

SUMMER TRAINING

IN



MBA in Hospital and Healthcare Management

(2014-16)

By

Dr. BABANDEEP KAUR



Institute of Health Management Research

2015

CERTIFICATE

This is to certify that the projects titled 'A time motion study in radiology department with main focus on CT & MRI' and 'A study on factors affecting lead time in purchase department of Fortis Hospital, Mohali' have been done and submitted by, **Babandeep Kaur**, a student of Masters Of Business Administration In Hospital And Health Management -19th Batch from The IIHMR University, Jaipur.

The study projects were prepared in the internship period from 23rd March, 2015 to 20th June, 2015 at Fortis Hospital, Mohali, under my guidance and supervision. This summer training is the course requirement recommended before awarding the degree of MBA Hospital and Health Management.

I wish her all the success for her future endeavors.



Col. (Dr) Ashok Kaushik (Retd.)

Dean (Academics & Student Affairs)

The IIHMR University, Jaipur



Col. (Dr) Ashok Kaushik (Retd.)

Dean (Academics & Student Affairs)

The IIHMR University, Jaipur

20-Jun-15

TO WHOM SO EVER IT MAY CONCERN

This is to certify that **Ms Babandeep Kaur** has completed her Training, in the Purchase Department at Fortis Hospital, Mohali, from **23-Mar-15 to 20-Jun-15**.

The project undertaken by her during the training period was **"Factors Affecting Lead Time", "Vendor", "Time Motion Study in Radiology Department"**.

She possesses a keen observation and conducts herself with confidence.

We wish her success in her future endeavors and pursuit of her career goals.

For Fortis Hospital


Kanwal Sandhu
Manager-Human Resource



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I am also thankful to Dr. Bhavna Ahuja (Head of Department, Patient Care Services, Fortis Hospital, Mohali) and Mr Ashok Kumar (Head of Department, Purchase) for their consent and further nurturing my understanding about the hospital and its working.

I own my profound gratitude to our alumni for guiding me and always adding value to my understanding of different departments in the hospital.

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ABBREVIATIONS

Sr. No.	ABBREVIATION	FULL FORM
1	ABG	Arterial Blood Gases
2	AGSS	Anaesthetic Gas Scavenging System
3	AHU	Air Handling Unit
4	ASD	Atrial Septal Defect
5	ATM	Automated Teller Machine
6	AVR	Aortic Valve Replacement
7	BME	Biomedical Engenerring
8	BMFT	Barium Meal Follow Through
9	BMV	Balloon Mitral Valvuloplasty
10	CABG	Coronary Artery Bypass Graft
11	CAG	Coronary Angiography
12	CDC	Center for Disease Control
13	CAPD	Continuous Ambulatory Peritoneal Dialysis
14	CCU	Coronary Care Unit
15	CPR	Cardio pulmonary Resuscitation
16	CR	Computed Radiography
17	CT	Computed Tomography
18	CTA	Computed Tomographic Angiography
19	CAPEX	Capital expenditure
20	CSC	Central supply chjain
21	CTVS	Cardiothoracic Vascular Surgery
22	DICOM	Digital Image Communication in Medicine
23	DVR	Double Valve Replacement
24	ECG	Electrocardiogram
25	EEG	Electroencephalogram
26	EMG	Electromyogram
27	EPR	Electronic Patient Record
28	ERCP	Endoscopic Retrograde Cholangio Pancreaticography
29	FD	Facility Director
30	FFP	Fresh Frozen Plasma

31	FNAC	Fine Needle Aspiration Cytology
32	GRN	Goods Receiving Note
33	HCV	Hepatitis C Virus
34	HIS	Hospital Information System
35	HIV	Human Immuno Deficiency Virus
36	HVAC	Heating Ventilation and Air conditioning
37	IABP	Intra Aortic Balloon Pump
38	ICD	Intra coronary Disease
39	IVU / IVP	Intra Venous Urography / Intra Venous Pyelography
40	HR	Human Resource
41	HK	House Keeping
42	MRCP	Magnetic Resonance CholangioPancreatography
43	MI	Myocardial Infarction
44	MICU	Medical Intensive Care Unit
45	MLC	Medico Legal Case
46	MRA	Magnetic Resonance Angiography
47	MRD	Medical Record Department
48	MRI	Magnetic Resonance Imaging
49	CSSD	Central Sterile Supply Department
50	MVR	Mitral Valve Replacement
51	NABL	National Accreditation Board for testing & calibration Laboratories
52	NIC	Non Invasive Cardiology
53	PA	Peripheral Angioplasty
54	PACS	Picture Archival Communications System
55	PCN	Percutaneous Nephrostomy
56	PCNL	Percutaneous Nephrolithotomy
57	PDA Closure	Patent Ductus Arteriosus Closure
58	PFT	Pulmonary Functions Test
59	PHC	Preventive Health Check
60	PNS	Para nasal Sinuses
61	PPI	Permanent Pacemaker Implantation
62	PTCA	Percutaneous Transluminal Coronary Angiography

63	RO	Reverse Osmosis
64	SBE	Small Bowel Enema
65	SICU	Surgical Intensive Care Unit
66	SPECT	Single Photon Emission Tomography
67	SOP	Standard Operating Procedure
68	STP	Sewage Treatment Plant
69	TLD	Thermo Luminescence Dosimetry
70	TMT	Treadmill Test
71	TPI	Temporary Pacemaker Implantation
72	IVF	In-Vitro Fertilization
73	PC	Purchase Committee
74	TRUS	Trans Rectal Ultrasound
75	UPS	Uninterrupted Power Supply
76	USG	Ultra Sono Graphy
77	UHID	Unique Hospital Identification
78	VSD	Ventricular Septal Defect
79	USP	Unique Selling Proposition
80	PLC	Programmable Logic Control
81	RN	Recommendation note
82	QCPAF	Quotation comparison & purchase approval form
83	GAM	Group authority matrix
84	OPEX	Operating expenditure
85	SCM	Supply chain management
86	PO	Purchase Order

INTRODUCTION

As an integral part of the **MBA course**, the summer training helps us in understanding the overall functioning of the hospitals from a managerial point of view. Keeping this factor in view, I tried to visit different hospital departments of **FORTIS HOSPITAL, MOHALI** with a special focus on understanding the various procedures in place. I visited different departments, met the department In-charge and interacted with the doctors, nurses and other staff.

The **Aim** of the summer training was:

**“To study the administrative and managerial functioning of FORTIS HOSPITAL, MOHALI”
with special reference to the different areas / departments of the Hospital.**

The **Objectives** of summer training were:

- To learn the daily operational management of the Organization and its various departments / areas.
- To study the salient and critical features about the functioning of these departments / areas.
- To identify issues / problems associated with some specific departments / areas.
- To undertake the projects / special tasks assigned to us.

