this transformation, patient management emerged as a core operational challenge. The seamless flow of patients from registration to discharge involves multiple departments, making coordination critical.

The background of this study lies in identifying whether the hospital's operations department effectively integrates these processes. The study aims to determine gaps,

delays, and inefficiencies that affect patient outcomes and satisfaction, and to suggest improvements rooted in data-driven analysis and healthcare management principles.

Objectives:

1. To know the workflow and performance of the OPD and IPD in managing patient movement.
2. To identify challenges and delays in emergency-to-inpatient transitions and surgical workflows.
3. To analyse diagnostic turnaround time (TAT) and its impact on service efficiency.
4. To suggest strategies for optimizing departmental integration and study on the integration and operational efficiency of the patient management process in the operations department at Paras HEC Hospital, Ranchi.

Methodology:

Study Design: Cross-Sectional Study

Setting: Paras Health HEC Hospital, Ranchi

Sample Size: 1370 patients.

Sampling Technique: Convenience sampling for staff and patients directly involved in the operations workflow.

Tools: Observation checklists, interviews, hospital records, and workflow process documents

Data Collection: Over a 3-month period using real-time monitoring and department-wise observations.

Analysis: Qualitative coding, workflow mapping, turnaround time metrics, and frequency analysis

Results:

1. **Patient Distribution:** Most patients were aged 25–64 years, with 55% being male.

2. High-load Departments: Medical Oncology, Neurology, and Nephrology accounted for most admissions.

3. Operational Issues Identified:

1. High LAMA cases in ICU/CCU (up to 33.3%)
2. Delays in diagnostics (especially histopathology, cytology, and serology)
3. HIS underutilization in admission-discharge cycles
4. Emergency bypassing OPD for IPD admissions without pre-admission planning

4. Financial Insight: Majority of patients were self-paying; insurance and government payor schemes had low representation.

5. TAT Reports: Several lab and radiology services exceeded expected turnaround times, leading to clinical delays.

Conclusion:

The patient management system at Paras Health HEC Hospital reflects a semi-integrated model where technological infrastructure exists but is underutilized. The study brings to light significant gaps in departmental coordination, digital process adherence, and patient flow optimization. High service demand in select departments without corresponding support structures adds to operational stress, affecting care quality.

Bridge these gaps, hospitals must focus on holistic integration of HIS, real-time monitoring tools, structured discharge and admission planning, and enhanced staff training. Improving payor mix and insurance awareness can also relieve financial bottlenecks. Overall, aligning operational efficiency with patient-centred care can enhance both institutional performance and health outcomes.

TABLE OF CONTENTS

1. Introduction	1 – 65
1.1 Background.....	1
1.2 Patient Management Process.....	5
1.3 Outpatient Department.....	6
1.4 Inpatient Department.....	11
1.5 Emergency Room.....	25
1.6 Operation Theatre Complex.....	29
1.7 Radiology Department.....	32
1.8 Laboratory Department.....	35
1.9 Significance of the Study.....	38
1.10 Scope of the Study.....	38
1.11 Objectives.....	38
1.12 Importance of the Problem.....	39
1.13 Research Questions.....	39
 2. Review of Literature	 40 – 45
 3. Methodology	 46 – 48
3.1 Research Design.....	46
3.2 Settings.....	46
3.3 Methods of Data Collection.....	46
3.4 Sampling Design.....	47
3.5 Sampling Criteria.....	47
3.6 Study Tools.....	47
3.7 Scoring and Interpretation.....	48

3.8 Content Validity.....	48
3.9 Procedure of Data Collection.....	48
3.10 Ethical Considerations.....	48
4. Results	49 – 61
5. Discussion	62 – 65
6. Conclusion	66 – 68
References	69 – 70
Annexure	71 – 94

LIST OF FIGURES

Sl. No	Description	Page No.
1.	Age Distribution	49
2.	Gender Distribution	50
3.	OPD Weekly Visited – 10 th March – 08 th April	51
4.	OPD Weekly Visited – 09 th April – 08 th May	52
5.	OPD Weekly Visited – 09 th May – 02 nd June	53
6.	Patients Admitted Specialty Doctors	54 - 55
7.	Patients Admitted Various Department	56
8.	LAMA Report	57
9.	Payor Frequency	58
10.	Payor Category Distribution	59
11.	Laboratory TAT Analysis Report	60 - 61

Chapter 1: Introduction

The healthcare sector is undergoing rapid transformation, driven by technological innovation, patient-centric models, and the need for operational efficiency. In this dynamic landscape, a hospital plays a pivotal role in ensuring seamless service delivery, improved patient experience, and resource optimization it serves as a central and dominant institution within the healthcare sector, coordinating all essential services. in a hospital function as the central coordinating unit that oversees the end-to-end flow of patients from admission, diagnosis, treatment, to discharge.



Paras Health HEC Hospital

1.1. Background:

Paras HEC is a multispecialty healthcare facility for the first time in Jharkhand. It was established in private-public partnership between Paras Healthcare and Heavy Engineering Corporation, to make a corporate hospital commenced operations in 2022 with an initial capacity of 300 beds. This hospital is open and has a new branch at Ranchi. It is also IQC and NABH accredited for ensuring adherence to high quality healthcare standards.

Paras Health HEC Hospital, a prominent tertiary care facility, has been focusing on enhancing patient care quality while ensuring smooth coordination between clinical and non-clinical departments. However, it faces challenges in integration across departments, prompt information exchange, and resource use. This study investigates how the patient management process within the operations department and evaluates its operational efficiency with a focus on process mapping, stakeholder coordination, and technology use.

Paras Health HEC Hospital offers a range of services, including special facilities designed to enhance patient care such as-

SCOPE OF SERVICES		
Clinical Services-		
Accident and Emergency	Anesthesia	Cardiology
Cardiothoracic and Vascular Surgery	Critical Care Unit	Dentistry
Dermatology	E.N.T.	Gastroenterology
General and Minimal Invasive Surgery	Internal Medicine	Maxillofacial Surgery
Medical Oncology	Nephrology	Neurology
Neurosurgery and Spine Surgery	Obstetrics and Gynaecology	Ophthalmology

Orthopedic and Joint Replacement	Pediatrics and Nursery	Plastic Surgery
Psychiatry	Pulmonology	Urology
Radiology Services-		
X-RAY	Ultrasonography	C.T. SCAN
Ultrasound	M.R.I.	Radiation Oncology
Nuclear Medicine		
Diagnostic Services-		
Bronchoscopy	Endoscopy	Cystoscopy
Echocardiogram	Electroencephalogram	Electromyography
Uroflowmetry		
Laboratory Services-		
Blood Centre	Blood Transfusion Services	Clinical Biochemistry
Clinical Microbiology	Clinical Serology	Clinical Pathology
Clinical Hematology	Clinical Histopathology	Cytopathology
Allied Services-		
Ambulance Services	Dietetics and Nutrition	Pharmacy
Physiotherapy	Medical Records Room	
No Services		
Burn 30%	Psychiatry (IPD)	



Inner View – Paras Hospital

1.2. Patient Management Process:

The patient management process is a continuous and dynamic journey that begins the moment a person seeks care within the healthcare system. It is not a single event, but rather an ongoing series of steps that unfold over time, encompassing every interaction a patient has with medical professionals, hospital infrastructure, and support services. In today's increasingly patient-centred healthcare environment, this process places a strong emphasis on personalized care, active patient engagement, and continuous quality improvement. The aim is to provide proper care to each patient at the most suitable time and in the most proper setting, thereby enhancing health outcomes and improving the overall patient experience.

The relationship between the patient and care provider evolves through a combination of conversations, observations, and clinical evaluations. The physician or medical team tries to understand the patient's condition through their personal account, medical history, and physical state. This insight leads to further investigations, such as lab tests or imaging, which help in building a clearer picture of the issue at hand. Patient management is not just about treating disease, it is about guiding individuals through a personalized path of healing, support, and empowerment, ensuring their physical and emotional well-being prioritized at every step. It encompasses a series of coordinated activities and decisions that begin when a patient first seeks medical attention and continue through diagnosis, treatment, and follow-up care.

This process called the heart of hospital and clinical operations and plays a vital role in ensuring patient satisfaction, clinical efficiency, and quality outcomes. In effective patient management not only improves health outcomes but also perfects the use of resources, reduces medical errors, and enhances communication between healthcare providers and patients.

1.3. Outpatient Department (OPD):

An Outpatient Department (OPD) is a critical unit in any healthcare facility where patients receive medical consultations and treatments without admitted to the hospital. It serves as the first point of contact between patients and healthcare providers and designed to offer diagnostic services, minor treatments, and follow-up care across various specialties. OPDs typically run during specific hours into multiple specialty clinics such as general medicine, surgery, paediatrics, orthopaedics, dermatology, and more. Efficient OPD management is vital for reducing patient waiting time, ensuring smooth workflows, and enhancing patient satisfaction, making it an essential part of modern hospital operations and healthcare delivery systems.



OPD Reception

1.3.1. OPD Reception:

An OPD Reception which provides general services to patients coming to register their appointment on basis regular checkup with doctors consultations, medical advice, and billing diagnostics. The entry of patients begins with OPD reception that provides a workflow step and patient journey in Paras Hospital.

1.3.2. Types of Outpatient Department (OPD) Services:

An Outpatient Department (OPD) services are the essential part of any health facility as provide medical care as now we have three basic types of OPD Services such as–

1. General OPD
2. Specialty OPD
3. Diagnostic OPD

- General OPD-

These OPD services on primary care and general consultants and are managed by general physicians or medical officers to focus on one single area to cover up every procedure.

- Specialty OPD-

These OPD services with distinct categories of specialty medical services and treatment focus on area with different doctors. Such specialty OPD as cardiology, pediatrics, internal medicine, general surgery. In Paras HEC Hospital, we have a specialty OPD that consists of various treatment facilities to provide a patient centric care and to consult with doctor for treatment and medicines purposes.

- Diagnostic OPD-

These OPD belongs to radiology and laboratory department to provide imaging services and sampling collection test for end results provide.

1.3.3. OPD Workflow Process:

The Outpatient Department (OPD) serves as the primary access point for patients seeking specialist consultations, diagnostic services, and follow-up care. On average, the hospital manages over 7 OPD visits per day, with peak inflow during morning hours to evening hours. The efficiency and integration of OPD operations directly affect patient satisfaction, departmental coordination.

There are few steps to process on OPD workflow process are-

1. Registration
2. UHID verification
3. Appointment confirmation
4. Basic Health Checkup
5. Consultation with specialist doctor
6. Referrals to pharmacy
7. Billing
8. Exit

- OPD Registration-

One of the most important in the hospital to ensure that patient process. Patient registration refers to the process of collecting and recording essential personal, medical, and administrative information from a patient when they first arrive at a healthcare facility, such as a hospital. It is a crucial step in ensuring continuity of care, correct record-keeping, and efficient service delivery with the help of HMIS software. Patient registration for demographic information such as name, age, gender, phone no, address.

- UHID Verification-

One of the most unique health identification numbers to provide the patient for past medical records history and other procedures details link up with phone number to

provide information to all HMIS software. This is a sample of patient UHID No which gives all the across cities to access their hospital on new unit branch.

For example, UHID – 8000077427, IP NO – RAN26230

8000 – Paras Health unique number

77427 – Patient identifier number

RAN26 – City number with track file number

230 – Medical record number

- Appointment Confirmation-

The next process is appointment schedule is the process of verifying and informing a patient that their scheduled visit or consultation with a healthcare provider has been successfully booked and is reserved for a specific date and time such as date and time of the appointment, doctor's name and department, type of appointment also through appointment confirmation via SMS, e-mail, phone call, mobile app notification.

- Basic Health Checkup-

After appointment schedule before consultant with doctor to provide a basic pre-check-up or vital records whether patient fits or not. These vital records are mostly check for healthy or obesity such as height, weight, blood pressure, SPO2, etc.

- Consultant Specialist Doctor-

A Consultant Specialist Doctor is a senior medical professional who has had advanced training in a specific area and medicines that provides expert-level care, guidance, and treatment in that specialty. They are consult for complex cases or referred patients by general practitioners or junior doctors.

- OP Pharmacy-

An Outpatient Pharmacy is a pharmacy found within or associated with a hospital or healthcare facility that provides medications to patients who are not admit. These

patients visit the hospital for consultations, diagnostics, or minor treatments and then collect their prescribed medications before leaving.

Pharmacy (to collect prescribed medicines)

Doctor Consultation

↓

Written on Prescription for Medicine

↓

Patient directed to Pharmacy Counter

↓

Report or Medicine Provided

↓

Follow-up with Doctor Advice

- OP Billing-

An Outpatient Billing is the process which generates bill for diagnostics procedures, laboratory procedures and consultations fees for doctor checkup. These billing prescription records require cost of services given on the OPD Reception Counter.

1.4. Inpatient Department (IPD):

An Inpatient Department (IPD) is a fundamental part of any hospital or healthcare facility, where patients admitted for overnight stays or longer durations to receive continuous medical care, treatment, and monitoring. Unlike the Outpatient Department (OPD), which caters to short-term visits, the IPD is design for patients requiring extensive diagnostic evaluation, surgical procedures, intensive therapy, or post-operative recovery under the supervision of healthcare professionals.

The smooth operation of the inpatient department (IPD) is essential to ensure patient safety, keep high-quality care, uphold the hospital's reputation, and achieve favourable clinical results. The key operational aspects include admission and discharge protocols, infection control practices, patient monitoring systems, nursing care plans, and coordination between departments such as pharmacy, laboratory, radiology, and dietary services.

1.4.1. Essentials of Inpatient Department:

An Inpatient Department (IPD) services are the essential part of creating an organized system where clinical care and support services are delivered to medical care for patient safety as now, we have various department of IPD services such as–

1. Admission Desk
2. Estimation Packages
3. TPA Management
4. Wards and Rooms
5. Nursing Station
6. Patient Care Units
7. Support Services
8. Clinical Services
9. Diagnostic Services
10. IP Pharmacy

11. Medical Billing Codes

12. IP Billing

- Admission Desk-

An IPD admission refers to the process of admitting a patient into the Inpatient Department (IPD) of a hospital or healthcare facility. It is the point at which a patient to stay in the hospital for medical treatment, observation, or surgery that requires overnight or longer-duration care. If they are coming for the first time to take admission, they need to make a registration first to fill form. This process through by HIS software.

Registration Form → Admission → Admission Request System → Estimation Cost → Bed Booking → Bed Allocation → Receipt.

IP No	D.O.A.	Arrival	Doctor	Specialty	Bed/Ward	Advice
RAN2630	10.03.25	08:45	Dr. R. Sinha	Cardiology	CCU	Admission

On the other hand, inpatient (IPD) admissions are not limited to standard registration forms. Patients also be admitted directly through the emergency department. Patients requiring admission from the emergency department are evaluated by the emergency consultant, who fills out an admission request form. Based on the diagnosis and urgency, the patient is referred to the proper specialist. The type of room (general, semi-private, private, or ICU) is also decided during this process, depending on the patient's medical condition and payment preference.

Patient → Emergency → Emergency Doctor → Registration Generate → Admission Request Form → ER to IP Transfer → Admission.

IP No	D.O.A.	Arrival	Doctor	Specialty	Bed/Ward	Advice
RAN2648	11.03.25	09:30 AM	Dr. Maya	Neurology	ICU	Stroke

- Estimation Packages-

An Estimation Packages in the type of IP rate tariffs that refer to pre-treatment cost estimates provided to patients for planned procedures, surgeries, or treatments during admission. These packages are crucial for transparency, financial planning, and insurance purposes and all falls under IP Billing at during total amount of bills.

- T.P.A. Management-

The Third-Party Administrator (Insurance Company, Corporate or Government Scheme) is the type of health insurance that provides benefits a coordinator between the hospital, patients, and insurance companies to facilitate cashless medical insurance claims and ensure smooth processing of bills for insured patients. These collaboration and tie-up with Paras Health and other companies to make better health and safety of standards in our organization to provided benefits and cashless patient such as-

Insurance	
STAR HEALTH AND ALLIED	NIVA BUPA HEALTH
CARE HEALTH	ADITYA BIRLA HEALTH
HDFC ERGO	ICICI Lombard
TATA AIG	Bajaj ALLIANZ
SBI General Insurance	
Government	
Central Armed Police Forces	Employee State Insurance Scheme
Ex-Servicemen Contributory Health Scheme	Ayushman Bharat – PM JAY
Central Government Health Scheme	A.G. Auditor
Corporate	
Amity University Jharkhand	Central University of Jharkhand
Indian Institute of Information Technology	National Institute of Advanced Manufacturing Technology

Jharkhand Rai University	Jharkhand State Cricket Association
Indian Institute of Resins and Gums	
PSU	
Airport Authority of India	Heavy Engineering Corporation
Coal India Ltd	Food Corporation of India
Indian Oil Corporation	Jindal Water Infrastructure
Oil & Natural Gas Corporation	Mecon Ltd
Bharat Coking Coal Ltd	

- Wards Management-

These wards and specify rooms have been given to patients for medical and surgical procedures to stay on overnight due to operations. Some of the wards and rooms are-

General Ward	Private Ward
Private Ward	Semi-Private Ward
Neuro Ward	Oncology Ward
Daycare	Dialysis
Paras Bliss	Paras Cancer Centre

- Nursing Stations-

The Nursing Station is one of the most prominent control and monitoring hubs in a hospital, operating 24/7 to ensure continuous patient care. It serves as the crucial point of coordination for nursing staff across different wards and departments. Nursing Stations oversee overseeing patient care activities, helping interdepartmental communication, and ensuring that nurses and nurses in-charges are effectively managing their assigned duties. Some of the Nursing Stations are equipped with patient tracking systems and medical records to check patient health conditions in real time. They ensure prompt documentation, routine check-ups, and continuous monitoring of patients during both daytime and overnight shifts. The team at a Nursing Station

typically includes staff nurses, nurse in-charges (sisters), doctors, and clinical support staff, all working collaboratively to provide comprehensive care and respond promptly to patient needs.

- Patient Care Unit-

These are the departments that take care of patients with the help of coordinators on care unit in charge before pre-operative surgery and after post-operative surgery. Patient care units have elements at high level monitoring and heavy machines to provide healthy maintain and stable conditions. Some of the patient care units are-

1. High Dependency Unit (H.D.U.)
2. Cardiac Care Unit (C.C.U.)
3. Intensive Care Unit (ICU)
4. Neonatal Intensive Care Unit (NICU)
5. C.T.V.S.- I.T.U.

- ❖ High Dependency Unit (HDU)-

A High Dependency Unit (HDU) is a critical care unit that provides a higher level of care than a general ward but less intensive care than an Intensive Care Unit (ICU). It serves as an intermediate level of care for patients who are seriously ill but not critical enough to need full ICU support.

Key Features of HDU

Feature	Description
Level of Care	Intermediate between general ward and ICU
Staffing Ratio	Higher than general ward
Monitoring	Continuous or Semi-continuous vital signs monitoring
Location	Often located near ICU for quick escalation
Equipment	Multi-parameter monitors, oxygen, supply, infusion pumps, suction apparatus

❖ Cardiac Care Unit (CCU)-

A Cardiac Care Unit (CCU), also known as a cardiac care unit which is a specialized unit for patients with severe cardiac conditions requiring continuous monitoring and intensive care. It is a type of intensive care unit specifically focused on heart-related emergencies and recovery.

Key Features of CCU

Feature	Description
Focus	Management of acute cardiac conditions
Monitoring	Continuous ECG, blood pressure, oxygen saturation
Equipment	Defibrillators, cardiac monitors, infusion pumps, ventilators
Staffing	Cardiologists, intensivists, cardiac nurses, physiotherapists

❖ Intensive Care Unit (ICU)-

Intensive Care Unit (ICU) is a major room of hospital ward equipped to provide continuous and close monitoring, life support, and comprehensive care to critically ill patients who are at elevated risk of deterioration.

Key Features of ICU

Feature	Description
Patient Type	Critical ill or unstable patient needing life support
Monitoring	24 x 7 multi-parameter monitoring (ECG, SPO2, BP)
Equipment	Ventilators, defibrillators, infusion pumps, suction units
Staffing Ratio	Normal 1-1 nurse to patient
Environment	Sterile, restricted, noise controlled

❖ Neonatal Intensive Care Unit (NICU)-

Neonatal Intensive Care Unit (NICU) are sensitive area of the hospital dedicated to caring for newborn babies who are critically ill, born prematurely, or facing serious health challenges right after birth. These tiny patients require constant monitoring and advanced medical support, and that is exactly what the NICU provides. The unit is equipped with ultramodern technology such as incubators, ventilators, and monitors that help regulate and support the babies' breathing, temperature, feeding, and vital signs. But beyond the machines, the heart of the NICU is its team specially trained neonatologists, nurses, respiratory therapists, and other medical professionals who work around the clock to give these vulnerable newborns the best possible start in life. Whether a baby is born too early, too small, or with a health condition that needs immediate attention, the NICU steps in to provide life-saving care, helping families navigate one of the most critical times with compassion, ability, and hope.

Key Features of NICU

Feature	Description
Patient Type	Premature babies, low birth weight, birth complications
Level of Care	Level I to Level IV
Monitoring	Continuous tracking of heart rate, respiration, temperature
Equipment	Incubators, radiant warmers, ventilators, physiotherapy
Environment	Sterile, temperature-controlled, low noise, dim lighting

❖ C.T.V.S.- I.T.U.-

The Cardiothoracic and Vascular Surgery Intensive Therapy Unit (CTVS-ITU) is a highly specialized critical care unit dedicated to the postoperative management and intensive monitoring of patients who have undergone major heart, lung, and vascular surgeries.

Key Features of CTVS-ITU

Feature	Description
---------	-------------

Purpose	Post-operative care for CTVS surgical patient
Care Level	Advanced critical care – close to ICU wards
Location	Adjacent to CTVS operation theatre for rapid transfer
Monitoring	Continuous hemodynamic, respiratory, and neurological
Staffing	Cardiac surgeons, anesthesia, intensivists, trained nurses

- Support Services-

Support Services are essential non-clinical services that ensure smooth day-to-day operations and contribute significantly to patient care, safety, comfort, and satisfaction. Although these services do not involve direct medical treatment, they are crucial in creating a hygienic, efficient, and healing environment in hospitals. Support Services are distinct types such as-

1. Housekeeping Services
2. Laundry Services
3. Central Sterile Supply Department
4. Transport Services
5. Security Services
6. Engineering and Maintenance Services
7. Biomedical Waste Management
8. IT Services

- Clinical Services-

Clinical services are the core medical and healthcare services related to the diagnosis, treatment, and management of patient conditions. These delivered by doctors, nurses, and allied health professionals across various departments and specialties within a hospital. In Paras Health HEC Hospital clinical services have provided are as follows-

Cardiology	Respiratory Medicine
------------	----------------------

C.T.V.S.	Dermatology
Gastroenterology	Obstetrics and Gynaecology
Internal Medicine	Paediatrics
Urology	Neurosurgery
Psychiatry	Neurology
Nephrology	Orthopaedics
E.N.T.	Surgical Oncology
Radiation Oncology	Medical Oncology
General Surgery	Dentistry
Ophthalmology	Plastic and Reconstructive Surgery

- Diagnostic Services-

Diagnostic services are an essential part of clinical care, enabling correct detection, analysis, and monitoring of diseases and health conditions. They play a critical role in both outpatient (OPD) and inpatient (IPD) settings. For inpatients, diagnostic tests are conducted based on the consultant doctor's recommendations during their admission. These services form the backbone of clinical decision-making, aiding healthcare providers in evaluating a patient's condition whether it is a bone fracture, dislocation, tumour, heart issue, lung disorder, or other medical concerns. Common diagnostic tests include ECHO (Echocardiography), EEG (Electroencephalogram), ECG (Electrocardiogram), and PFT (Pulmonary Function Test), among others.

- IP Pharmacy-

An Inpatient Pharmacy is a specialized pharmacy unit that provides medications exclusively for admitted (IPD) patients based on doctors' prescriptions. It caters to both surgical and non-surgical inpatients, ensuring prompt and correct dispensing of prescribed drugs. An Inpatient Pharmacy works in close coordination with the Nursing Station to deliver medications directly to the respective wards. Nurses then administer the medicines to patients as per the treatment plan. This system ensures that inpatients

receive the necessary medications efficiently, supporting continuous and safe clinical care.

- Medical Billing Codes-

A Medical Billing Coder, sometimes referred to as a Medical Transcriptionist, plays a vital role in a hospital's documentation and billing process especially when a patient is being discharged. They help turn a patient's medical history, treatments, and procedures into standardized codes used for billing and insurance purposes. These codes come from systems like ICD (used for diagnosing conditions), CPT (used for procedures and services), and HCPCS (used for supplies and services not covered by CPT). By accurately translating medical care into these codes, they ensure that hospitals get properly reimbursed and that patient records are clear and complete.

- IP Billing-

An Inpatient Billing is a key function of the hospital's billing department, responsible for managing billing processes related to admitted patients. This includes coordination with Third-Party Administrators (TPAs) for claim settlements, insurance verifications, and reimbursements. An Inpatient Billing team prepares the final bill at the time of discharge once medical coding has been completed. It combines all medical expenses incurred during the patient's stay, including room charges, diagnostics, procedures, consultations, pharmacy, and other services. The final bill is then reviewed and settled either by the patient, the insurance provider, or the TPA before the discharge process is completed.

1.4.2. IPD Workflow Process:

An Inpatient Department (IPD) workflow process refers to the structured and coordinated sequence of activities involved in the admission, treatment, and discharge of patients who require inpatient care in a hospital. This process begins when a patient is admitted either through the emergency department, outpatient department, or via a

planned admission and continues through the phases of diagnosis, treatment, monitoring, and recovery until discharge and follow-up. This process is supported by hospital policies, standard operating procedures (SOPs), and digital systems (like Hospital Information Systems) to keep efficiency, reduce errors, and enhance the overall patient experience.

There are few steps to process on IPD workflow process are-

1. Patient Admission
2. Bed Allotment
3. Observing and Monitoring
4. Billing and Daily Charges
5. Surgical Protocol
6. Discharge Planning
7. Discharge Process
8. Post-Discharge

- Patient Admission-

The admission process begins when a doctor recommends a patient for admission. This recommendation may come through various entry points such as an outpatient department (OPD) referral, emergency room (ER) admission, planned surgery scheduling, or direct admission by a physician. Once the decision for admission is made, the process involves several departments, primarily the Admission Desk, Billing, and, if the patient is insured, the Third-Party Administrator (TPA).

Upon arrival at the Admission Desk, the patient's accommodation needs are assessed, and bed or room allotment is made based on the category chosen or available, such as General ward, Semi-private, or Private room. The patient's personal and medical details are collected by completing the admission form, along with obtaining the necessary consent for treatment and hospital stay.

An estimation package is prepared and shared with the patient or their family, outlining the anticipated costs associated with the admission, including treatment charges, room rent, and other hospital services. A unique Patient ID is generated, and a physical or electronic file is created to maintain all medical records and billing information related to the admission.

For insured patients, pre-authorization is started through the TPA, which involves verifying coverage and seeking approval for the planned treatment. In the case of self-paying patients, an advance payment is typically collected as part of the admission formalities to secure the bed and begin the treatment process.

This seamless coordination between medical recommendations, administrative processing, and financial verification ensures that the patient is properly admitted, informed of costs, and ready to receive the necessary care. These documents are taken from the patients such as Aadhaar Card, Voter Card/PAN Card, Insurance Card.

- **Bed Allotment-**

After the bed allotment during admission, patients may need to be shifted within the hospital based on their medical condition or treatment needs. For example, a patient initially admitted to a general ward might be moved to a semi-private or private room for better care or privacy or transferred to an ICU or specialty department if their condition changes. This shifting is coordinated by the hospital's admission and floor administration teams to ensure the patient is placed in the most proper setting for their treatment and comfort along with obtaining the necessary consent for treatment and hospital stay.

- **Observing and Monitoring-**

Once the patient is admitted and settled in the assigned bed or room, continuous seeing and monitoring begin as a critical part of their care. Healthcare staff regularly check vital signs like temperature, pulse, blood pressure, and respiration to track the patient's condition and notes down their records. Nurses and doctors see symptoms, response to treatment, and any changes in health status to detect complications early. This ongoing

monitoring ensures prompt medical interventions, adjustments in treatment plans, and overall patient safety during their hospital stay.

- Billing and Daily Charges-

Billing in a hospital starts soon after admission, with a first estimate shared based on the expected treatment and services. Daily charges accumulate for things like room rent (depending on the bed category), nursing care, medications, diagnostics, and any procedures performed. The billing department tracks these expenses throughout the patient's stay and generates regular bills, which are settled either by the patient, their family, or through insurance. Clear communication about daily charges helps avoid confusion and ensures smooth fiscal management until discharge.

- Surgical Protocol-

After continuous seeing and monitoring of the patient's condition during their hospital stay, if surgery is needed, the process moves into the surgical protocol phase. This involves preparing the patient according to surgical guidelines, coordinating with the surgical team, and ensuring all preoperative checks, consent forms, and billing formalities are completed. The daily charges recorded during observation also include surgical costs once the procedure is performed. Thus, monitoring helps decide the timing and necessity of surgery, while billing adjusts accordingly to cover the surgical care as part of the patient's overall treatment journey.

- Discharge Planning-

Discharge planning begins once the treating doctor decides that the patient's condition has stabilized and they are fit to leave the hospital. This process is coordinated by the medical team along with the nursing staff, IP billing. It includes summarizing the treatment provided, giving detailed instructions for medications, diet, follow-up visits, and any home care needed. Simultaneously, final billing is prepared, incorporating all daily charges, surgical costs, and services used. Once payments or insurance clearances are completed, the discharge summary is handed over, and the patient is formally

released. This marks the completion of the inpatient care cycle, linking all earlier steps—from admission and monitoring to surgery and final settlement.

- Discharge Process-

Now, the discharge process begins once the treating doctor approves the patient's release based on clinical recovery. The steps involved are as follows:

1. Final Assessment
2. Discharge Summary
3. Nursing Clearance
4. Final Bill
5. Payment Settlement
6. Discharge Approval

- ❖ Final Assessment-

The doctor conducts a final evaluation and confirms that the patient is fit to go home or be referred elsewhere for continued care.

- ❖ Discharge Summary-

A written document is prepared by the medical officer, summarizing the diagnosis, treatment given, surgical procedures, and follow-up advice, including medications and lifestyle instructions during medical transcriptionist.

- ❖ Nursing Clearance-

Nurses ensure all necessary nursing care is completed, IV lines or catheters are removed, and the patient is ready for transfer out of the room.

- ❖ Billing Finalization-

The billing department compiles all charges (room rent, surgery, investigations, pharmacy, consumables, etc.) and prepares the final bill. If the patient is insured, the TPA processes the final approval.

❖ Payment Settlement-

The patient or attendant settles the final bill or completes any insurance formalities.

❖ Discharge Approval-

Once all clearances (medical, nursing, billing, TPA) are completed, discharge is approved, and documents are handed over.

- Post-Discharge-

Post-Discharge care is a critical extension of the hospital treatment process, ensuring the patient's continued recovery and preventing complications. Once the patient leaves the hospital, they are expected to follow the instructions given in the discharge summary.

1.5. Emergency Room (ER):

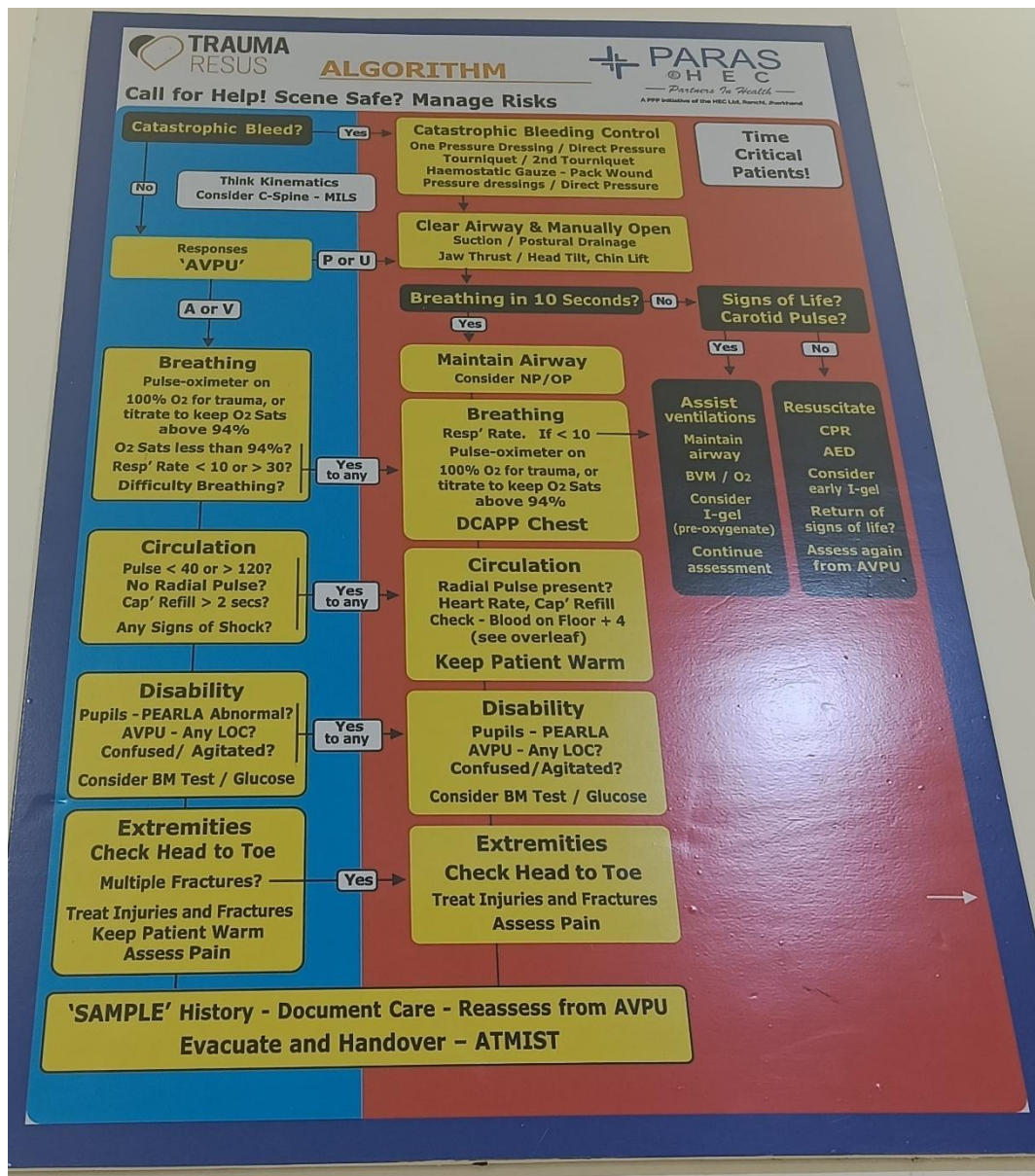
An Emergency Room is also known as Accident and Emergency Care Unit, is a significant role in critical and high-intensity part of a hospital that provides immediate medical care to patients with urgent, life-threatening, or time-sensitive health conditions. It serves as the frontline of the healthcare system, operating 24x7 to oversee a wide spectrum of emergencies, ranging from trauma, cardiac arrests, strokes, and accidents to acute infections, poisoning, and mental health crises.