HOSPITAL PROFILE



A BRIEF HISTORY AND PRESENT

Fortis Healthcare Limited is one of the fastest growing and India's second largest healthcare provider in the country. The company was founded by the visionary business leader, **Late Dr.Parvinder Singh**, the Managing Director of Ranbaxy Laboratories.

Late Dr.Parvinder Singh, who architected the glorious evolution of Ranbaxy laboratories dreamt "to create a world class health care delivery system in India ,enabling the finest medical skills, combined with compassionate care", a mission well carry forwarded by his son- Malvinder Mohan Singh and Shivinder Mohan Singh.

FORTIS HEALTHCARE LTD. Was incorporated in 1996 to develop a world-class system of integrated healthcare delivery in India, comprising super-speciality areas along with multi-speciality care at the tertiary level.

Fortis Hospital- Mohali was the first step towards realizing his dream, his vision regarding the Indian Healthcare industry. Fortis healthcare has assembled the finest talents in medicine, be they doctors, nurses, or technicians and even management professionals across a wide spectrum enabling them to deliver the highest quality of health care.

Fortis health care limited is one of the leading chains of hospitals in India which are benchmarked as international standards- achieving quality through the adherence to the protocols observed in some of the world's leading hospitals. The landmark of Fortis hospital distinguishing them from their contemporaries is the "patient- centricity that you will discover all over: in hospital design, services and programme and most significantly in the caring approach of our people.

The Fortis health care circle of caring is fast expanding the ,spreading the name of Fortis health care, India and also reaching out to distant communities ,welcoming patients from beyond India's shores.

VIRTUOUS Values

V - Imbibe and share the Vision .
I - Lead through honesty and Integrity .
R - Earn Respect .
T - Gain Patient Trust .
U - Commit to compassion, care and Understanding .
O - Own quality excellence.
U - Uphold innovation and continuous improvement.
S - Develop and Share success.

▪ **Mission Statement:**

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



- Late Dr. Parvinder Singh

Founder, Chairman Fortis Ltd

Fortis health care enjoys the lineage that has become a benchmark of corporate excellence. Fortis health care network of hospitals, in a very short span of time has established itself as a premier health care chain with as many as about 50 hospitals in India and abroad. The credentials of doctors can leave anybody awestruck these compromises of some of best names in the trade, with the widest experience and unlimited research to their credit.

Other top of line facilities at the hospital include:

- Multi- speciality medical centre with day care facility
- Out- patient care to fulfil the local demands
- NABL certified path LAB
- BLOOD BANK
- Ultra-modern operation theatre with laminar Air flow and shadow- less lighting
- 24 hour emergency ambulance services
- A Dedicated emergency and trauma centre

Fortis hospital Mohali offers the most comprehensive medical treatment across a wide range of medical specialities.

Super speciality in Heart: Cardio-thoracic and Vascular surgery department, Invasive and Non-invasive Cardiology.

A part from cardiac super- speciality, the medical facility at Fortis hospital, Mohali comprises of highly experienced consultants in all major specialities. A dedicated, skilled team of doctors and surgeons provide quality health care with utmost care and compassion.

Type of Hospital: Multispecialty, Tertiary Care Hospital

No. of Specialities: 29

Thrust Area: Cardiac Speciality

Top specialities: Cardiac, Renal, Orthopaedics, neurosciences

Accreditations: JCI, NABH, NABL

MULTI – SPECIALITY FACILITIES

- Anaesthesiology
- Cosmetic, plastic and reconstructive Surgery
- Dermatology
- Dietetics and Nutrition
- Dentistry
- Emergency Medicine
- Endocrinology
- ENT
- Gastroenterology
- General Surgery
- Gynaecology
- Haematology
- Internal medicine
- Interventional radiology
- Lab medicine
- Medical oncology
- Neurosurgery and neurology
- Nuclear medicine
- Ophthalmology
- Orthopaedics and joint replacement
- Paediatrics
- Physiotherapy
- Psychiatry
- Pulmonology
- Radiology and imaging
- Transfusion medicine
- Urology
- Vascular surgery

MEDICAL FACILITIES

- Cardiac Cath lab
- Cardiac operation theatres
- Multi-speciality operation theatre
- CCU's
- Special emergency care
- Day care
- Oncology
- Dialysis
- Endoscopy
- Radiology
- Nuclear medicine
- Pathology
- Urology
- Audiometric tests
- Blood bank
- Physiotherapy
- Dietetics

NON – MEDICAL FACILITIES

- Fortis inn
- Café 24
- Café coffee day
- Business centre
- Jamjajee (Mess)
- Bank & ATM
- Prayer room
- Kids corner
- Patient welfare department

This hospital is first and the only hospital in India to be the proud awardees of two very prestigious accreditation which are the **Joint Commission international (JCI)** , USA and the **Nation**

accreditation board of hospitals(NABH),India ,both of which are known for their stringent standards and intensive evaluation . Many hospitals have tried and failed to acquire both, but as always FHM has come out with flying colours.

AWARDS & RECOGNITIONS

- Awarded the best design award by the prestigious American institute of architecture in 1999
- JCI Accreditation
- NABH Accreditation
- FICCI award

Vision Statement:

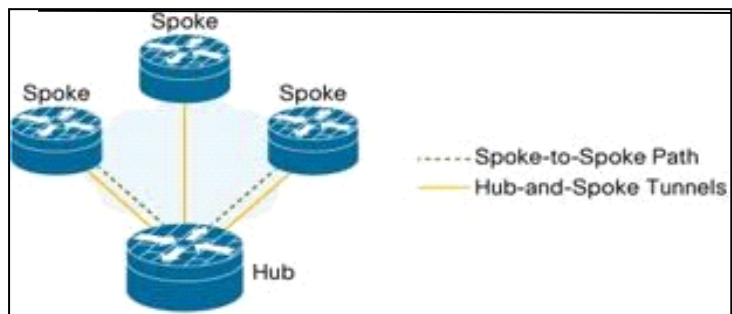
“Globally Respected Healthcare organization known for Clinical Excellence and Distinctive Patient Care.”

- Fortis is the manifestation of Dr.Parvinder Singh’s ideology and has been rapidly growing through a combination of acquisitions, Greenfield, Brown field and management contracts.
- Fortis is in collaboration with the renowned hospital Escorts and has created history by acquiring 10 Hospitals from Wockhardt, giving it a strong Pan India presence; this was one of the largest deals ever in the Healthcare industry.
- In 2005, Fortis announced its first International foray jointly with Mauritius based partner, and thus came into existence “**Fortis Clinique Darne**”

JOURNEY OF FORTIS:

- 1996 : Foundation of the vision
- 2001 : JUNE, : Cardiac centre Launched
- 2002 : AUGUST : Multi speciality wing
- 2005 : Acquisition of 5 ESCORTS HOSPITALS
- 2009 : JANUARY, First International Hospital in partnership- MAURITIUS
- Latest acquisition : 10 Wockhardt Hospitals Pan India

OPERATING MODEL :



Fortis operates on a Hub and Spoke model to provide, Multi-speciality and Tertiary level medical care.

HUB's – are the super-speciality Hospitals

SPOKE's – are the Multi speciality centres.

Patients who have the need are referred to these Hubs from the Multi speciality facilities in the Region, by embracing this system the patient benefits from the many available network facilities.

▪ **SOME HIGHLIGHTS :**

- Fortis Hospital Mohali is the most advanced Hospital in the Tricity (Chandigarh, Mohali, and Panchkula) and the nearby regions, and has State-of Art Infrastructure and Technology and services. There are now 64 Fortis Hospitals across the globe.
- Recent Development is the FORTIS CANCER INSTITUTE at Mohali.
- Fortis Hospital Mohali has been awarded “BEST DESIGN AWARD” By American Institute of Architecture 1999.
- Built-up Area of Fortis Hospital Mohali 400,000 sq.ft, with an investment of 155 Crores.

QUALITY FOCUS & ACCREDITION:

Fortis Healthcare has been at the Forefront of providing quality healthcare services and has raised the bar of Quality Standards in the country. The hospital employs renowned medical talent from the healthcare industry.

- Due to their excellent Quality care standards & safety for patients 3 of Fortis's Hospitals have received the Prestigious JCI Accreditation (Joint Commission International)
- JCI- is the largest accreditor of Healthcare organisation in U.S
- In Addition to this, 6 Fortis hospitals in India have been given the highly Respected NABH Accreditation, which is the highest national recognition for Quality, Patient care and Safety.
- On the other hand even the Labs have been given NABL accreditation.



Certificate of Accreditations, Fortis Mohali:

- Awarded JCI Accreditation on 15TH June, 2007
- Re-Accreditation July, 2008, 2013
- Awarded NABH Accreditation on 16th June, 2008
- Re-Accreditation June, 2011

HOSPITAL OVERVIEW



- **FHM** – is divided into 2 Blocks, A - block & B – block, and now recent development is the Fortis Cancer Institute, which may be named C – block.
- Further, again the Departments are divided Floor wise, which is as follows,
- **Basement:** Materials, Stores, H.R, House-keeping, MRD, Biomedical engineering dept, CSSD, Laundry, Food & Beverage dept.
- **Ground Floor :** Reception, Registration, OPD's Blood Bank, X-ray, NICU, General ICU, Patient waiting areas, IDBI Bank + ATM ,cafeteria, CCD, Prayer Room, Children play area, Dietetics ,PWD-Patient welfare department .Emergency. Lab, Nuclear Medicine, Clinic Rejuve, Pharmacy.
- **1st Floor :** OPDs, Wards, CMO office, MICU
- **2nd Floor :** MSOT,CCU, Cath Lab, PCR, ORTHO OT
- **3rd Floor:** Executive offices, Café Jamjaajee, Paalna Library. Auditorium, Finance, Marketing, Media & Communication, IT, CSR, FOS, QA Dept.
- Some Depts. At FHM are Outsourced, like :
 - IVF- Dr. Pai & his Team (Mumbai)
 - Lab : SRL
 - Ultrasound ,CT,MRI : Dr.Chawla
 - Dental : Axis Dental

And latest addition is Physiotherapy Dept. outsourced to Dr.Balaj

OPD- BLOCK	
3 rd FLOOR	IVF CENTRE AUDITORIUM EXECUTIVE OFFICES WARD A3, A4 MEDICAL ICU LIBRARY CANTEEN
2 nd FLOOR	OPERTATON THEATRES CATH LAB SURGICAL ICU CARDIAC CARE UNIT SPECIALITY ICU-2
1 st FLOOR	ENDOSCOPY PRE ANAESTHESIA CHECK DIALYSIS WARD A1, A2 MULTISPECIALITY OT SPECIALITY ICU-1
GROUND FLOOR	OPD, IPD RADIOLOGY LAB MEDICINE GAMMA SCAN PREVENTIVE HEALTH CHECK
BASEMENT	HR DEPARTMENT PURCHASE LAUNDRY MRD MORTURY

IPD-BLOCK	
3 rd FLOOR	WARD A3 PATIENT ROOM ONCOLOGY MEDICAL ICU
2 nd FLOOR	SICU CCU CARDIAC AND ORTHO OT IP PHARMACY
1 st FLOOR	WARD A1, A2 PATIENT ROOMS
GROUND FLOOR	IPD RECEPTION BLOOD BANK CAFETARIA BANK AND ATM EMERGENCY
BASEMENT	BIOMEDICAL DEPARTMENT CSSD ENGINNERING HOUSEKEEPING

FORTIS INN	
GROUND FLOOR	ROOMS FOR PATIENT ATTENDENTS OP PHARMACY CAFETARIA

CANCER INSTITUTE	
4 TH FLOOR	CAFE ATTENDANT LOUNGE
3 RD FLOOR	PATIENT ROOMS WARD
2 ND FLOOR	BMT ROOMS SPECIALITY ICU NEURO ICU
1 ST FLOOR	CHEMOTHERAPY/DAY CARE CENTRE OPERATION THEATRES STEM CELL
GROUND FLOOR	OPD PET-CT RETAIL
BASEMENT	CT STIMULATOR TUMOUR BOARD ROOM LINAC 1 & 2 BRACHY

Overview of FORTIS HOSPITAL Department wise

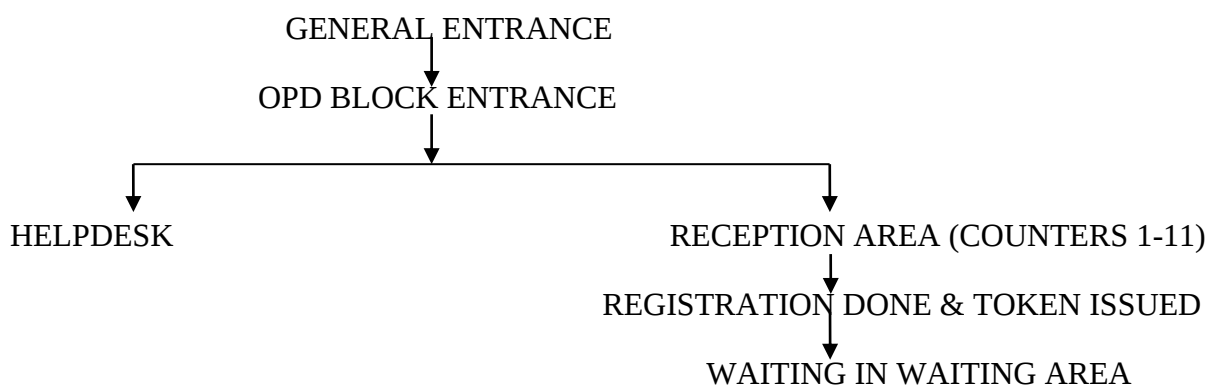
➤ OPD – Out Patient Department

The OPD at FHM is a Multi –specialty centre bringing to the patients all the required specialties under one roof.