The Emergency Department (ED) is designed to respond quickly when every second counts. It is the place where patients are rapidly assessed, stabilized, diagnosed, and treated often in life-threatening situations. The department is fully equipped with essential medical tools and staffed by a skilled team that includes doctors, nurses, paramedics, and support staff, all specially trained to manage emergencies.

One of the most important aspects of emergency care is *triage* — the process of sorting patients based on how serious their condition is. This ensures that the most critical patients get immediate attention. The ED plays a vital role not just in handling urgent cases but also in supporting both Outpatient (OPD) and Inpatient (IPD) care, keeping patient safety, and upholding hospital standards. It is truly the frontline of care when people need it most.

On the other hand, emergency had alternate process to manage critical and injury patients and admission during overload of admission procedures.

Patient → Emergency → Emergency Doctor → Admitted Triage → Minor/Injury → Final Bill → Discharged.



Emergency - Algorithm



Examine - Enquire

MILS:

Manual In-Line Stabilization –
think kinematics

Response level:

A - Alert (fully aware of what's around,
answers questions etc.)

V - Voice (only responds when spoken
to directly)

P - Pain (only responds to pain stimuli)

U - Unresponsive

LOC:

Loss of Consciousness –
even if now fully conscious

DCAPP:

Chest examination - Deformity,
Contusion, Abrasion, Penetration, Pain?
Front, back, sides, and armpits

Circulation examination - Blood on Floor + Four

Blood on the floor = External bleeding

The Four = Chest, Abdomen, Pelvis,
Long bones (femur, humerus)

PEARLA:

Pupils Equal and Reacting to Light & Accommodation

'SAMPLE' history:

S - Signs and Symptoms

A - Allergies

M - Medication

P - Past medical history
(previous episodes?)

L - Last in or out (food, drink, urination,
bowel movement, vomit) and when
it was

E - Events leading up to condition on-set

'ATMIST' - Handover/Report

A - Age and sex

T - Time of incident or arrival at scene

M - Mechanism of Injury

I - Injuries found or suspected

S - Signs and Symptoms

T - Treatment given

Pediatric normal values (per minute)

Age	Up to 1	1 to < 2	2 to < 5	5 to < 12	12 + (Adults)
RR	30 - 40	25 - 35	25 - 30	20 - 25	12 - 20
HR	110 - 160	100 - 150	95 - 140	80 - 120	60 - 90

Emergency – Examine

1.6. Operation Theatre Complex (OTC):

An Operation Theatre Complex (OTC), also known as the surgical suite or operating room, is one of the most critical and sterile environments within a hospital, specifically designed for performing surgical procedures that require precision, asepsis, and coordinated teamwork. It serves as the focal point for both planned and emergency surgeries across various specialties such as general surgery, orthopaedics, cardiology, neurology, gynaecology, and more. An OT is a highly controlled, well-equipped, and technologically advanced space that houses specialized surgical instruments, anaesthesia machines, operating tables, surgical lights, and advanced monitoring systems. The entire environment is meticulously kept ensuring a sterile field, minimizing the risk of infections, and ensuring patient safety during invasive procedures.

In Paras HEC Hospital, an Operation Theatre Complex (OTC), strategically found near HDU and ICU, surgical wards, and emergency departments for quick patient transfer and critical care support. We have 6 OTs in our hospital. OTC scheduling, sterilization processes, infection control measures, and adherence to surgical safety checklists are crucial for operational efficiency and patient safety.

1.6.1. Types of Operation Theatre:

As we know, we have various stages of operation theatre that require in every hospital to surgery a patient and delivered a best of safety environment for their lives such as various operation theatre are-

1. General OT
 2. Minor OT
- General OT-

A General OT is a category of operation theatre where a wide range of non-specialized or general surgical procedures are performed. It caters to surgeries that do not fall under highly specialized fields like neurosurgery, cardiac surgery, or orthopaedics but are still critical to patient care.

- Minor OT-

A Minor OT is a smaller, more localized operation theatre used for less complex, minimally invasive procedures, often done under local anaesthesia and with short recovery times. It is commonly found near outpatient departments (OPD), emergency rooms, or procedure rooms in hospitals.

1.6.2. OT Pharmacy:

An OT Pharmacy is a type of pharmacy is different from OP Pharmacy and IP Pharmacy resolute unit found near the Operation Theatre complex, designed to ensure prompt, sterile, and controlled delivery of drugs, consumables, and surgical supplies specifically for surgical procedures.

1.6.3. Components of Operation Theatre:

An Operation Theatre (OT) is a highly specialized and sterile environment in a hospital where surgical procedures are performed. It is composed of several essential physical, technical, and support components to ensure safety, efficiency, and infection control. Now we have basic components of operation theatre such as-

1. Interior Infrastructure
2. Surgical Equipment
3. Zoning OT
4. Support Systems
5. Surgeons OT

- Interior Infrastructure-

The interior of an OT complex is a carefully designed, sterile, and organized space with specific zones and dedicated areas. Every element from walls to air handling supports a clean, efficient, and safe environment for surgery. Proper infrastructure ensures better patient outcomes, lower infection risks, and smoother surgical operations.

- Surgical Equipment-

Surgical equipment refers to the specialized instruments and devices used by surgeons, anaesthetists, and OT staff during surgical procedures. These tools are essential for cutting, dissecting, grasping, holding, retracting, suturing, and checking the patient.

- Zoning OT-

Zoning is a critical concept in the design and function of an OT complex. It helps to control the spread of infection by creating separate areas based on cleanliness and sterility. Conventionally, the OT complex has been divided into four zones: Protective Zone, Clean Zone, Aseptic Zone, Disposal Zone.

- Support Systems-

Support systems in an OT complex are vital for surgical safety, infection control, and functionality. These systems ranging from air quality and power to communication and sterilization create a controlled and responsive environment, ensuring the success of surgical procedures and the safety of both patients and staff.

- Surgeons OT-

The Surgeon's OT area refers to the workspace within the Operation Theatre specifically designed for the operating surgeon and the surgical team. It is carefully planned to maximize asepsis, accessibility, efficiency, and ergonomics during surgical procedures.

1.7. Radiology Department:

A Radiology Department is the type of department that consists of diagnosis, monitoring, and treatment of various medical conditions through medical imaging technologies. It acts as the eyes of modern medicine, enabling clinicians to visualize the internal structures and functions of the body non-invasively. This department supports multiple specialties including orthopaedics, cardiology, oncology, and emergency medicine by providing correct and prompt diagnostic insights.

The department is typically staffed by a multidisciplinary team, including radiologists, radiologic technologists, sonographers, nurses, and administrative personnel. With advancements in technology and the integration of artificial intelligence (AI), radiology continues to evolve, improving image accuracy, reporting speed, and clinical outcomes.

The radiology department serves both Outpatient (OPD) and Inpatient (IPD) settings by providing essential imaging services for diagnosis, treatment planning, and monitoring. In the OPD, radiology supports non-admitted patients through scheduled imaging like X-rays, ultrasounds, CT scans, and MRIs for routine check-ups, screenings, or specialist referrals. In the IPD, it caters to admitted patients by offering bedside imaging, emergency diagnostics, interventional procedures, and follow-up scans to guide ongoing treatment and critical care. This dual role ensures comprehensive diagnostic support across the hospital.

1.7.1. Types of Radiology:

At Paras HEC Hospital, we have several radiology machines that are used to examine patients to decide treatment options, detect damage to bones and nerves, and support planning for reconstructive surgeries.

1. X-RAY
2. USG

3. MRI
4. CT SCAN
5. Ultrasound
6. Radiation Oncology
7. Nuclear Medicine

1.7.2. Investigation Request in Radiology Department:

In radiology, OPD (Outpatient Department) and IPD (Inpatient Department) requisition forms are essential documents used to request imaging investigations for patients. These forms ensure clear communication between the treating physician and the radiology department and help to keep documentation and aid in billing and reporting.

1.7.3. TAT Scanning Samples:

In radiology scanning samples have different duration to provide information about patient body parts is work or not, the total time taken from sample collection to result reporting. It is a critical quality parameter detection of radiation, influencing prompt diagnosis, treatment decisions, and overall patient care. TAT expectations differ between Outpatient Department (OPD) and Inpatient Department (IPD). It depends on sample test that given the patient prescription bills.

Department	Routine	Urgent	OPD	IPD
X – RAY	Four hours	Two hours	One hour	Two hours
C.T. SCAN	6 hrs	4 hrs	1 Day	2 Day
M.R.I.	6 hrs	4 hrs	1 hr	2 hrs
ULTRASOUND	2 hrs	1 hr	1 hr	-
ULTRASONOGRAPHY	2 hrs	1 hr	-	-
RADIATION ONCOLOGY	3 hrs	1.5 hr	-	-

1.8. Laboratory Department:

The Laboratory Department is a major part of essential support to clinical decision-making by delivering correct, prompt, and reliable diagnostic test results. The laboratory acts as the backbone of evidence-based medicine, aiding physicians in forming effective treatment plans and checking therapeutic responses.

The laboratory department functions 24/7 in many institutions, especially tertiary and emergency care hospitals, to support both inpatients (IPD) and outpatients (OPD). It manages routine screening, emergency testing, and specialized investigations, ensuring patient safety through strict adherence to quality control measures, standard operating procedures (SOPs), and accreditation standards such as NABL or CAP.

In addition to diagnostic services, the laboratory department often collaborates with infection control, blood bank, and research units, making it integral not only to patient care but also to public health surveillance and academic research. The use of Laboratory Information Systems (LIS) has further enhanced efficiency, data management, and result accessibility, promoting seamless integration with the hospital's overall health information systems.

1.8.1. Components of Laboratory:

There are few diagnostic tests in laboratory very commonly uses in the hospital to improve the patient and safety measure of quality structure. These components are essential for daily life.

1. Blood Centre
2. Blood Transfusion Servies
3. Clinical Biochemistry
4. Clinical Microbiology
5. Clinical Serology
6. Clinical Pathology

7. Clinical Hematology
8. Clinical Histopathology
9. Cytopathology

1.8.2. Laboratory Blood Centre:

A blood centre, often called a blood bank, is a vital part of any hospital quietly working behind the scenes to support life-saving care. It is a dedicated facility where blood is collected from donors, carefully evaluated, processed into components like red cells or platelets, safely stored, and made ready for patients who need it most. Whether it is during a major surgery, a serious accident, childbirth complications, or the treatment of conditions like anaemia, cancer, or bleeding disorders. Blood centres ensure this happens by keeping a steady, safe supply of blood and blood products at 24/7. Their work is not just technical it is deeply human. Every unit of blood they prepare has the potential to save a life, making them an indispensable part of patient care and emergency response.

The functioning of a blood centre is guided by strict regulatory standards to ensure donor safety, recipient safety, and traceability of every unit of blood. In India, these centres are regulated under the Drugs and Cosmetics Act, 1940 and function in coordination with the National Blood Transfusion Council (NBTC) and State Blood Transfusion Councils (SBTC). Additionally, the National AIDS Control Organization (NACO) plays a key role in policymaking and capacity-building for blood services in the country.

Modern blood centres are equipped with advanced technologies for part separation (like red blood cells, plasma, and platelets), screening for transfusion-transmissible infections, and cold chain maintenance. They also implement quality management systems to ensure continuous improvement in processes and services.

Moreover, blood centres often run awareness programs, conduct voluntary blood donation camps, and keep a database of donors to promote regular and safe blood

donation. The availability of a reliable and efficient blood centre is vital for the smooth operation of a hospital, ensuring prompt access to lifesaving blood and its components.

1.8.3. Blood Transfusion Services:

Blood Transfusion Services (BTS) are a lifeline in modern healthcare, playing a crucial role in saving lives and supporting recovery. These services manage everything needed to make sure safe and healthy blood is available when patients need it most whether it is during surgery, after an accident, or for treating conditions like anaemia or cancer. It all starts with encouraging people to donate blood from there, the blood is carefully collected, evaluated, processed into components like red cells or plasma, safely stored, and then delivered to hospitals. Each stage is carefully overseen to guarantee that the correct blood type is delivered to the proper patient promptly. This system is designed to reduce risks, prevent mistakes, and most importantly, protect patients' lives.

The demand for blood is continuous and often unpredictable, especially during surgeries, trauma cases, obstetric emergencies, cancer treatment, and chronic illnesses such as thalassemia and haemophilia. Effective blood transfusion services bridge this gap by creating a robust system that relies on voluntary, non-remunerated blood donation, thus avoiding the commercialisation of blood.

The core aim of BTS is to enhance patient safety, which is achieved through stringent testing of each blood unit for blood group typing and transfusion transmissible infections (TTIs) such as HIV/AIDS, Hepatitis C, and syphilis. Modern blood transfusion services also focus on part therapy, allowing patients to receive only the specific part (red cells, plasma, platelets) they need, thereby maximizing the utility of each donated unit.

1.8.4. TAT Samples:

In laboratory samples have different duration to provide information about patient history, the total time taken from sample collection to result reporting. It is a critical quality parameter in clinical laboratories, influencing prompt diagnosis, treatment decisions, and overall patient care. TAT expectations differ between Outpatient Department (OPD) and Inpatient Department (IPD) due to the urgency and clinical context. It depends on sample test that given the patient prescription bills.

Department	Routine	Urgent	OPD	IPD
Biochemistry	4 hours	Approx	1 hr 30	Delayed
Special Biochemistry and HBA1C	3 hours	Approx	1 hr 20	Delayed
Haematology	4 hours	Approx	40 mins	Delayed
Clinical Pathology	3 hours	Approx	1 hr 45	Delayed
Serology	4 hours	Approx	2 hours	Delayed
Cytology	2 Day	2 hours	45 mins	-
Histopathology	7-9 Day	-	7 Day	5 Day
Microbiology and Routine Test	24 hrs	12 hrs	6 hours	4 hours
Culture and Sensitivity	3 Day	-	-	-
Blood Culture	7 Day	-	-	-

1.9. Significance of the Study:

Evaluate and enhance the integration and operational efficiency of the patient management process in the operations department, focusing on departmental coordination, process workflows, and technology use.

1.10. Scope of the Study:

1. The study is limited to Paras Health HEC Hospital, Ranchi.
2. It focuses on the operations department, especially processes involving OPD, IPD, ER, OT, and support services.
3. It includes analysis of workflow processes, departmental integration, staff coordination, and use of HIS and IT tools.
4. The study covers both clinical and non-clinical services that influence patient management.

1.11. Objective of the Study:

1. Assess the workflow and performance of the Outpatient and Inpatient Departments in patient handling.
2. Evaluate the role of technology in the patient management process across departments.
3. Find challenges and bottlenecks in coordination between clinical and non-clinical departments.
4. Analyse the efficiency of emergency and surgical care transitions within the hospital setup.
5. Recommend strategies for improving integration and operational efficiency in patient care delivery.

1.12. Importance of the Problem:

1. Efficient patient management is essential for improving care quality, enhancing patient satisfaction, and reducing delays.
2. Lack of integration between departments may lead to miscommunication, resource wastage, and longer patient turnaround times.
3. Understanding current inefficiencies can guide improvements in process standardization, staff coordination, and technology implementation, leading to better health outcomes.
4. There is a lack of mismanagement and conflict arises between departmental and coordinator due to patient aggression.

1.13. Research Questions:

1. How integrated are the patient management processes across different departments at Paras Health HEC Hospital?
2. What are the existing operational inefficiencies in handling patients in OPD, IPD, and ER?
3. How effectively is the hospital using digital systems (like HIS) for managing patient information?
4. What are the major gaps in coordination between clinical and non-clinical departments?
5. What process improvements can be made to ensure smoother transitions and reduced waiting times for patients?