It also has Home Based Rehabilitation Programmes and a Rehabilitation centre-cum inn providing a world class ambience along with Patient care.

Location: Ground Floor & First Floor

PROCESS FLOW OF OPD



Number of Consultant Chambers: 52

OPD Timing: 9AM- 5PM

No. of Procedures Room: 2

Waiting Area sitting Capacity: 150

Sub waiting area: 150

Facilities: Consultation, Diagnostics, Procedures, Physiotherapy, Dialysis

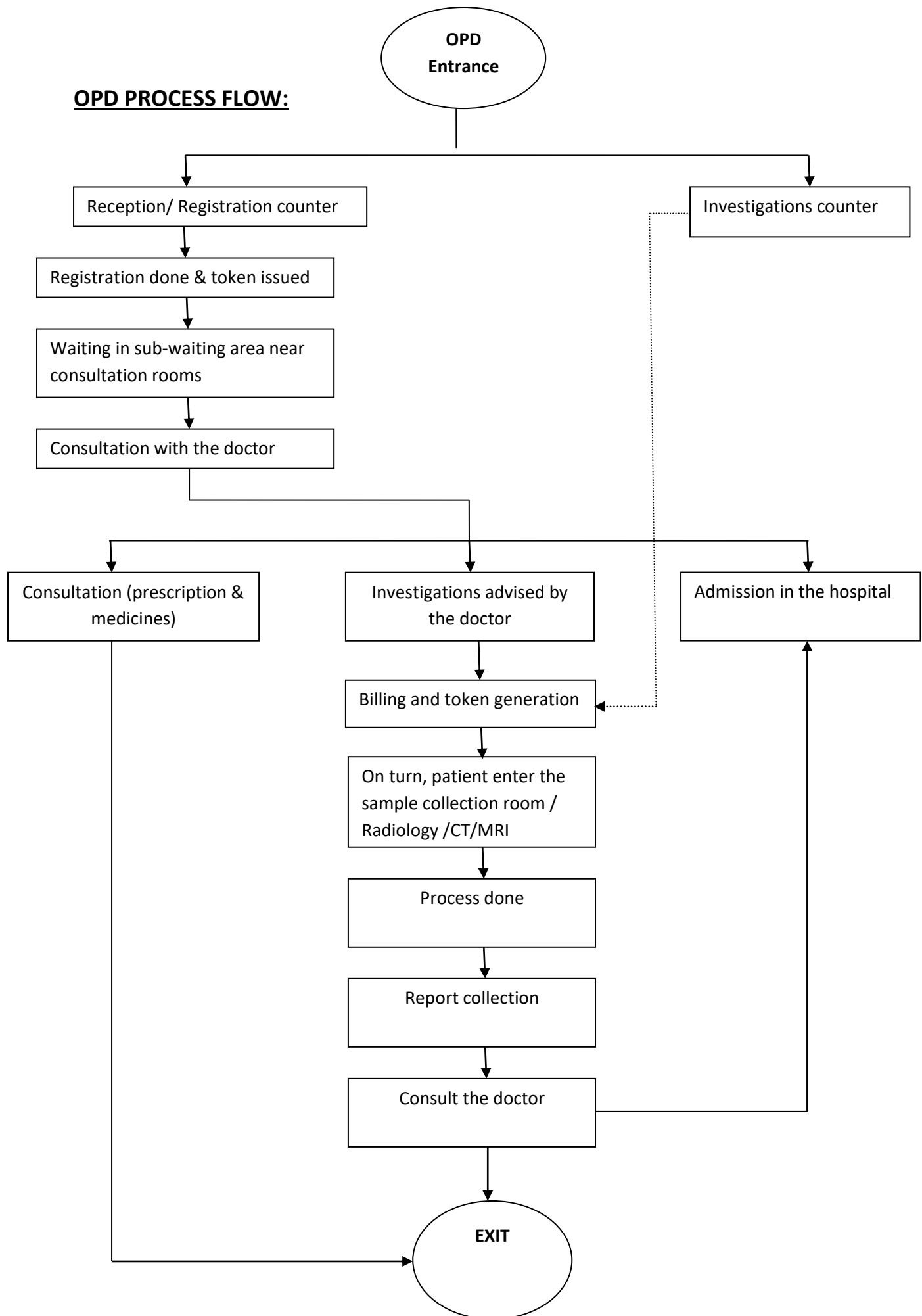
No. of Front Desks: 18 in total (11- ground floor, 7- first floor)

Appointment System: on call and walk- in

Tariff: Different consultation for different doctors

Manpower: 1- Incharge, 1- Supervisor, 15 PODs, 25 FOAs

OPD PROCESS FLOW:



OPD Record Keeping: Oracle

Retrieval of Records: by Medical Record Department

No. of OPD: 700 average per day

Duty Rosters: monthly updated

- **Preventive Health Care: *CLINIC REJUVE***

Fortis firmly believes in Prevention is better than cure, and this is done here at Clinic Rejuve, where preventive Healthcare packages are given to patients and their family members at discounted rates to help them identify High-Risk patients and guide them towards better and healthy living, and providing them with required Medical help or Medication, and try to decrease lifestyle diseases by guiding towards healthy living.

Different packages:

1. Wellness package
2. Whole body package
3. Whole body premium
4. Cardiac
5. Comprehensive
6. Cardiac with CT angiography
7. Various discounts and packages on women day, health day etc.

EXECUTIVE HEALTH CHECK

A range of preventive health check packages is available under following categories:

A. Cardiac Package Check up: - Rs.2800

Four different packages are available under this category. It assesses general health on several key parameters and is recommended as an annual check to ensure fitness.

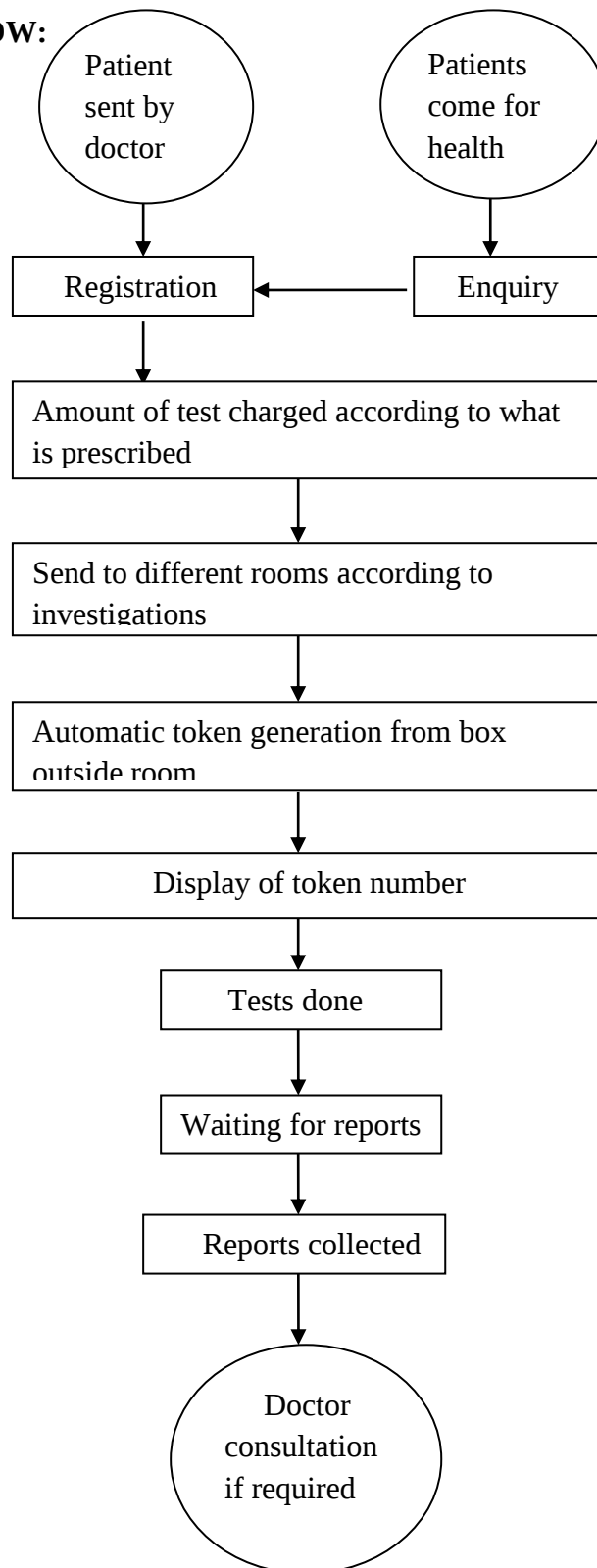
B. Comprehensive Package (Male/Female):- Rs.3300

C. Whole Body Package (Male/Female):- Rs.4500

D. Cardiac CT:-13500

20% discount is provided, in case, further tests are conducted on the recommendation of the consultant.

PROCESS FLOW:



➤ **IPD – In-Patient Department**

Location:

The main IPD reception is located on the Ground Floor, 'A' Block of the main Hospital building.

It is connected to the OPD Block by an easily accessible corridor running from the Left of the main entrance to the IPD Lobby. It is also well connected to the other departments of the Hospital.

Patients will usually be admitted through the following ways:

1. Through OPD, advised admission by consultation with our consultants.
2. Through emergency.
3. Through referral by consultants.
4. From satellite clinics of Fortis.

The priority of the admission is determined by the degree of urgency, which usually classifies cases into three types:

1. Emergency cases (require immediate admission).
2. Urgent cases (require admission as soon as possible)
3. Elective cases (which are scheduled in advance and are generally admitted in order of their reservations).

The following are the main functions of the IPD:

1. Admit Discharge and Transfer the patients.
2. Interview the patient to collect the information needed by the various hospital departments.
3. Coordinate the admission with the other functions of the hospitals.
4. Compute and arrange for the payment of pre-admission deposit according to the policy.
5. Arrange for the Interim billing process in case of those patients whose bills have exceeded the deposited amount.
6. Accept reservations for scheduling future admissions.
7. Disseminate information relating to the admission, transfer, death etc. to the departments concerned.
8. Disseminate information relating to the patients well being to his attendants and other relatives and friends who are visiting him.

9. Maintain a bed index showing current occupancy status of all patient rooms in order to schedule and assign beds for admissions and transfers.
10. Prepare admission and discharge lists and midnight census.
11. Coordinate pre-admission tests in the case of the elective admissions in order to reduce actual time needed to complete the admitting process.
12. Arrange for the patient escort service whenever needed besides the admission and discharges.

Type of Bed	Tariff/day	Consultant Charges	Resident Charges
Ward/PCR/Day Care	3000	850	250
Twin Sharing	5000	+ 10%	
Single	7000	+ 25%	
Deluxe	10500	+40%	
Suite	18500	+65%	
Presidential Suite	25000	+100%	
General ICU	7000		
CCU/MICU/SPICU/SICU/NICU/PICU	8500		
Isolation Ward	9500		
Labour Room/Paalna	6500		
Nursery	6000		
Triage	750		
CTVs	5500		

Nursing Station:

Equipment- 2 computers, 2 Telephones, 1 printer, cupboards, x-ray board, instrument trolley

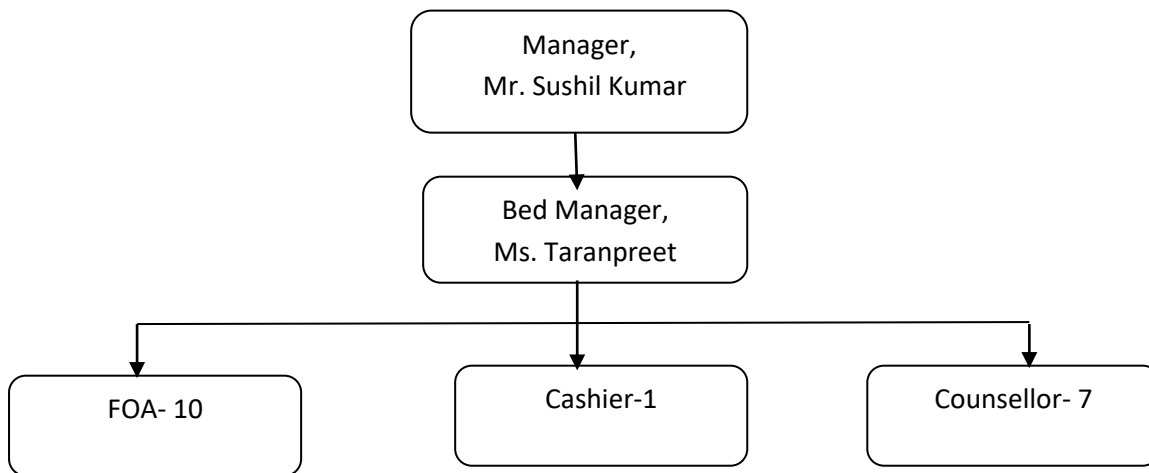
Bed Area- 2000 sq ft per bed

Room amenities-

- Bathroom, chair, cupboard, Round the clock medical and nursing care
- Centralized oxygen and suction facility
- Nurse Call Bell
- Television / Phone
- Bed cum sofa for the convenience of the attendants
- Fully Air conditioned.