Chapter 2: Review of Literature

This study focuses on the need assessment of the services and medical specialties of the population of Ranchi. These relevant articles, research studies, reports on market need assessment and OPD and IPD planning were collected from electronic databases, academic journals, and credible websites.

The selected literature was carefully analyzed to identify common themes and factors associated with OPD planning.

Sl. No	1
Author and Date	Smith, J. et al. (2020)
Title	Streamlining Patient Management through integrated Hospital Information Systems
Study Location	London, United Kingdom
Sample Size	12 hospitals (NHS Hospitals)
Sampling Technique	Purposive sampling of top-tier public hospitals
Salient Features	• Focus on integration of Electronic Health Records (HER) with operational workflows. • Highlighted reduction in admission-to-discharge time by 18%. • Emphasized staff satisfaction and reduced paperwork burden. • Integration improved interdepartmental coordination and reduced redundancies.
Sl. No	2
Author and Date	Patel, R. & Mehra, S. (2019)
Title	Operational Efficiency in Patient Flow Management in Tertiary Hospitals
Study Location	Mumbai, India
Sample Size	5 tertiary care hospitals

Sampling Technique	Stratified random sampling of departments (OPD, IPD, Emergency)
Salient Features	• Used Lean Six Sigma tools to assess patient movement inefficiencies. • Found bottlenecks in diagnostic services leading to delayed discharges. • Recommended real-time tracking and centralized scheduling. • Operational efficiency improved by 22% post-intervention.
Sl. No	3
Author and Date	Chen, Y. et al. (2021)
Title	Integrating ICT in Hospital Operations for Patient Management
Study Location	Beijing, China
Sample Size	800 patients + 120 hospital staff
Sampling Technique	Simple random sampling for patients; convenience sampling for staff
Salient Features	• Focused on ICT (Information and Communication Technology) integration. • Improved communication among departments led to faster diagnostics. • Reduced average wait time from 4.2 hours to 2.7 hours. • Found training gaps in staff using integrated systems.
Sl. No	4
Author and Date	Kumar, A. & Sharma, N. (2018)
Title	Assessment of Patient Management Systems in Indian Private Hospitals
Study Location	Delhi NCR, India

Sample Size	350 patients and 50 hospital administrators
Sampling Technique	Systematic sampling for patients; snowball sampling for administrators
Salient Features	• Evaluated software platforms used for patient admissions, billing, and discharge. • Emphasized the importance of backend integration with frontend interfaces. • Found gaps in data standardization across departments. • Suggested dashboard-based real-time monitoring for efficiency.
Sl. No	5
Author and Date	Alvarez, M. & Torres, J. (2022)
Title	Patient-Centric Operational Models in Latin American Hospitals
Study Location	Chile and Argentina
Sample Size	10 hospitals, 1,200 patients
Sampling Technique	Cluster sampling based on hospital size and specialty
Salient Features	• Investigated decentralized vs centralized patient management systems. • Centralized models showed 25% better performance in managing emergencies. • Patient satisfaction improved when digital check-in and queue systems were used. • Highlighted cultural factors affecting system usability.
Sl. No	6
Author and Date	Rao, P. & Deshmukh, M. (2020)
Title	Workflow Optimization in Patient Management: A Case Study of a Multispecialty Hospital
Study Location	Hyderabad, India

Sample Size	250 hospital staff and 500 patients
Sampling Technique	Stratified random sampling
Salient Features	• Studied workflow delays in emergency, OPD, and billing. • Implemented a central command centre for bed and resource management. • Average patient discharge time reduced from 7.5 hours to 4 hours. • Emphasized on predictive analytics for appointment scheduling.
Sl. No	7
Author and Date	Johnson, T., & Al-Mutairi, K. (2021)
Title	The Role of Health Information Systems in Enhancing Operational Efficiency in Middle Eastern Hospitals
Study Location	Riyadh, Saudi Arabia
Sample Size	15 hospitals, 1000 patient records
Sampling Technique	Systematic sampling of hospitals with HIS implemented
Salient Features	• HIS integration led to reduction in duplication of diagnostic tests by 30%. • Decreased patient length of stay by 1.2 days on average. • Noted resistance to change among older staff as a barrier. • Recommended continuous training and feedback loops.
Sl. No	8
Author and Date	Singh, V. & Rajan, B. (2022)
Title	Digital Health Transformation and Operational Outcomes in Tier-2 Indian Cities
Study Location	Jaipur and Lucknow, India

Sample Size	300 administrative staff and 200 doctors
Sampling Technique	Judgmental sampling of digital-enabled hospitals
Salient Features	- Assessed digital OPD ticketing, teleconsultation integration, and smart queues. - Improved daily OPD flow by 40%, reduced waiting lines. - Found improved documentation speed (from 7 mins to 3 mins per patient). Raised concerns about data security and consent.
Sl. No	9
Author and Date	Lee, S. et al. (2018)
Title	Interdepartmental Coordination and Patient Flow: A Systems Approach
Study Location	Seoul, South Korea
Sample Size	1,000 patient records over 6 months
Sampling Technique	Retrospective record review (quantitative)
Salient Features	- Found coordination gaps between radiology and surgery departments. - Proposed real-time digital dashboards for managing diagnostics & surgery slots. - Reduced patient cancellations by 23%. - Advocated for cross-departmental KPIs.
Sl. No	10
Author and Date	Okeke, N. & Ajayi, M. (2019)
Title	Challenges and Innovations in Patient Flow Management in Nigerian Public Hospitals
Study Location	Lagos and Abuja, Nigeria
Sample Size	800 patients and 150 health workers
Sampling Technique	Convenience sampling

Salient Features	• Explored queue congestion and lack of digitization. • Piloted mobile queue system using USSD technology for low-resource settings. • Decrease in OPD congestion by 35%. • Emphasized mobile technology for rural outreach and patient alerts.
------------------	--

Chapter 3: Methodology

This study defines that methodology is systematic and theoretical analysis of the methods to apply. It includes the concepts, tools procedures, and strategies used to collect and analyze data or solve problems.

3.1. Research Design:

The study is cross-sectional design to investigate focusing on understanding and evaluating the integration and operational efficiency of the patient management process across OPD, IPD, ER, OT, and support services in a single tertiary care hospital at Paras Health HEC Hospital, Ranchi. This approach was chosen because it enables researchers to capture data on current needs within communities within one time frame.

3.2. Study Settings (Research Area):

In Ranchi area, it served as the location for this study which targeted its newly established tertiary care facility known as Paras Hospital. The main objective was to explore demographic characteristics coupled with health service utilization patterns among residents living in around this area of town to inform decision making regarding where best should certain clinics be situated or type should they take after opening such facilities.

3.3. Data Collection Methods:

The study primarily employed observation, interviews, and analysis of secondary hospital records and workflow processes. Emphasis was placed on understanding departmental coordination, workflow mapping, and use of technology (HIS).

3.4. Sample Design:

- Sample-

The sample formed people from Ranchi.

- Sample Size-

To comprehensive understand community preference and requirement, 1370 respondent's patients in the survey.

- Sampling Technique-

To administration survey, a method of convenient sampling was used in hospital departments and stakeholders were chosen based on their direct involvement in patient management processes.

3.5. Sampling Criteria:

Inclusion Criteria-

- Staff actively involved in patient management in OPD, IPD, ER, and OT.
- Departments using Hospital Information Systems.
- Stakeholders willing to take part and offer process insights.

Exclusion Criteria-

- Departments not integrated with patient management workflows.
- Staff with less than one month of experience in the hospital.
- Patients or staff not directly interacting with the operational flow.

3.6. Study Tools:

- Description of the Tool
- ❖ Observation Sheets-

Record real-time workflow data (registration, billing, diagnostics, discharge).

- ❖ Checklist-

For verifying steps in OPD/IPD/ER workflows and documentation practices.

3.7. Scoring and Interpretation:

While the study was primarily qualitative and observational, analysis involved as-

- Process Efficiency Metrics-

Time taken at each step (registration, diagnostics, discharge).

- Qualitative Coding-

Responses from interviews were categorized by theme.

Interpretations focused on finding bottlenecks and inefficiencies.

3.8. Content Validity:

The tools were reviewed and confirmed by the faculty guide and hospital mentors.

Alignment was ensured with standard hospital operational procedures.

3.9. Procedure for Data Collection:

The data collection was spanned over three months. The online survey was given through social media in Ranchi. The participants were encouraged to share the survey link to reach out to a wider audience. The responses were collected, collected, and stored securely, ensuring anonymity and confidentiality.

3.10. Ethical Considerations:

Ethical approval was secured by clearly informing participants about the objective of the study. Participation was entirely voluntary, with the option to withdraw at any point. Ensure confidentiality, all data were anonymized, and the findings were used exclusively for the research objectives specified in the study.

Chapter 4: Results

In this chapter we have taken a sample from our organization to analyse the data for interpretation score. This data to score more enhanced and vibrant knowledge of hospital represented.

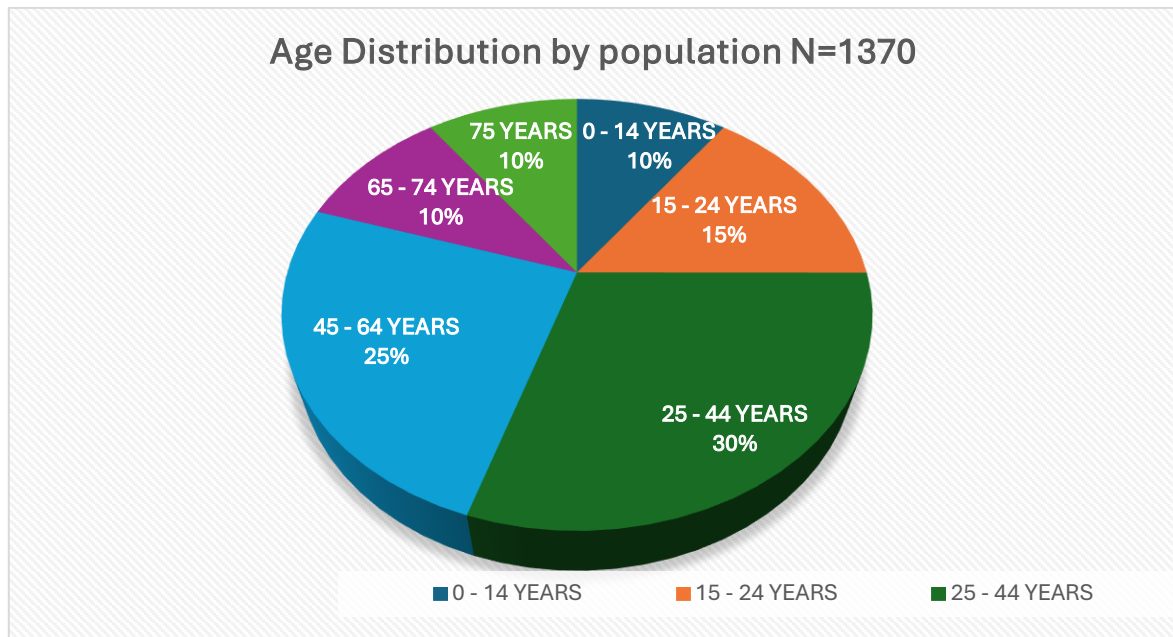


Fig. 1. Age Distribution based on data collected.

This pie chart depicts the age distribution of 1370 people in hospital. The majority are 30% is 25-44 years, stood for another group is 25% is 45-64 years, then 15% at the 15-24 years, and others are in new age of patients are coming in the hospital are represented in the segment.

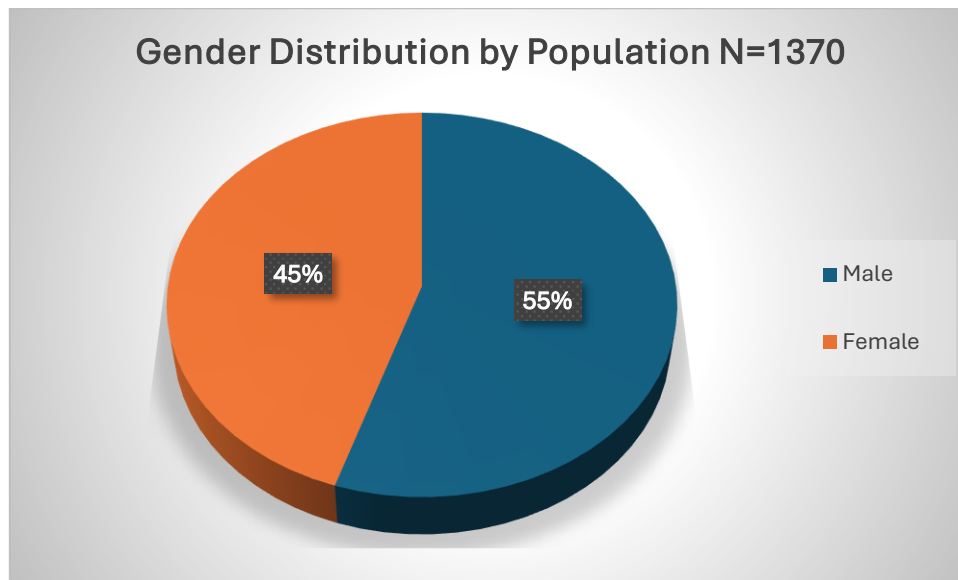


Fig. 2. Gender Distribution based on data collected.

This pie chart depicts the gender distribution of 1370 patients. The majority are 55% men represented, and another group is 45% women, making them the second largest group.

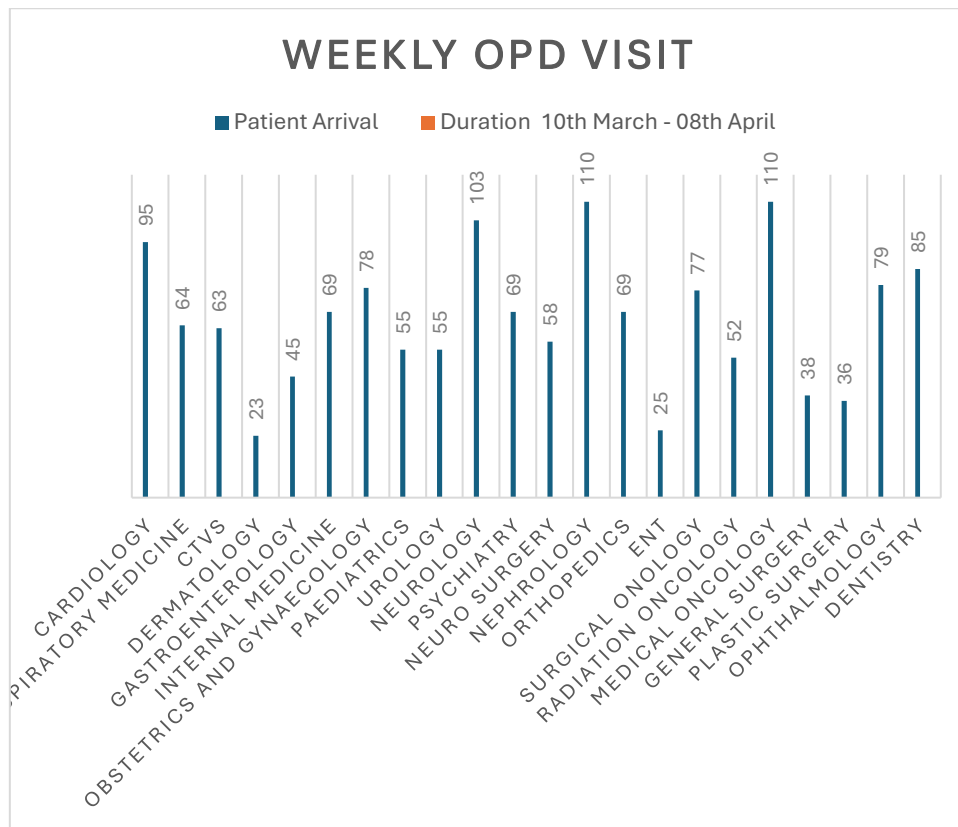


Fig.3. OPD Weekly Visited 1.

This data has been checked on duration internship period at the beginning on 10th March to 08th April for 1 month observation on OPD visited with doctor. To analysis the data has strongest lineup in medical oncology, nephrology and neurology are these crucial factors for patient life.

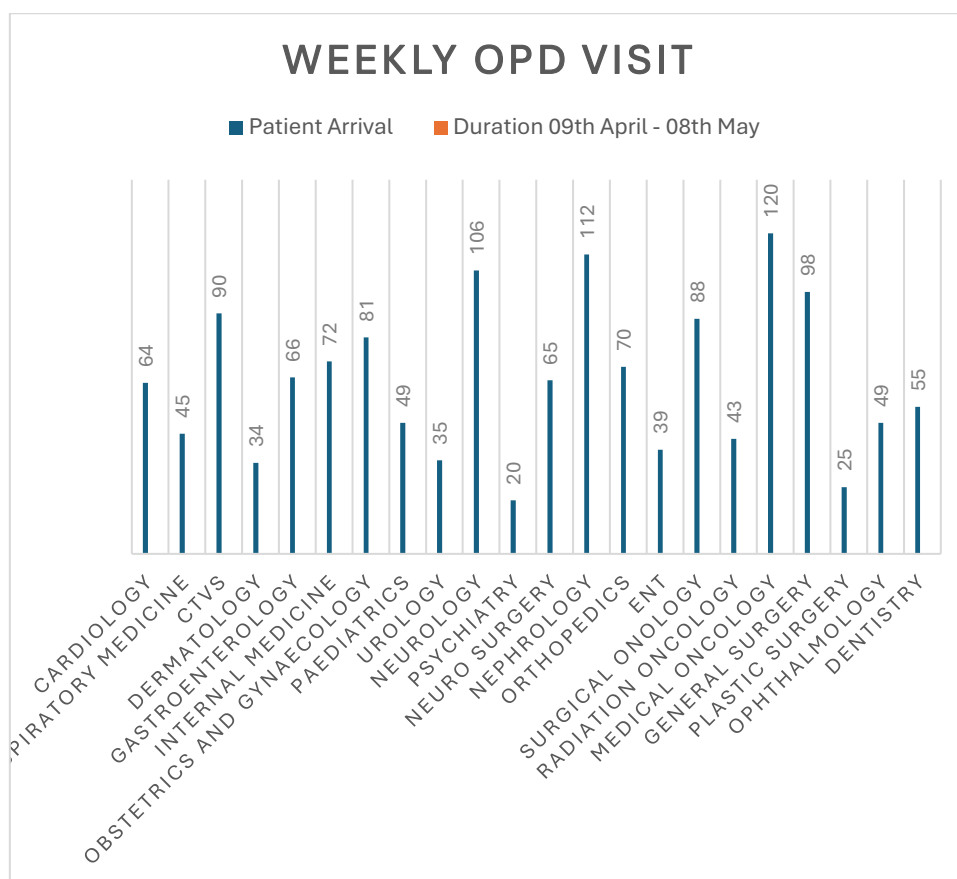


Fig. 4. OPD Weekly Visited 2.

This data has been checked on duration internship period at the beginning on 09th April to 08th May for another 1-month observation patients visited on OPD morning and afternoon hours to consultant with doctor. To analysis the data has strongest lineup in medical oncology, nephrology and neurology are these crucial factors for patient life.

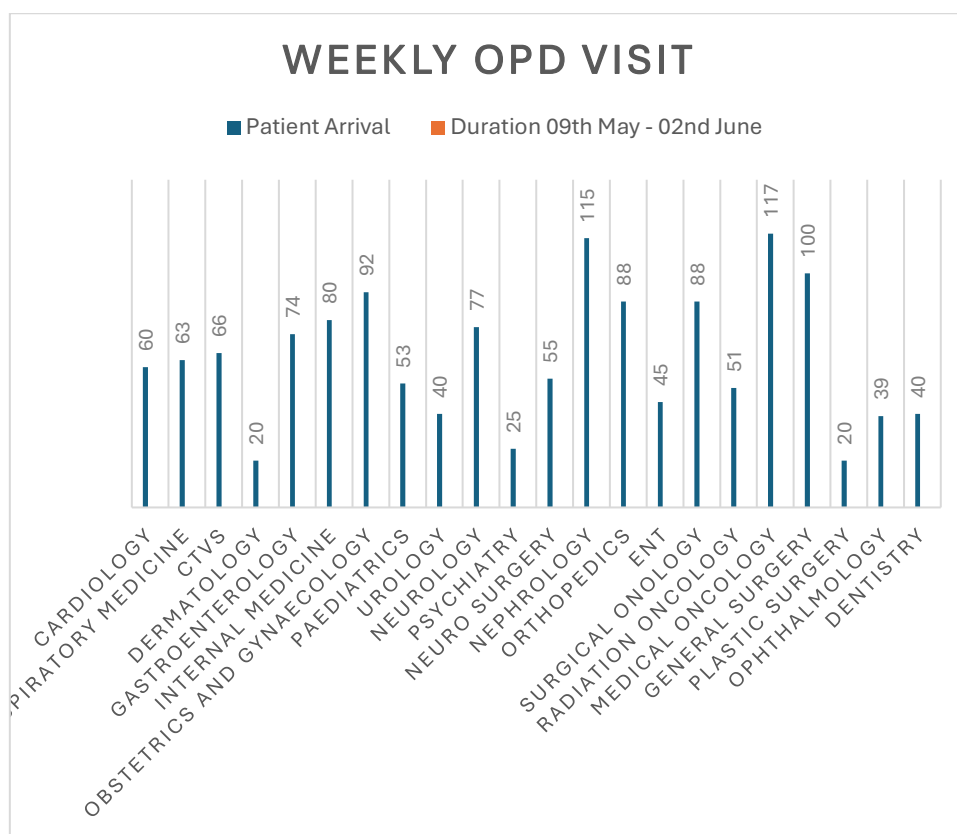


Fig. 5. OPD Weekly Visited 3.

This data has been checked on duration internship period at the beginning on 09th May to 02nd June for another 1-month observation patients visited on OPD morning and afternoon hours to consultant with doctor. To analysis the data has strongest lineup in medical oncology, nephrology and neurology are these crucial factors for patient life.

Patient Admitted Major Doctors

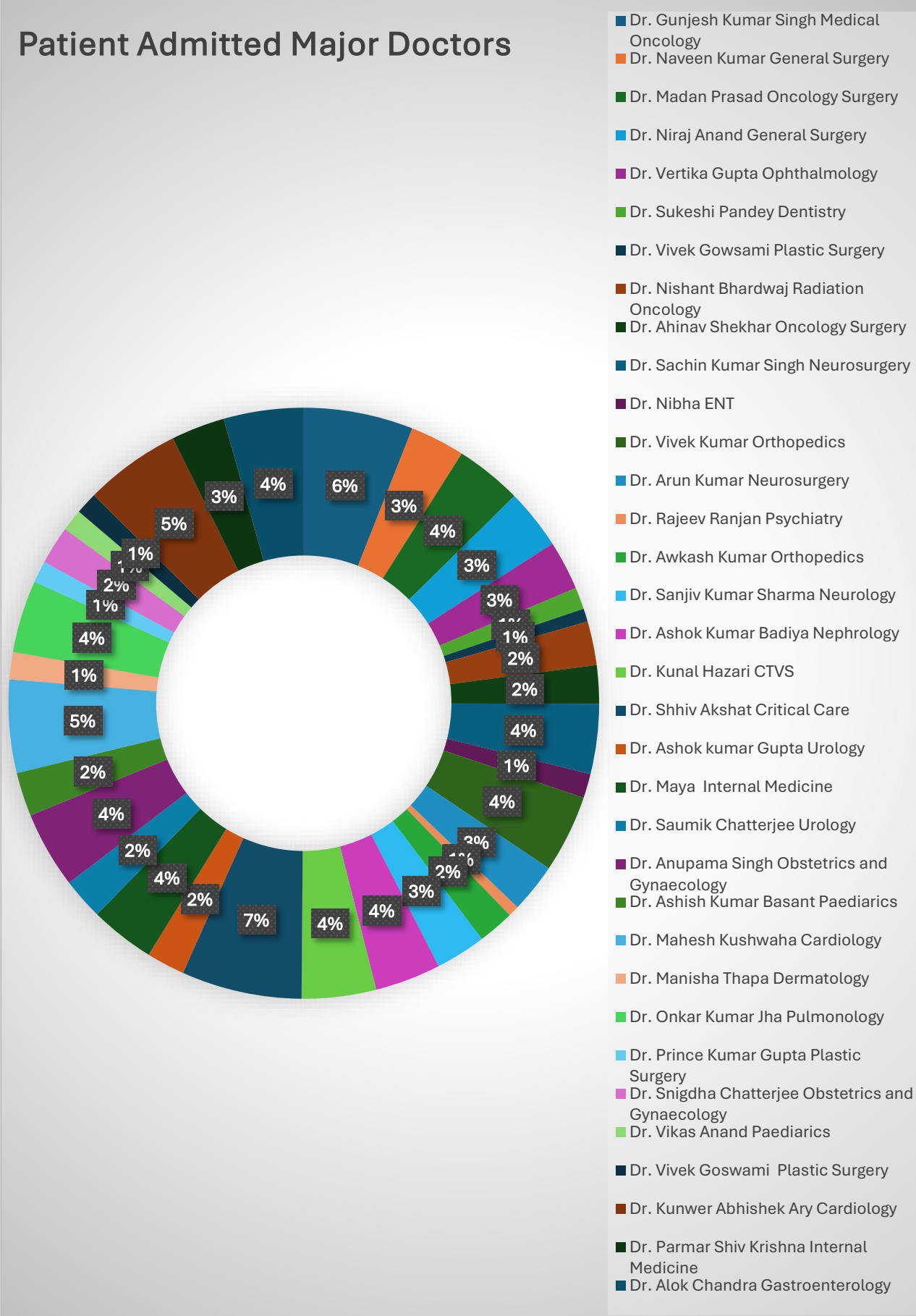


Fig. 6. Patient admitted under specialties doctor.

This dataset helps to find the consultants under whom patients were admitted for In-Patient (IP) admissions. The analysis reveals that the highest number of admissions were recorded under the specialties of Medical Oncology and Gastroenterology, showing a high demand for services in these departments during the observed period.

These trends suggest that patients presenting with cancer-related conditions and gastrointestinal issues were more prevalent, requiring continuous medical attention and hospitalization. The dominance of these specialties may also reflect the hospital's reputation and ability in handling complex cases in oncology and gastroenterology.

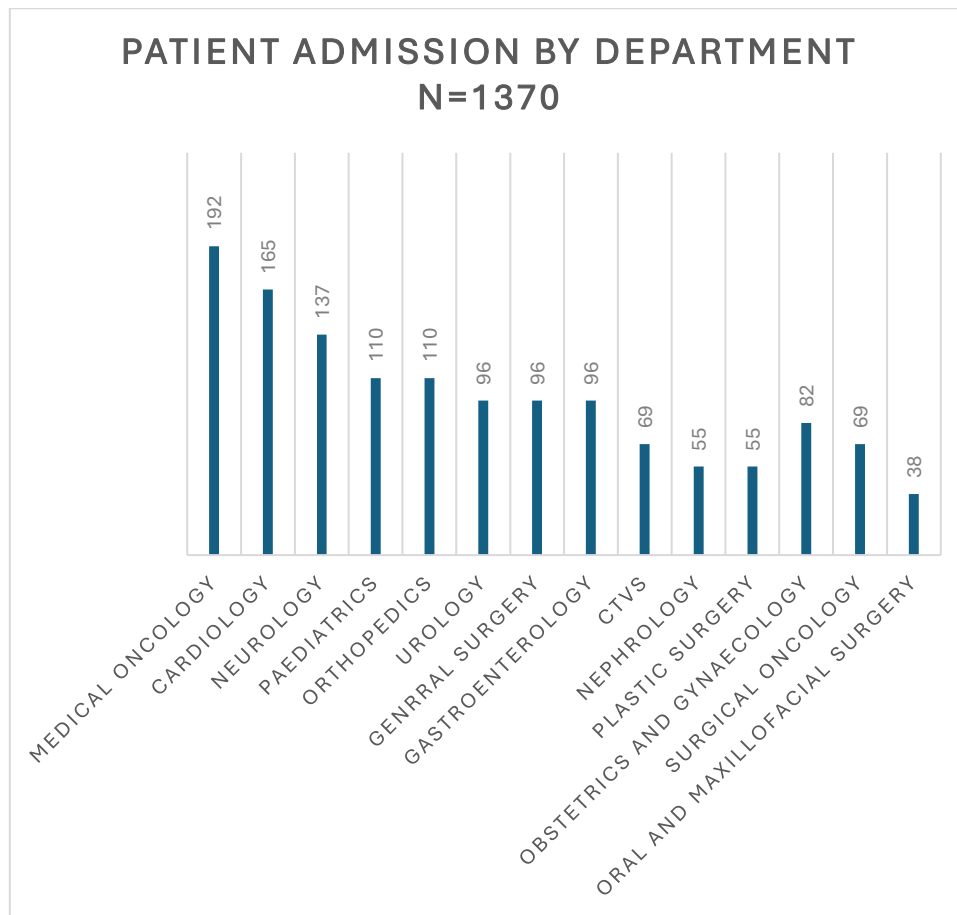


Fig. 7. IP Admissions under different specialities

This dataset is patient admissions based on procedures and treatments recommended by doctors at the time of admission. The accompanying bar graph highlights the distribution of admissions across various medical specialties during the period from 10th March to 2nd June.

Each bar reflects the number of patients admitted under specific specialties such as Medical Oncology, Neurology, Obstetrics & Gynaecology, Cardiology, and others. The data offers valuable insights into patient flow, departmental workload, and specialty-wise demand for clinical services during this timeframe.

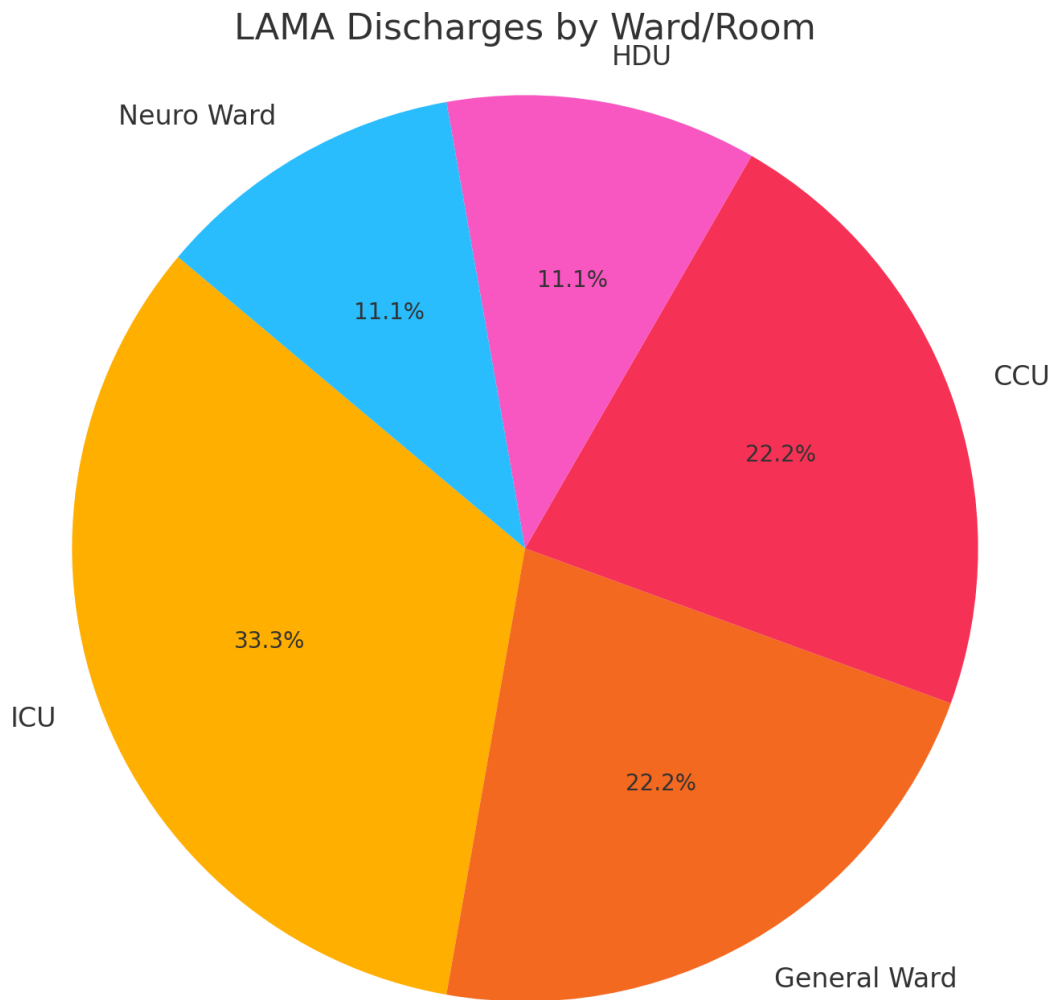


Fig. 8. LAMA Report

The data is the LAMA report of patient on pre-discharge without advice from doctors:

- ICU has the highest percentage at 33.3%.
- General Ward and CCU each account for 22.2%.
- HDU and Neuro Ward each have 11.1%.