Record Keeping- MRD

Manpower and Hierarchy-



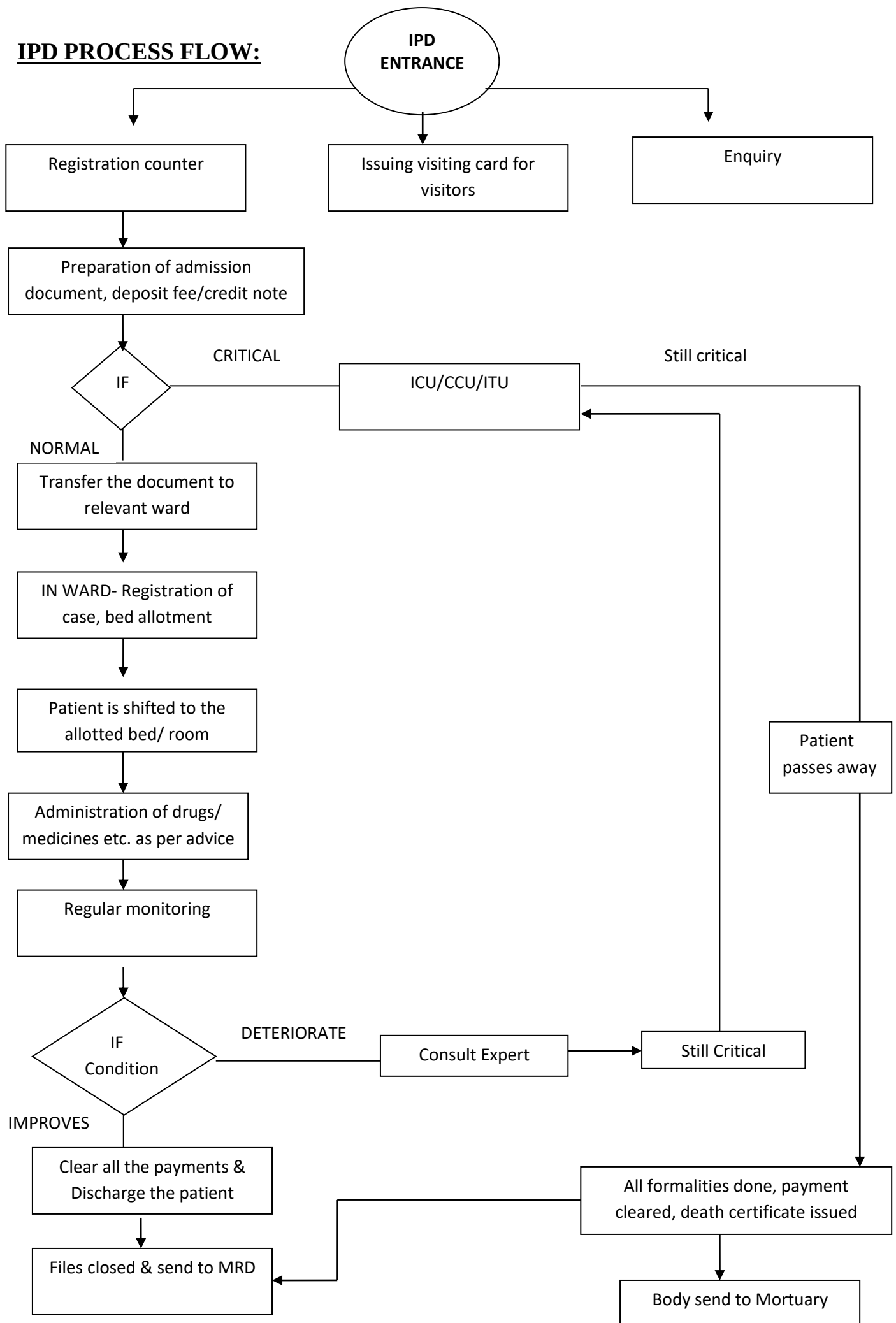
MIS and Computerization: MEDTRACK, Accounts department maintains in Oracle.

Visiting hours and visitor policy:-

Timings: 10AM- 11 AM & 4PM – 7PM

Only two passes per slot can be issued by electronic machine

IPD PROCESS FLOW:



Facilities and the Layout

Entrance

As the patient gets down from the vehicle in the main IPD porch, the general duty attendant provide him with wheel chair or stretcher, if required. (The stretcher, wheel chair bay is located on the right hand side of the main entrance).

Lobby

The main lobby primarily is used to accommodate patients and their families and friends. Patients enter and also be get discharged from the main lobby. There is a large circulation area, which forms an integral part of the main lobby.

Reception Desk

The main IPD reception is the integral, important and the most sensitive part of the IPD. All Patient handling is done from this reception. This reception is manned 24 Hours. All the Admission, Discharge and Transfers is done from this counter. Reception also caters to all the information that the patients or accompanying relatives require.

There are information brochures and fliers describing the facilities of the hospital available on the main counter of the reception.

Back Office

Behind the IPD reception, there is back office. All the Transactions, Processes, Cash tallying, Report generations will be carried out from the back office. Back office will also provide for the staff to relax in an informal mood.

Café Coffee Day

Right inside the main IPD reception area at ground floor is Café Coffee Day where attendants can wait.

Social Counselling Room

Hospital procedures are personal and never routine for the patient or the relatives. The trauma and the tragedy can breakdown most of the people visiting the hospital. These people need strength, courage and Motivation to move on with life. For the purpose of counselling these people, the social counselling room is on the back of the main reception.

Grievance Handling Room

Not all patients or the accompanying relatives visiting the hospital are happy with the way of functioning and like to provide inputs. Some also like to understand the billing details and want modification. These activities require privacy and cannot happen on the main reception counter. For this purpose there is Grievance handling room.

Business Centre

The business centre is located at a convenient distance from the lobby and is right opposite the blood bank. It provides facilities like Xerox, Telex, Fax, Cyber café.

Automated Telling Machines

For the convenience of the patients and the accompanying relatives, there are two ATM's (Bank of Punjab and IDBI) right in front of the main reception counter. This cater to the needs of the staff also.

Bank

Next to business centre, the IPD has a branch of IDBI bank. The bank facilitates the requirement of money at the last hour by the patients or their relatives. This also is a safer alternative than carrying large sums of money with themselves. The patients have an option of opening an account with the bank and also settling the bills directly through the bank facilities. The bank is equipped with an ATM.

ICU Lobby

Behind the main lobby, across the main IPD corridor, adjacent to the Bank, there is a waiting area for the attendants of those patients who are in the intensive care units.

Prayer Room

To cater to the religious needs of the patient and attendants, there is one prayer room in front of the ICU lobby. Patients or the attendants can spend time in meditation and prayers here in peace and silence.

The second prayer room is located in the Basement near the mortuary .