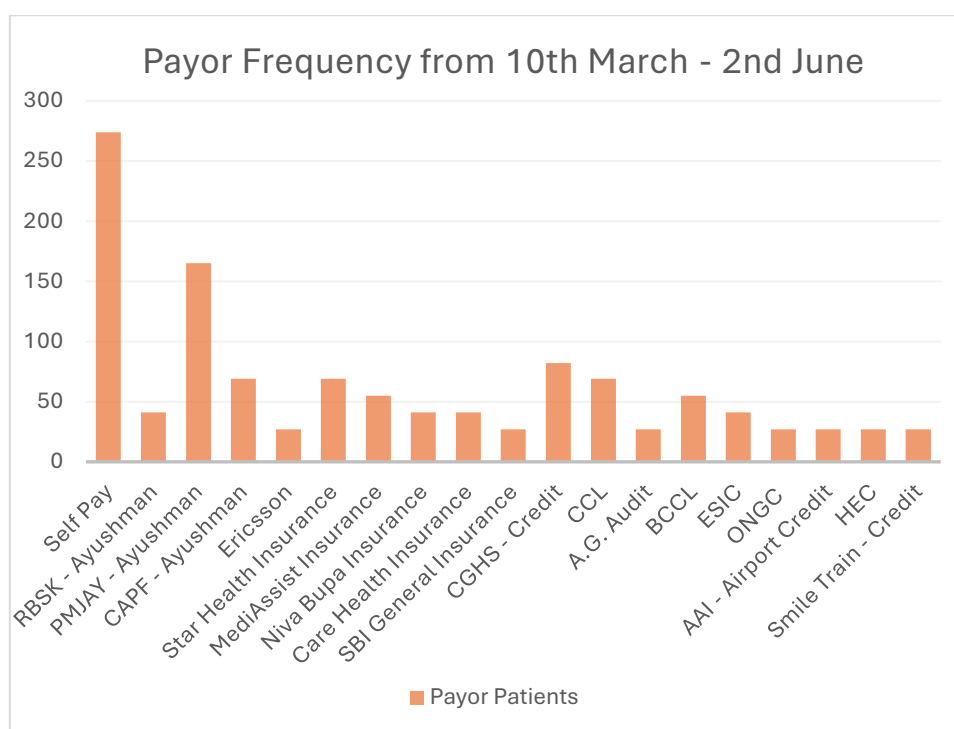


Fig. 9. Admission taken different payor categories.

This dataset is the payor categories of 1370 patients who underwent various treatments and procedures. The data includes a mix of payors such as corporate entities, government schemes, and private insurance providers. Notably, the highest number of patients fall under the self-pay or cash-paying category, showing a considerable proportion of individuals opting to bear medical expenses out of pocket. On the other hand, the lowest payor representation comes from the government sector, specifically BCCL (Bharat Coking Coal Limited).

Most patients prove an ability or willingness to pay directly for medical services, reflecting a strong self-reliance or lack of adequate insurance coverage. This trend may also highlight potential gaps in insurance penetration or limited access to government-sponsored healthcare schemes. Understanding the payor mix is crucial for hospital administration, as it influences revenue cycles, billing processes, and strategic decisions for future partnerships with insurance providers or public health programs.

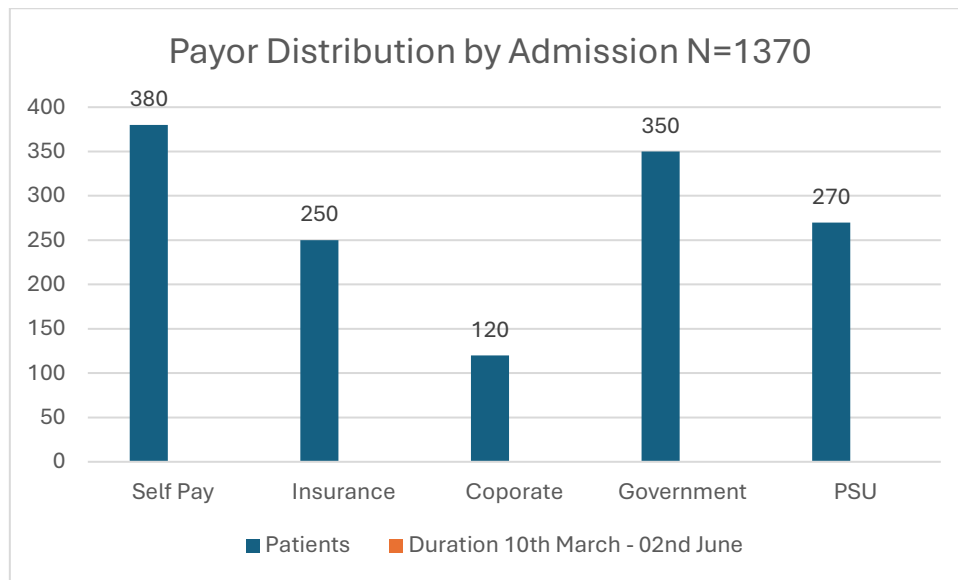


Fig. 10. Payor Category Distribution

This bar graph defines the distribution of hospital admissions based on different payor categories during the period from 10th March to 2nd June. It shows that the highest number of patients 380 were self-paying, indicating a substantial portion of individuals opted to bear their own treatment costs. Government-sponsored admissions followed closely with 350 patients, highlighting strong utilization of public health schemes. PSU beneficiaries accounted for 270 admissions, while insurance-covered patients stood at 250, reflecting a moderate reliance on third-party payers. Corporate admissions were the lowest, at 120, suggesting limited engagement through corporate health tie-ups. This distribution highlights the dominance of out-of-pocket and government-funded admissions in the hospital.

Department	Evaluate Name	Sample Received Time	Report Time	TAT	Status
Biochemistry	Blood Glucose	09:00 AM	11:00 AM	2 hours	Declared
Biochemistry	Creatinine	09:30 AM	10:30 AM	1 hour	Declared
Biochemistry	Electrolytes	08:30 AM	05:30 PM	4 hours	Delayed
Special Biochemistry	HBA1C*	09:15 AM	01:15 PM	4 hours	Delayed
Special Biochemistry	TSH*	10:00 AM	06:00 PM	8 hours	Delayed
Haematology	CBC*	08:45 AM	09:30 AM	45 mins	Declared
Haematology	PT*	09:30 AM	10:30 PM	1 hour	Minor
Clinical Pathology	Urine Routine	10:00 AM	12:00 PM	2 hours	Minor
Clinical Pathology	Stool Occult Blood	10:30 AM	01:00 PM	2 hrs 30 mins	Minor
Serology	Widal Test	11:00 AM	03:30 PM	4 hrs 30 mins	Delayed
Serology	Dengue NS1 Antigen	12:00 PM	02:30 PM	2 hr 30 mins	Minor
Cytology	FNAC	08:30 AM	05:00 PM	8 hrs 30 mins	Delayed
Cytology	Pap Smear	09:00 AM	03:00 (Day 2)	30 hours	Delayed
Histopathology	Biopsy Report	09:00 (Day 1)	03:00 (Day 3)	54 hours	Delayed
Histopathology	Frozen Section	11:00 AM	11:45 AM	45 mins	Declared
Histopathology	Bone Marrow Biopsy	09:00 AM	06:00 (Day 7)	153 hours	Delayed

Microbiology	Urine Culture	10:00 AM	10:00 (Day 2)	24 hours	Declared
Microbiology	Sputum Gram Stain	09:00 AM	10:00 AM	1 hour	Declared
Microbiology	CSF Culture	11:00 AM	05:00 (Day 4)	78 hours	Delayed
Blood Culture	Pus Culture	01:00 PM	06:00 (Day 3)	53 hours	Delayed
Blood Culture	Blood Culture	09:30 AM	09:30 (Day 3)	48 hours	Delayed
Routine Test	ESR	08:00 AM	10:00 AM	2 hours	Declared
Routine Test	Semen Analysis	09:00 AM	02:00 PM	5 hours	Delayed

Fig. 11. TAT Sample Collection Report

*HBA1C – Haemoglobin 1C

*TSH – Thyroid Stimulating Hormone

*CBC – Complete Blood Count

*PT – Prothrombin Time

This report specifically emphasized the need for continuous quality oversight and adherence to set up protocols about Turnaround Time (TAT) for laboratory samples. Moving forward, it is essential that this report be closely checked and integrated into the operations department's workflow. Regular quality audits and data tracking should be implemented to ensure that all TAT benchmarks are consistently met, thereby improving the overall efficiency and reliability of laboratory services.

Chapter 5: Discussions

The findings from this study offer a granular the view of operational strengths and bottlenecks in patient management at Paras Health HEC Hospital. By analysing demographic data, departmental workflows, HIS use, and quality indicators like LAMA discharges and TAT compliance, this section synthesizes observations into actionable interpretations. This discussion looks at key findings from the demographic analysis done in Ranchi as well as needs assessment conduction and how this can inform on planning and process on hospital.

1. Operational Load Concentration in High-Risk Specialities-

Key Observations:

Departments like Medical Oncology, Nephrology, Neurology, and Gastroenterology consistently recorded the highest OPD visits and IP admissions across the three-month observation period.

Interpretation:

This pattern signals a rising demand for tertiary care in chronic and non-communicable diseases (NCDs), which require long-term, resource-intensive management. Such concentrated patient flow can lead to physician burnout, diagnostic delays, and scheduling congestion. It highlights an urgent need for better load balancing, specialist expansion, and smart appointment allocation tools to mitigate crowding and ensure prompt interventions.

2. Demographic Imbalance:

Key Observations:

Patients aged 25–64 years formed over 55% of hospital visitors, with males making up 55% of the total cohort.

Interpretation:

The age distribution reflects a population segment prone to lifestyle-related disorders, demanding a strategic shift toward preventive care, rehabilitation programs, and disease-specific outpatient counselling services. The gender disparity shows sociocultural barriers limiting women's access to care and should target women through community-based screening, education campaigns, and female-centric OPD days to close this gender gap.

3. Gaps in Emergency to Inpatient Transition Pathway:**Key Observations:**

Many admissions bypassed OPD and were routed directly through Emergency services, particularly into ICUs, without structured pre-admission planning.

Interpretation

Such transitions, if poorly coordinated, can disrupt bed management, delay documentation, and increase chances of LAMA. Integration of triage-based pre-admission modules, emergency-to-IP dashboards, and real-time bed occupancy tracking can streamline this pathway, ensuring patients are stabilized quickly and assigned the right level of care with proper financial counselling.

4. High Incidents of LAMA in ICU and CCU units:**Key Observations:**

ICU accounted for 33.3% of all LAMA cases, with CCU and General Wards contributing 22.2% each.

Interpretation:

The critical care units face a dual challenge: high care costs and emotional stress on families, often resulting in patients leaving mid-treatment. These events not only affect patient outcomes but also the hospital's revenue and reputation. Solutions include a resolute LAMA prevention team, financial counsellors, and real-time updates to families via HIS-integrated dashboards to build trust and mitigate misunderstandings.

5. HIS Underutilization across Diagnostic and Admission Process:

Key Observations:

Although the HIS platform is deployed hospital-wide, gaps stay in real-time data entry, interdepartmental data sharing, and discharge synchronization.

Interpretation:

This digital underutilization leads to longer turnaround times (TAT) for diagnostics, delays in discharge summaries, and untracked patient records. Structured training modules, department-wise HIS champions, and mandatory HIS checkpoints in SOPs can perfect digital usage and reduce manual dependency. Incorporating automated alerts, mobile-based dashboards, and digital consent forms may also improve responsiveness.

6. Payor Category Distribution:

Key Observations:

Self-pay patients were the largest segment, while payors like BCCL and Smile Train had minimal representation.

Interpretation:

The low penetration of third-party or government insurance suggests a need for expanding empanelment with payors, customized packages for popular departments like oncology, and pre-authorized treatment workflows for TPAs. Additionally,

aligning patient financial profiles with real-time billing alerts can help reduce defaults and improve cash flow.

7. Delay in Laboratory TAT Impacts in Clinical:

Key Observations:

Several key laboratory tests, especially in histopathology, serology, and cytology, showed delayed turnaround beyond expected limits.

Interpretation:

Delayed TAT can compromise prompt diagnosis, treatment initiation, and discharge planning. Implementing a sample tracking mechanism, lab workload audits, and weekly TAT compliance reviews through a Quality Improvement Committee will help ensure adherence to national and NABL-recommended benchmarks. Digital timestamping of each lab milestone (collection, receipt, processing, reporting) can also pinpoint delay sources.

Chapter 6: Conclusion

This comprehensive study has highlighted the intricate and multifaceted nature of patient management within a modern tertiary care hospital, using Paras Health HEC Hospital, Ranchi as the focal case. Beginning with an in-depth understanding of the hospital's operational ecosystem, the research explored how patients journey through various departments from outpatient consultation to inpatient care, through emergency services, diagnostic departments, and eventually to discharge and post-care follow-ups. The intent was not merely to describe these flows but to critically evaluate the efficiency, integration, and overall functionality of the systems in place.

From the outset, the investigation revealed that while the hospital is structurally advanced and equipped with a wide range of medical and support services, its operational backbone the patient management process requires significant streamlining and coordination. The emphasis on patient-centric care has grown across the industry, yet operational bottlenecks, inefficient workflows, and gaps in digital integration continue to challenge the delivery of prompt and seamless services. This was clear across departments like the OPD, where delays in patient registration and specialist access affected patient throughput, and the IPD, where the lack of structured discharge planning led to prolonged hospital stays or unplanned LAMA (Leave Against Medical Advice) incidents.

A demographic analysis further showed a skewed representation among the patient population majority being middle-aged males which hints at both gender-based disparity in healthcare access. This calls for not only operational reforms, but also strategic public health outreach tailored to underserved groups. The departments with the highest clinical load Medical Oncology, Nephrology, and Neurology illustrate the increasing dependency on specialized care, which demands more coordinated support, trained labour, and optimized scheduling systems to prevent burnout and inefficiency.

The Emergency Department appeared as a critical touchpoint, often becoming the unintended gateway for inpatient care due to bypassing of OPD processes. This direct

flow, while occasionally necessary, disrupted pre-admission planning and strained ICU/CCU resources. Such patterns underscore the importance of having a real-time, integrated dashboard that connects triage, admissions, and bed allocation in a seamless manner. The need for this integration was echoed repeatedly in the analysis of HIS (Hospital Information System) usage. Despite the existence of a centralized digital system, poor adherence, inconsistent data entry, and lack of real-time access resulted in fragmented care delivery, missed communication, and delays in discharge and diagnostic reporting.

One of the most striking findings was the inconsistency in Turnaround Time (TAT) compliance within the diagnostic and laboratory departments. Delays in results, particularly in histopathology, cytology, and serology, had cascading effects on clinical decision-making and discharge efficiency. These delays further emphasized the need for better sample tracking mechanisms, digital timestamping, and accountability-driven SOPs checked through a central quality team.

From a financial perspective, the data revealed that self-pay patients are the largest category, with limited penetration from third-party or government-sponsored insurance schemes. This raises concerns about financial accessibility and sustainability, both for the hospital and its patients. A re-evaluation of the hospital's empanelment strategy, coupled with improved counselling at the billing and admission stage, may enhance payor diversity, and reduce the burden on out-of-pocket expenditures.

This study concludes that while the infrastructure and intent at Paras Health HEC Hospital are aligned with the goals of modern tertiary healthcare, the operational framework needs a paradigm shift from siloed, department-centric management to a patient-centred, technology-enabled, and process-optimized model. Strengthening interdepartmental coordination, standardizing discharge planning, perfecting HIS usage, and bridging diagnostic delays are not just recommendations they are imperatives if the hospital aims to deliver care that is not only clinically excellent but also efficient, empathetic, and fair. These learnings, though specific to Paras Health

Ranchi, offer valuable insights and scalable models for other emerging tertiary hospitals striving for operational excellence in the Indian healthcare context.

References:

1. Smith, J., Patel, R., & Mehra, S. (2020). Streamlining Patient Management through Integrated Hospital Information Systems. *Journal of Health Systems Management*, 12(3), 115–126.
2. Kumar, A., & Sharma, N. (2018). Assessment of Patient Management Systems in Indian Private Hospitals. *Indian Journal of Hospital Administration*, 5(2), 64–72.
3. Chen, Y., Li, F., & Zhao, H. (2021). Integrating ICT in Hospital Operations for Patient Management. *International Journal of Medical Informatics*, 145, 104325.
4. Rao, P., & Deshmukh, M. (2020). Workflow Optimization in Patient Management: A Case Study of a Multispecialty Hospital. *Health Policy and Planning*, 35(6), 723–730.
5. Lee, S., Park, M. J., & Kim, H. (2018). Interdepartmental Coordination and Patient Flow: A Systems Approach. *Journal of Healthcare Engineering*, 2018, Article ID 3940292.
6. Johnson, T., & Al-Mutairi, K. (2021). The Role of Health Information Systems in Enhancing Operational Efficiency in Middle Eastern Hospitals. *Middle East Journal of Health Management*, 9(1), 23–34.
7. Singh, V., & Rajan, B. (2022). Digital Health Transformation and Operational Outcomes in Tier-2 Indian Cities. *Journal of Digital Health*, 8(4), 199–210.
8. World Health Organization. (2016). Framework on Integrated People-Centred Health Services. WHO Publications. Retrieved from <https://www.who.int/publications/i/item/9789241511505>
9. Ministry of Health and Family Welfare. (2020). National Digital Health Blueprint. Government of India. Retrieved from <https://ndhb.health.gov.in/>.
10. Paras Health. (2023). About Us – HEC Ranchi. Retrieved from <https://www.parashealth.com>

11. Bates, D. W., & Singh, H. (2018). *Two decades since To Err Is Human: An assessment of progress and emerging priorities in patient safety*. Health Affairs, 37(11), 1736–1743. <https://doi.org/10.1377/hlthaff.2018.0738>
12. Graban, M. (2016). *Lean Hospitals: Improving Quality, Patient Safety, and Employee Engagement* (3rd ed.). CRC Press.
13. Institute of Medicine (US). (2001). *Crossing the Quality Chasm: A New Health System for the 21st Century*. National Academies Press. <https://doi.org/10.17226/10027>
14. Kruk, M. E., Gage, A. D., Joseph, N. T., Danae, G., García-Sais, S., & Salomon, J. A. (2018). *Mortality due to low-quality health systems in the universal health coverage era: A systematic analysis of amenable deaths in 137 countries*. The Lancet, 392(10160), 2203–2212.
15. Lamoid, M. S., Drewes, H. W., & Koster, F. (2017). *Use of hospital information systems to improve patient safety: A systematic review*. BMJ Open, 7(6), e013564.
16. McLaughlin, D. B., & Kaluzny, A. D. (2006). *Continuous Quality Improvement in Health Care: Theory, Implementations, and Applications* (3rd ed.). Jones & Bartlett Learning.
17. Menaechmi, N., & Collum, T. H. (2011). *Benefits and drawbacks of electronic health record systems*. Risk Management and Healthcare Policy, 4, 47–55. <https://doi.org/10.2147/RMHP.S12985>
18. Nair, M., Rashidian, A., & Boerma, T. (2021). *Quality of primary health care in low- and middle-income countries: A systematic review of the literature*. Bulletin of the World Health Organization, 99(6), 378–389.
19. Patel, V., & Goel, A. (2022). *Digital Health Ecosystem in India: Current Challenges and the Road Ahead*. Journal of Family Medicine and Primary Care, 11(3), 1094–1100.
20. Rao, M., Sheffel, A., & Requejo, J. (2017). *Quality of inpatient care for adults in public hospitals of India*. Health Policy and Planning, 32(5), 645–655.



PARAS
HEC
Partners In Health
A PPP initiative of the HEC Ltd, Ranchi, Jharkhand

Registration Form

पंजीकरण फार्म



Date :

दिनांक :

First Name :

प्रथम नाम :

Last Name :

उपनाम :

Date of Birth :

जन्म तिथि :

Marital Status : Single ☐ Married ☐

वैवाहिक स्थिति : अविवाहित ☐ विवाहित ☐

Occupation :

व्यवसाय :

Present Address :

.....

..... Pin

वर्तमान पता :

.....

..... पिन

Mobile No. :

मोबाईल नं० :

Phone No. (Res) :

फोन (आवास) :

In case of Emergency Please Contact :

आपातकाल कि स्थिति में सम्पर्क करें :

Name :

नाम :

Relationship with Patient :

मरीज के साथ संबंध :

Middle Name :

मध्य नाम :

S/o, D/o, W/o :

पुत्र / पुत्री / पत्नी :

Age : Sex : Male Female

उम्र : लिंग : पुरु महिला

Divorced ☐ Widowed ☐

तलाक़पुदा ☐ विधवा ☐

Religion :

धर्म :

Permanent Address :

.....

..... Pin

स्थायी पता :

.....

..... पिन

Mobile No. :

मोबाईल नं० :

Email :

ई-मेल :

Number :

नम्बर :

I come to know about Paras HEC Hospital From :

मुझे पारस एच ई सी अस्पताल के बारे में जानकारी मिली :-

☐ Print Media (प्रिंट मीडिया)
☐ My Doctor (मेरे डॉक्टर द्वारा)
☐ Any other please specify (कोई और माध्यम, कृपया विस्तार में बताएँ) :-

☐ Friend/Relative (दोस्त / संबंधी)
☐ Walk-in (बिना नियोजित भेंट)

☐ Website (वेबसाइट)
☐ Television (टेलीविजन)

The above mentioned information is correct to the best of my knowledge.
(उपर्युक्त सूचना मेरी जानकारी के अनुसार सही है)

I wish to get healthcare information through SMS ☐ &/or E-mail ☐

मैं एस एम एस ☐ और ई-मेल ☐ के माध्यम से हेल्थकेयर की जानकारी प्राप्त करना चाहता हूँ।

Sign. Guadian (अभिभावक का हस्ताक्षर) Sign. Patient (रोगी का हस्ताक्षर)

Name (नाम) Relation with Patient (रोगी के साथ संबंध)

Note: -For any change in demographic data, contact the admission desk.
नोट :- जनसांख्यिकीय डेटा में किसी भी बदलाव के लिए प्रवेश डेस्क से संपर्क करें।

PHEC/Registration Form/Ver. 1.0

Admission Request एडमिशन रिक्वेस्ट



Name / नाम : Age / Sex / उम्र / लिंग :

Date / दिनांक : UHID No./ यूएचआईडी नं० :

Consultant / डॉ. :

Provisional Diagnosis / प्रोविजनल डायग्नोसिस :

MLC (Y/N) / एम.एल.सी. (हाँ/ना) :

Category of Room / रूम श्रेणी

Suit / सुट	☐	Four - Bedded / फोर बेडेड	☐
LDR / एल.डि.आर.	☐	General Ward / जनरल वार्ड	☐
Deluxe Room / डिलक्स रूम	☐	ICU / आई.सी.यू.	☐
Single Room / सिंगल रूम	☐	CCU / सी.सी.यू.	☐
Double - Occupancy / डबल अक्युपेंसी	☐	HDU / एच.डी.यू.	☐
Neuro Ward / न्यूरो वार्ड	☐	Day Care / डे केयर	☐

Name of any Procedure / Surgery :

किसी भी प्रक्रिया/सर्जरी का नाम

हस्ताक्षर / Signature

हस्ताक्षर / Signature

एडमिशन इंचार्ज / Admission Incharge

डॉक्टर का नाम / Doctor's Name

Date & Time

विशेषता / Specialty

Annex. 2. Patient Admission Request Form

PARAS HEC HOSPITAL, RANCHI				
ESTIMATION FORM				
Patient Name		DOA		
UHID		IP NO		
Surgery/Teatment Plan	Medical Management			
Doctor's Name				
Bed Category	LOS	1		
Details of Estimate Calculation				
Particulars	Amount (in Rs.)	Remarks		
Bed Charge				
IP Consultation (Primary only)		Cross Consultation will charge additionally		
Emergency Consultation charges				
Nursing care				
Dietetics and Nutrition				
RMO Charges		BMW, MRD, HIS Assesement, Registration Charges		
Administrative Charges		Based on uses or mention after admission		
Monitoring Charges				
Investigations (LAB & Radiology)	As per actual			
Medicine & Consumables	As per actual			

Annex. 3. Patient Estimation Form

Doctor's Assessment / Re-assessment Notes

[illegible]

PHEC/MED/DPN/Ver.1.0/July 2022

Annex. 4. Doctor Notes

Dietician Activity Sheet

Date / Time	Dietary Notes	Signature

Annex. 6. Dietician Activity

Name..... Age..... Sex: M/F.....
UHID No..... IP No..... Ward..... Bed no.....
Date..... Time..... Consultant Dr.....

NUTRITIONAL SCREENING AND ASSESSMENT FORM

AGE :	 Yrs.	GENDER : Male ☐ Female ☐	LANGUAGE :	
Primary Diagnosis :				
Past Medical History :				
F / H / O				
Anthropometric Indices				
HEIGHT :	 cm.	Pre-Pregnancy Weight :	 Kg.	WEIGHT :
		BMI :	 Kg/m ²	GRADE :
				IBW Kg
MATERNAL PHASE :		1st Trimester	2nd Trimester	3rd Trimester
PHYSICAL ACTIVITY :				
SEDENTARY		MODERATE		HEAVY
MOBILITY : AMBULATORY / DIFFICULTY WITH AMBULATION / BED RIDDEN				
FOOD ALLERGY : YES / NO If Yes -				
DIET PRESCRIBED BY THE DOCTOR :				
Route of Nutrition : Oral ☐ Enteral ☐ PPN ☐ TPN ☐				
CLINICAL SIGNS FOR FLUID RETENTION :				
Ascites :	☐	Edema	☐	
DIET HISTORY :				
Vegetarian :	Non-Vegetarian :	Lacto-ovo Vegetarian	Pure Vegetarian :	
Modified Diets (If any) :		On the Advice of :		

SGA SCREENING

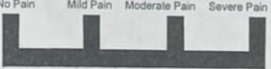
WEIGHT :	SCORE
Is BMI is <20.5 ?	1
Has the patient lost weight within the last 3 months ?	2
Has the patient reduced weight more than 3 kg ?	3
Is the patient severely ill ? Reduced weight more than 6 kg.	4
FOOD INTAKE :	
Good	1
Moderate	2
Poor	3
Appetite Nil	4
SYMPTOMS :	
None	1
Anorexia, Vomiting, Nausea, Pain on Eating, Dental Issue	2
Constipation, Severe Diarrhoea	3
Dysphagia, GI Reflux	4
STRESS FACTOR :	
No Stress Factor (include Admission For Investigation)	1
Mild (minor Surgery)	2
Moderate (chronic Diseases, Major Surgeries, Cva, Infection)	3
Severe (multiple Injuries, Multiple Fracture, Sepsis, Burns)	4
FINAL SCREENING :	Score Obtained
Low Risk 1 - 4	
Need Monitoring 5 - 8	
Moderate 9 - 12	
High Risk 13 - 16	

Medical Nutrition Therapy

Nutrient Requirement per day (As applicable) :		
Energy : kcal	Protein : g	
Fluid : ml	Sodium : mg	Potassium : mg
Remarks :		
Clinical Dietician's Name / Sign. / Date / Time -		

Annex. 7. Nutritional Activity

PHYSIOTHERAPY ASSESSMENT FORM - ICU

PATIENT'S NAME	ICU	DATE OF ADMISSION
PHYSIOTHERAPIST	BED NO.	AGE/SEX
DATE OF INITIAL INTERVIEW	CONSULTANT	REG. NO.
	MEDICAL DIAGNOSIS	
OBSERVATION	SUB HEADING	COMMENTS
COLOR	NORMAL PALE CYANOSED	
TEMPERATURE		
GCS SCORE		
PAIN		
VERBAL PAIN SCALE. FOR IMMEDIATE POST OP	No Pain Mild Pain Moderate Pain Severe Pain 	
RESPIRATORY RATE		
IS PATIENT ABLE TO COUGH		
AUSCULTATION		
MUSCULOSKELETAL/MOBILITY		
TREATMENT PLAN		

PHYSIOTHERAPIST SIGN

PHEC/Physio/ICU Assessment/1.1/Apr2022

Annex. 8. Physiotherapy Form

ADMISSION / DISCHARGE TRACKER

Sl. No.	Process	Date	Time	Name of Doc / Dietitian Exec / Nurse
1.	Patient Arrival at Front Desk			
2.	Room Confirmation From Ward			
3.	Time of Admission			
4.	Patient (New Admission) Received in the ICU / LR / Ward			
5.	Patient Initial Assessment (Nurse) Done			
6.	Patient Initial Assessment (Doctor) Done			
7.	Patient Nutritional Assessment (Dietitian) Done			
8.	Patient Transferred out to ICU / Recovery / LR / Wards			
9.	Patient Transferred to OT			
10.	Patient Received Back in Recovery for OT			
11.	Patient transferred to ICU / LR / Wards from Recovery			
12.	Patient Received in ICU / LR / Wards			
13.	Patient Transferred to Ward From ICU			
14.	Patient Received from ICU Complex			
15.	Patient Assessment (Nurse / Doctor) Done In Wards / ICU			
16.	Discharge Announced (Written Orders) at Nursing Counter			
17.	Discharge Summary Given to Medical Transcriptions for Typing			
18.	Complete Discharge Summary Received from Medical Transcriptionst			
19.	Return / Discharge Medication Request Sent to Pharmacy			
20.	Return / Discharge Medication Received from Pharmacy			
21.	Final Bill (For Cash) Approval (For TPA) Ready			
22.	Patient Attendant Shows The Bill Receipt (Cash Pt.) / Confirmation of Final Approval From Front Desk (TPA)			
23.	Discharge Folder handed over to the patient / Attendant with details of medications & follow up			
24.	Patient Wheeled Out To Exit			

Annex. 9. Admission to Discharge Tracker Form

Leave Against Medical Advice (LAMA) Form

S. No. Date.

Name of Patient I.P. No. Room / Bed No.

I, Mr. / Ms S/o / D/o / W/o

have been fully explained the risks, complications & prognosis, in a language. I Understand, by

Dr. I take full responsibility to have my
 (the treating Physician)

Leave Against Medical Advice, entirely at my own risk.

I Further undertake NOT to hold Paras Hospital or any of its' staff responsible for any adverse outcome what-soever.

Date / Time of Admission :

Date / Time of LAMA :

Doctor's Signature :

Doctor's Name :

Signature :

Name :

Relationship with Patient

Witness Signature :

Witness Name :

Annex. 10. Leave Against Medical Advice Form

DISCHARGE CHECKLIST

The following things are done during the Discharge :

- ID Band Removed
- IV Cannula Removed
- Discharge Summary
- All Reports Handed over as per CASH/TPA/MLC Protocols
- Any pending reports
- if yes

1. _____
2. _____
3. _____

Final Bill No. noted in admission discharge register

Feedback form collected

Name of Reports-handed over

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____

Signature : _____

Name of Staff : _____

Emp ID : _____

Date & Time : _____

Signature : _____

Attendant Name : _____

Date & Time : _____

Annex. 11. Discharge Checklist Handover Form

INFORMED CONSENT FOR PROCEDURE & TREATMENT

Name : Age : Sex : M / F / Others

UHID : IP Visit No. : Ward / Bed No. : Consultant :

INSTRUCTION : This consent form should be signed by patient - if an adult (18 years and above), by parent / guardian in the patient is a minor by the spouse or adult children or parents or adult brothers or sister or other family members or significant other (in this order of priority) of the patient lacks the ability to make an informed decision. The physician or his designee doctors are responsible for obtaining informed consent.

1. I hereby authorized the performance of the following operation(s) procedure(s), or treatment(s) hereafter referred to as procedures) : (Use no abbreviation / Avoid Technical Terms).

upon (Name of Patient)

2. I have been explained of the benefits and reasons for the procedure(s) as indicated by the clinical observations and diagnostics performed. I recognize that the practice of medicine is as much an art as a science and therefore acknowledge that no guarantees have been or can be made regarding the likelihood of success or outcomes.

3. I have been advised that, major risk involving the above procedure(s) are :

4. I have been advised of the following existing Alternatives in treatment/prognosis if the procedure (s) is not done, which are listed as follows:

5. I authorize Dr. and such assistants and associated as may be selected by him/her to perform any part of the above procedure(s) upon myself / the patient. I have been advised and I agree that any member of this team may perform any part of the procedure(s) according to his/her stage of training and ability, if in the opinion of the above named physician, the experience and capability of the assistant surgeon Justifies such a decision.

6. As with any procedure, I am aware that risk such as, infection, heart failure, change in blood pressure allergic reactions paralysis etc may arise necessitating attention. Therefore, in addition to consenting to the performance of the particular procedures(s), I also consent and authorize the rendering of such care and treatment as the physician or his designee reasonably believes necessary, should one or more of these and/or other unforeseeable events occur.

7. **Photography :** I consent to the photography to television or the procedure(s) to be performed, for the purpose of advancing medical education or its publication in scientific journals, provided patient's identity is not revealed by the pictures or description in the accompanying texts. In an effort to further medical science and education, I consent to and authorize the presence of and observation of this procedure by qualified observers, as may be authorized by Paras HEC Hospital and its regulatory laws and its regulatory laws and agencies.

Signature of Consultant

(Patient / Representative)

Name : Reg. No. :

Annex. 12. Operation Consent Form

 PARAS HEC Partners for Progress A Joint Venture of the HEC Ltd, Jaipur, Rajasthan		MONITORING DURING PROCEDURE									
Patient Name :							OP ☐ IP ☐				
UHID No. :							DOA :				
Consultant / Procedure done by :							Date of Procedure :				
Procedure Name :											
Patient is completely prepared for Procedure : Yes ☐ No ☐							Consent Status : Complete ☐ Incomplete ☐				
Patient received sedation : Yes ☐ No ☐							Assisted by - Nurse Name :				
Drug:							Assisted by - Tech Name :				
Dose:											
Any Complications During Procedure:.....											
.....											
Procedure start time :							Procedure end time :				
Time	AVPU	Temp	HR	RR	BP	SpO2	O2 / L	ECG Rhythm	Pain Score	Any other clinical concerns	
Pre-Procedure											
During-Procedure - 5 min											
10 min											
15 min											
20 min											
25 min											
30 min											
35 min											
40 min											
45 min											
50 min											
55 min											
60 min											

PHEC/MED/MDP/Ver.1.0/April'24

Annex. 13. Monitoring During Procedure

TPR Chart

Date																														
Time	10	2	6	10	2	6	10	2	6	10	2	6	10	2	6	10	2	6	10	2	6	10	2	6	10	2	6	10	2	6
Temp.	Pulse	Resp																												
105.0	240	110																												
104.0	220	100																												
103.0	200	90																												
102.0	180	80																												
101.0	160	70																												
100.0	140	60																												
99.0	120	50																												
98.0	100	40																												
97.0	80	30																												
96.0	60	20																												
95.0	40	10																												

Nrsg/TRP Chart/Ver 1.0

Annex. 14. T.P.R. Chart

PHEC/Patient Activity Record/Ver. 1.0/2022

Radiology Requisition Form रेडियोलॉजी मांग प्रपत्र



Patient Name : Mr./Ms. Age / Gender : Date
मरीज का नाम : श्रीमान / श्रीमती उम्र / लिंग दिनांक

Ref. Physician : IP No./UHID No. Ward / Bed No.
डॉक्टर आई.पी.नं. / यु.एच.आई.डी नं वार्ड / बेड नं.