Patient Rooms

No. of Beds: 349

Break up of Beds:

Presidential Suite: 2

Suite: 1

Deluxe: 5

Semi-Deluxe/ single: 23

Twin Sharing: 52

Wards: 63

Bed Occupancy: 82-85%

ALOS of few procedure/Surgery:

Total knee replacement- 7 days

Bypass surgery- 8 days

Normal Delivery- 2 days

Caesarean- 3 days, Angioplasty- 1 day

WARDS:

The Wards at FHM are, A1, A2, A3, A4 Latest additions A6 (Cancer institute block)

A1 A2 is located on the first floor.

A1 Multi-speciality unit which have a capacity of 33 which includes 2 deluxe rooms, and one presidential suite

A2 Cardiac unit, bed capacity of 38 with one presidential room, 5 Double rooms and 10 single rooms.

A3 is Multispecialty again, with 47 beds

A4, A5, A6 has also been made now.

➤ **OPERATION THEATRE:**

There are 3 Main OT's Cardiac-OT, MS-OT, Ortho-OT

MULTISPECIALTY OPERATION THEATRE (MSOT)

Location: Second Floor

Number: 6 MS OT

FHM is equipped with high-tech OT's where high risk surgical procedures are performed by a dedicated team of experts. There are 6 Major and one Minor OT.

On an average 15-20 cases are done in MSOT from 8am to 8pm, however Emergency services are available round the clock

The MS- OT department has the following areas:

- Pre-Operative area (6 bedded)
- Post- operative area (10 bedded)
- Pharmacy sub store
- Data operator room
- Instrument Store room
- Instrument washing room
- Instrument /linen room(sterile)
- Doctor's changing room
- Nurse's changing room
- Nursing Office
- Technician Room

The MSOT types and additional rooms are:-

- General Surgery OTs- 5
- Neurosurgery OT- 1
- Procedure Room
- Trauma OT
- Vascular Cath Lab

Manpower:

- ANESTHESIA TECHNICIANS: 24
- ANESTHEOLOGISTS: 32 on any given day(rotational duty)
- TECHNICIANS: on any given day(rotational duty)
- NURSING STAFF: 53
- DATA OPERATOR: 2
- Housekeeping
- GDA

Nurses perform their duties in following manner:-

- 1 NURSE in Pre- op care
- 1 NURSE in Post – op care
- 1 Floor nurse in O.T. who give all sterile instruments to scrub nurse, verify with the surgeon, anaesthetist and the scrub nurse about the operation procedure and in the end after the surgery , count all the instruments that are used and write it in patient file.
- Scrub nurse in O.T. assist the surgeon during operation.
- Technicians assist anaesthetist during operation and also keep buffer of drugs used for anaesthesia. They got reserve of drugs for at least 5 patients.

Cardiac OT : Bringing breakthrough technologies to the operating room, and setting international standards in its cardiac facilities, FHM has one of the most state of art OT with the most advanced lung and heart machines and many such devices. Cardiac OT has been constructed around a central sterile core which has the provision of storing all the sterile items to be used in the OT. It also has a lab for immediate ABG &Electrolyte and steam sterilizer. The OT is directly connected with CSSD thorough a Dumb waiter lifter to transfer items.

Cardiac CATH Lab: FHM has 3 Cath labs that function Round the clock 24hrs and 7 days supported by a sophisticated CCU. It has some world class equipments like, COROSCOPE - by Siemens used for electrophysiological monitoring and INNOVA 2000 –by GE a digital imaging system, one of its kinds in the world.

Ortho OT: There are 3 OT for Joint Replacements where knee replacement, hip replacement and trauma cases are taken up. On an average 10-12 cases are taken up here from 8am-8pm.

➤ **CSSD : CENTRAL STERILE SUPPLY DEPARTMENT**

Ensuring high standard of sterilization and disinfection to minimize the incidence of hospital acquired infection rate, is one of the most essential feature at FHM.

The objective of the Central Sterile supply Dept. is to provide all the hospital departments served adequate supply of sterilized goods conforming to highest standards of sterilization from a central place thus reducing the overall cost and contributing towards reduction in the incidence of hospital acquired infection. Destruction of all micro-organisms including their spores is done by chemical or physical means.

Sterilization methods used:

- 1) Steam Sterilization
- 2) Ethylene Oxide Gas Sterilization

To minimize the time as well as distance, CSSD is connected with Cardiac units and OTs through two dumb waiter lifts. One is used to transfer the sterile goods, and one for transportation of contaminated goods.

The Dept is divided into 3 zones:

1. Decontamination Area
2. Semi-sterile Area
3. Sterile Area

There are timings for supplying and taking of the goods at CSSD, for Wards and others