Clinical Details :
चिकित्सीय विवरण

Name of the Investigation :
जॉब का नाम

L.M.P.
एल.एम.पी.

Allergic To :
एलर्जी

Time of Requisition Submission :
मांग प्रपत्र जमा करने का समय

Contrast start time :
कंट्रास्ट प्रारंभ समय

Provisional Report / प्रोविजनल रिपोर्ट

Annex. 16. Radiology Requisition Form

Department of Blood Transfusion
Blood / Blood Component Requisition Form

Issue No. :

Routine	Urgent	Immediate life saving without x-match

FOR THE USE OF BLOOD CENTRE

Requisition received on :

Pt's Blood Group & RH (D) :

Tested by :

Patient Name : Age/Sex : Ward/Bed No. :
(In Capital Letter)

Fathers/Husband's Name : Blood Group (If Known) :

Hospital Name : Patients CR No./IP No. :

Doctor Incharge : Diagnosis :

INDICATION FOR TRANSFUSION :-

☐ Bleeding ☐ Exchange transfusion ☐ Trauma ☐ Dialysis ☐ Thrombocytopenia
☐ Anaemic ☐ Surgery ☐ Burns ☐ Deranged coagulation profile

Previous Transfusion hematological values

Hb : Platelet Count : Prothrombin Time : APTT :

Previous Transfusion H/O ☐ Yes ☐ No

If yes Date of transfusion : Any Adverse effect :

If Pt. is Women : **Has she ever been pregnant** Yes / No Para :

H/o of HDN / Still Birth / Miscarriage

Request Date & Time : **Required Date & Time** :

Blood / Blood Components Required

Component Type	Whole Blood	PRBC	FFP	CRYO	RDP	SDP	
						Screening only	Screening + Processing

This is certified that I have personally collected the sample after verification of Patient & labeled it correctly. I have explained the need of blood component transfusion or any other procedure & the risk associated with it to the Pt./relatives. The informed consent for this has been taken from the Pt/relative and kept in the Patient's record.

Sign. of Phlebotomist : Sign. of Doctor :

Name of Phlebotomist : Name of Doctor :

Date & Time : Employee ID : Date & Time :
with Designation & Stamp

Attendants has been informed & consent is obtained for blood donations.

Signature of Attendants : Name & Relation with Patient :

Contact Number :

FOR BLOOD CENTRE USE ONLY

PATIENT'S BLOOD GROUP

Cell Grouping				Serum Grouping			Blood Group	Tested By
Anti A	Anti B	Anti AB	Anti D	A Cells	B Cells	O Cells	ABO (Rh) D	Sign. of Tech.

Name & Sign. of Tech.

DCT / ICT on Patients Sample Date & Time

DONATION					Cross Match		Compatible Yes / No
Sl. No.	Bag No.	Blood Component	Segment No.	Blood Group	Major	Minor	
1.							
2.							
3.							
4.							
5.							
6.							
7.							
8.							
9.							
10.							

Cross Matched By : **Checked By :**

Sign. of Tech. Sign. of Tech.

Name of Tech. Name of Tech.

Date & Time Date & Time

INSTRUCTIONS

1. 5ml of patient's blood in a plain sterile tube and 2ml in EDTA must be sent with requisition form.
2. In a new born baby up to 6 months old send the mother's bleed sample also.
3. In anaemia without blood loss Red Cell's transfusion is better.
4. All requests must accompany replacement donor (s) / replacement donor card (s).
5. The requisition must be filled complete in all respects. Patient's name, Admn. No., Room No. and Ward (Bed) No. should be the same both on the form and the label on the blood sample. It should be legible otherwise requisition will not be accepted.
6. Booking of blood will be cancelled after 3 days unless M.O., I/c of patient inform the next date on which it will be required.
7. A new blood sample of the patient is required for cross-matching if earlier transfusion was given more than 3 days back.
8. Requisition form for routine requirement should be sent 24 hrs. earlier on working days. Urgent requisition forms are accepted round the clock.
9. Platelets and FFP once issued will not be taken Back in Blood Centre.
10. Blood / Blood products once issued outside will not be taken back in Blood Centre.

PHEC/BC/BRF/Ver.1.1/2023

Annex. 17. Blood Component Requisition Form

Consent Form for Transfusion of Blood / Blood Components

A blood transfusion is a life-saving medical procedure by a physician. Blood can be given "whole" and more often a component or combination of components or apheresis components is transfused. Among the most common components are :-

Packed Red cells / Whole blood	for bleeding or low haemoglobin
Platelets Concentrate	for bleeding or low platelet counts
Fresh Frozen Plasma	for restoring blood volume or providing factors
Platelets Apheresis	for bleeding or low platelet counts

1. I agree to the administration of blood and / or components in the interest of proper medical care.
2. I have been informed of the transfusion options available which may include banked blood (allogenic) provided by voluntary replacement (relatives) donors.
3. I have been informed that despite careful screening in accordance with national regulation. There are instance of life threatening infections such as AIDS, Hepatitis and other viruses or diseases as yet unknown. I understand that there is no practical way to eliminate all risks. I also understand that unpredictable reactions may occur which include but are not limited to fever, rash and shortness of breath, shock and in rare occasions, death.
4. Expected benefits of the transfusion may include minimizing shock, brain and other organ damage, hastening recovery and limiting blood loss, however, I understand that there are no guarantees offered as to the expected benefits.
5. I have had the opportunity to ask questions about transfusions, alternate forms of treatment, risk of non treatment, the procedure to be used, and the relative risk and hazards involved and I believe that I have sufficient knowledge to make an informed decision.

AUTHORIZATION OF PATIENT

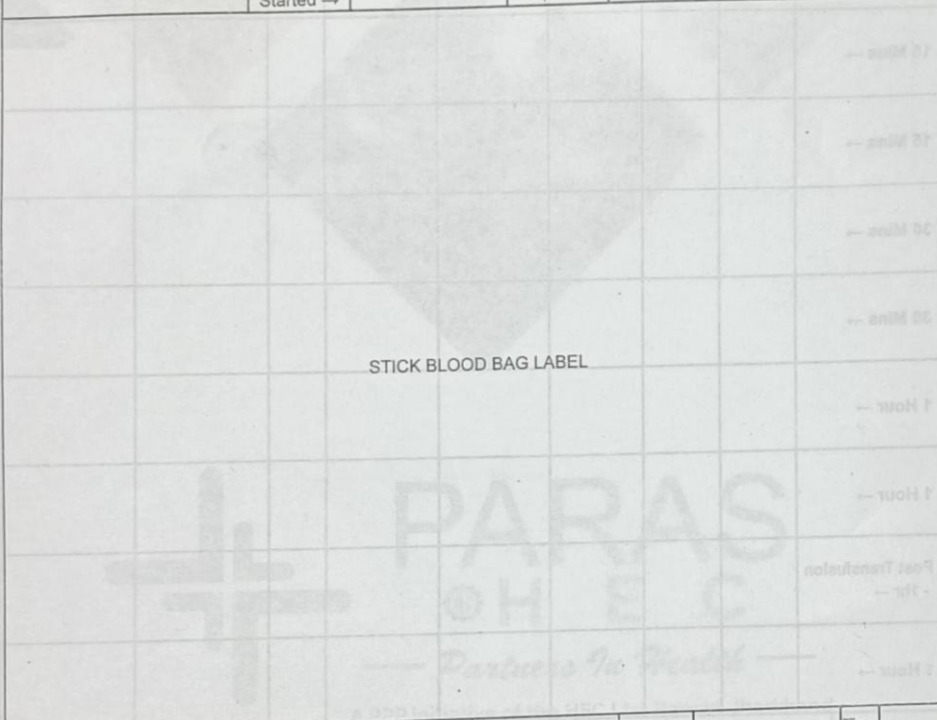
Patient _____ Date _____
 Witness _____ Date _____
 Doctor _____ Date _____

PATIENT REPRESENTATIVE/SURROGATE

The patient is unable of giving consent because : _____ and I
 _____ (Name / Relationship to the patient), therefore consent for the patient
 acknowledge that I have had an opportunity to discuss this procedure, as stated above, with my physician or physician
 designee, and hereby gives consent to this procedure.

Patient _____ Date _____
 Witness _____ Date _____
 Doctor _____ Date _____

Annex. 18. Blood Transfusion Consent Form

 PARAS H E C <i>Partners In Health</i> A PPP Initiative of the NRC, Govt. of India, New Delhi		BLOOD TRANSFUSION MONITORING FORM					
Patient Name/label →		Date →					
		Ward →					
UHID No:		Patient Blood Group →					
BLOOD COMPONENT TRANSFUSED							
☐	Whole Blood / Packed Cells	☐	FFP	☐	SDP / RDP	ABO/Rh Group	
☐	Platelet Conc.	☐	Cryoprecipitate	☐			
Blood Bag No ↓		Date of Collection →		Expiry Date →			
		Time Started →		Time Completed →			
 STICK BLOOD BAG LABEL							
1	Cross Checked by - Doctor	Name		Signature		Date	
2	Cross Checked by - Nurse	Name		Signature		Date	

PHEC/NRSG/BTMF/Ver.1.0/Jan'24

 PARAS O H E C Partners In Health A WHO Initiative of the HCL Ltd. Noida, India		BLOOD TRANSFUSION MONITORING FORM						
VITAL SIGNS								
Frequency	Time	Pulse	Resp Rate	Blood Pressure	Temperature	SpO2	Any other symptoms	Recorded by - Staff Name
Baseline →								
15 Mins →								
15 Mins →								
15 Mins →								
15 Mins →								
30 Mins →								
30 Mins →								
1 Hour →								
1 Hour →								
Post Transfusion - 1hr →								
1 Hour →								
Staff Name				Signature				Date

In case of any transfusion reactions, fill and send transfusion reaction form along with blood product bag and remaining product. Also send samples as per protocol. (To blood storage centre)

Annex. 19. Blood Transfusion Monitoring Form

Laboratory Requisition Form



Name..... OPD IPD UHID I.P.No.....
Age..... Sex..... Ward..... Bed No.....
Prof. Diagnosis..... Doctor

HEMATOLOGY & BIOCHEMISTRY

☐ Complete Blood Count (BCC)	☐ Cardiac Profile	☐ Renal Function Tests
☐ Hemoglobin	☐ Troponin T	☐ Urea
☐ TLC	☐ Troponin I (Qualitative/Quantitative)	☐ Creatinine
☐ DLC	☐ CPK	☐ Uric Acid
☐ Platelets	☐ CPK-Mb	☐ Sodium (Na+)
☐ ESR	☐ LDH	☐ Potassium (K+)
☐ PCV	☐ SGOT	☐ Chloride (Cl+)
☐ MCV		☐ Calcium (Ca+)
☐ MCH		☐ Magnesium (Mg+)
☐ MCHC	☐ Lipid Profile (Fasting)	☐ Phosphate (PO ₄)
☐ RDW		☐ Blood Sugar - Fasting
☐ Reticulocyte Count	☐ Total Cholesterol	☐ Blood Sugar - Post Prandial
☐ Smear for Malarial Parasite	☐ Triglycerides	☐ Blood Sugar - Random
☐ Peripheral Blood Smear	☐ HDL	☐ HbA1c
	☐ LDL	☐ Glucose Tolerance Test (GTT)
☐ Congulation Profile	☐ VLDL	☐ Gestational GTT
	☐ T.Chol : HDL Chol Ratio	☐ Glucose Challenge Test
	☐ LDL : HDL Ratio	
☐ Bleeding Time	☐ Liver Function Test (LFT)	☐ Urinary Creatinine (Spot)
☐ Clotting Time		☐ Urinary Na+ (Spot)
☐ Clot Retraction Test	☐ Bilirubin - Total	☐ Urinary K+ (Spot)
☐ Platelet Count	☐ Bilirubin - Direct	☐ Urinary Cl- (Spot)
☐ Prothrombin Test (PT)	☐ Bilirubin - Indirect	☐ Urinary Protein (24 hrs)
☐ Partial Thromboplastin Time (APTT)	☐ SGOT	☐ Urinary Creatinine (24 hrs)
☐ FDP	☐ SGPT	
☐ D. Dimer	☐ Alkaline Phosphatase	☐ Other (Please specify)
☐ Coombs Test - DIRECT	☐ Total Protein	☐
☐ Coombs Test - INDIRECT	☐ Albumin	☐
	☐ Globulin	☐
☐ Serum Iron	☐ A : G Ratio	☐
☐ Total Iron Capacity	☐ Amylase	☐
☐ C.R.P.		☐
☐ Rheumatoid Factor (RF) Qualitative/Quantitative		☐
☐ Anti-Streptolysin-O Titre (ASO)		☐

Date/Time Collected :

PHEC/Lab/LRF-MCPS/1.1/July 2022

MICROBIOLOGY

- | | | |
|--|--------------------------------------|---|
| ☐ Blood | ☐ Sputum | ☐ Wound Swab / Pus |
| ☐ Urine | ☐ Throat Swab | ☐ Peritoneal Fluid |
| ☐ Stool | ☐ CSF | ☐ Pleural Fluid |
| ☐ Others (Please Specify) _____ | | |

Antibiotics & Duration of Treatment : _____

- | | |
|---|--|
| ☐ Gram Stain | ☐ Z. N. Stain for Acid Fast Bacilli |
| ☐ Culture & Sensitivity | ☐ Fungal Stain |
| ☐ KOH Preparation (Nail Skin / Hair) | ☐ Others _____ |

HEMATOLOGY & BIOCHEMISTRY

- | | | |
|--|---|--|
| ☐ Urine Routine Examination
☐ Urine for Specific Gravity
☐ Urine for pH
☐ Urine for Protein
☐ Urine for Sugar
☐ Urine for Ketone
☐ Urine for Urobilinogen
☐ Urine for Bilirubin

☐ Stool Routine Examination
☐ Stool for Occult Blood
☐ Stool for Reducing Substances
☐ Stool for pH
☐ Stool for Hanging Drop Preparation

☐ Cerebro Spinal Fluid Analysis
☐ Protein
☐ Glucose
☐ Cell Count
☐ PSA Total
☐ Vit D | ☐ Pleural Fluid Analysis
☐ Protein
☐ Glucose
☐ Cell Count

☐ Peritoneal Fluid Analysis
☐ Protein
☐ Glucose
☐ Cell Count

☐ Other Body Fluid Analysis (Please Specify) _____
☐ Protein
☐ Glucose
☐ Cell Count

☐ Immunology & Serology | ☐ Pregnancy Test
☐ FT3
☐ FT4
☐ TSH
☐ Widal Test
☐ Hbs Ag (Rapid/ECI)

☐ Matoux Test
☐ Dengue Serology
☐ Malarial Antigen
☐ Typhi Dot
☐ HCV (Rapid/ECI)
☐ HIV-I & II (Rapid/ECI)

☐ Anti Nuclear-Antibodies
☐ Vitamin B 12
☐ Ferritin

☐ Others _____ |
|--|---|--|

OUTSOURCE TEST

- | | | | |
|--|---|---|---|
| ☐ Gamma_Glutamy I Transferase (GGT)
☐ GS PD
☐ Tubercular Antigen O Ig G O IgM
☐ Prostate Specific Antigen (PSA) Total Free
☐ HEV IgM
☐ HAV IgM
☐ Total IGE
☐ C3 | ☐ Insulin (F)
☐ Insulin (PP)
☐ Insulin (Random)
☐ Toxoplasma IgM
☐ Rubella IgM
☐ Cytomegalo Virus IgM
☐ Immunoglobulin IGE | ☐ Herpes Simplex Virus IgM
☐ Homocysteine
☐ Double-Stranded DNA
☐ ANA (IFA)
☐ ANA (ELISA)
☐ Anti (CCP)
☐ ACE
☐ H Br DNARPT PCR | ☐ DS DNA
☐ Gene Expert
☐ Protein Electro Phoresis
☐ CA - 19-9
☐ CA-125
☐ CEA
☐ ANT 77G |
|--|---|---|---|

Date/Time Collected : _____

Signature : _____

PHEC/Lab/LRF-MCPS/1.1/July 2022

Annex. 20. Laboratory Requisition Form