Morning- 8.15am to 11am

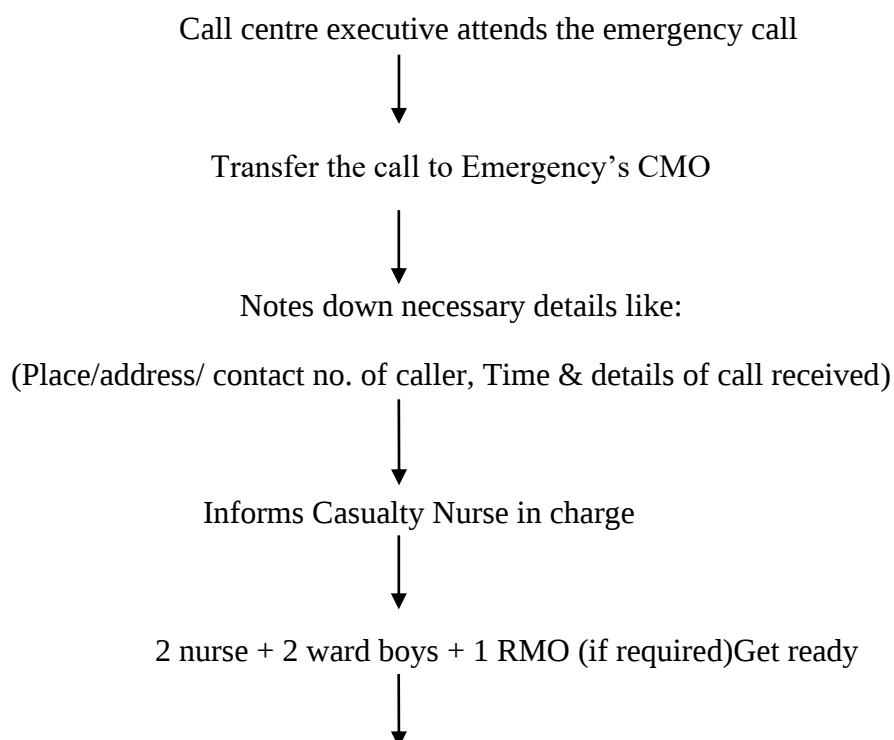
Evening- 2:30pm to 5pm

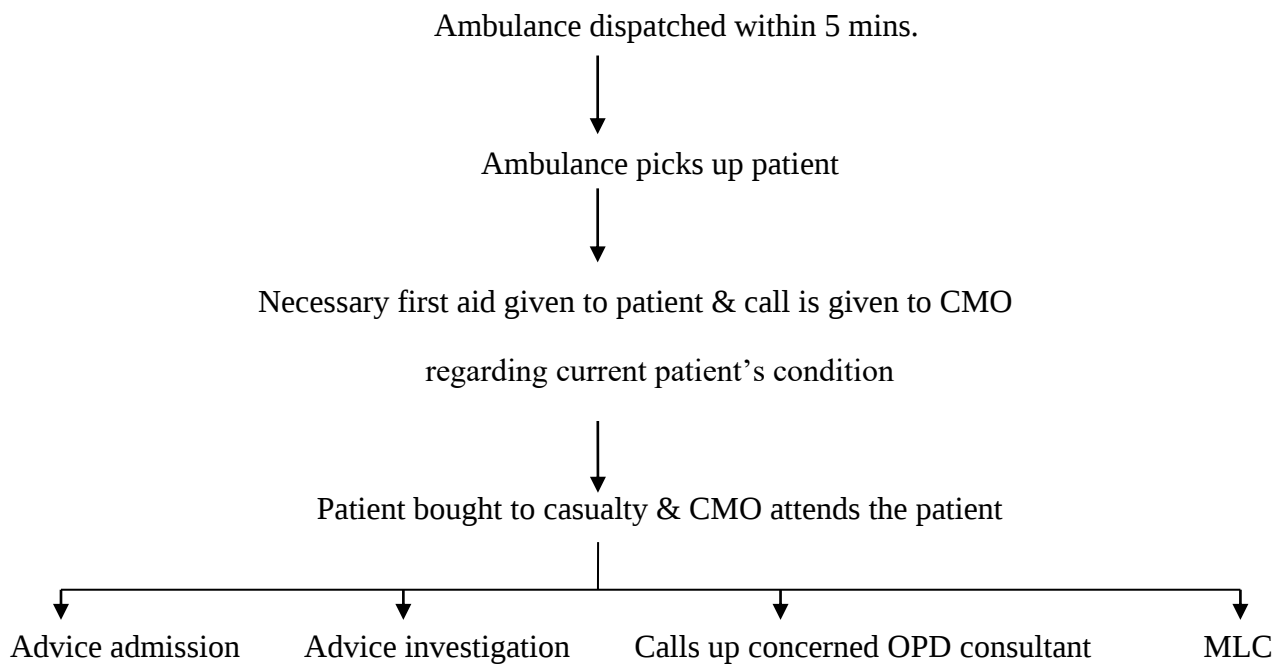
While for Emergency /OT's there is no time restriction (Inventory stock is kept in the Ratio 3:1 to avoid any kind of shortage)

EMERGENCY COMPLEX

Layout: - Ground floor

AMBULANCE SERVICE FLOW





The Dept is equipped to handle all emergency cases like,

- Cardiac emergencies : Chest pain, heart attacks, angina
- Neuro. Emergency: Stroke, shock
- Medical emergencies : Poisoning, abdominal pain, lung problem ,liver, kidney
- Surgical emergencies : appendicitis, lacerations, cuts , wounds, fractures, trauma, RTA's

It has:

- Nurse Station
- Emergency OT
- Store room
- Isolation Room
- Doctor's Duty Room
- POP Room
- Casualty Ward

➤ **Cath Lab**

Location: 2nd floor

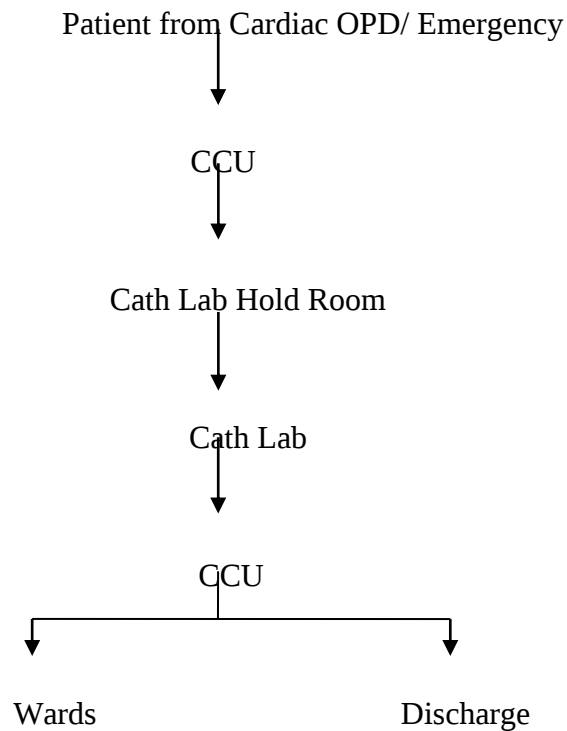
Number: 3

- **EQUIPMENT**: COROSCOPE - by Siemens used for electrophysiological monitoring and INNOVA 2000 –by GE a digital imaging system, one of its kinds in the world.

- **Manpower:**

1. 4-5 Nursing staff
2. 2 Technicians
3. 1 GDA

Workflow:



- **Common procedures in Cath Lab:**

- Coronary Angioplasty (PTCA)
- Balloon Mitral Valve Valvoplasty
- Coronary Angiography (CAG)
- Permanent Pacemaker
- Peripheral Angiography & angioplasty
- Renal Angioplasty
- Electrophysiology study- Radiofrequency Ablation (EPS-RFA)

➤ **RADIOLOGY/ IMAGING SERVICES**

Fortis has Advanced Radiology dept with skilled technicians and with the latest and most advanced machines. The Dept. has facilities like 64 Slice CT Scan, MRI, Mammography, X-Ray Ultrasound.

X-rays

No. of Machines-2, digital

No. of x-rays/day- 200

TAT- 2- 3 minutes (depending on type of X-Ray and patient)

Waiting time- 15/20 min

Reporting Time- 30 minutes to 1 hour

USG: No. - 4 TAT: - 30 min Tariff- Rs 600/- onwards

TMT: No. - 1 TAT: - 1 hr Tariff- Rs 1900/-

CT scan:

No. of Machines- 1

No. of CT Scans/day- 40

TAT- 30 min

Reporting Time- 4 hours

MRI:

No. of Machines- 1

No. MRIs/day- 20

TAT- 1 hour

Reporting Time- 4 hours

Ultrasound:

No. of machines- 4

No. of US/day- 40-45

TAT- 30 min

Bone Marrow Density Test:

No. of Machines-1

No. of BMD/day- 10

Manpower and Hierarchy of CT/ MRI:

Owner: Mr. Chawla

HOD: Dr. Rahat

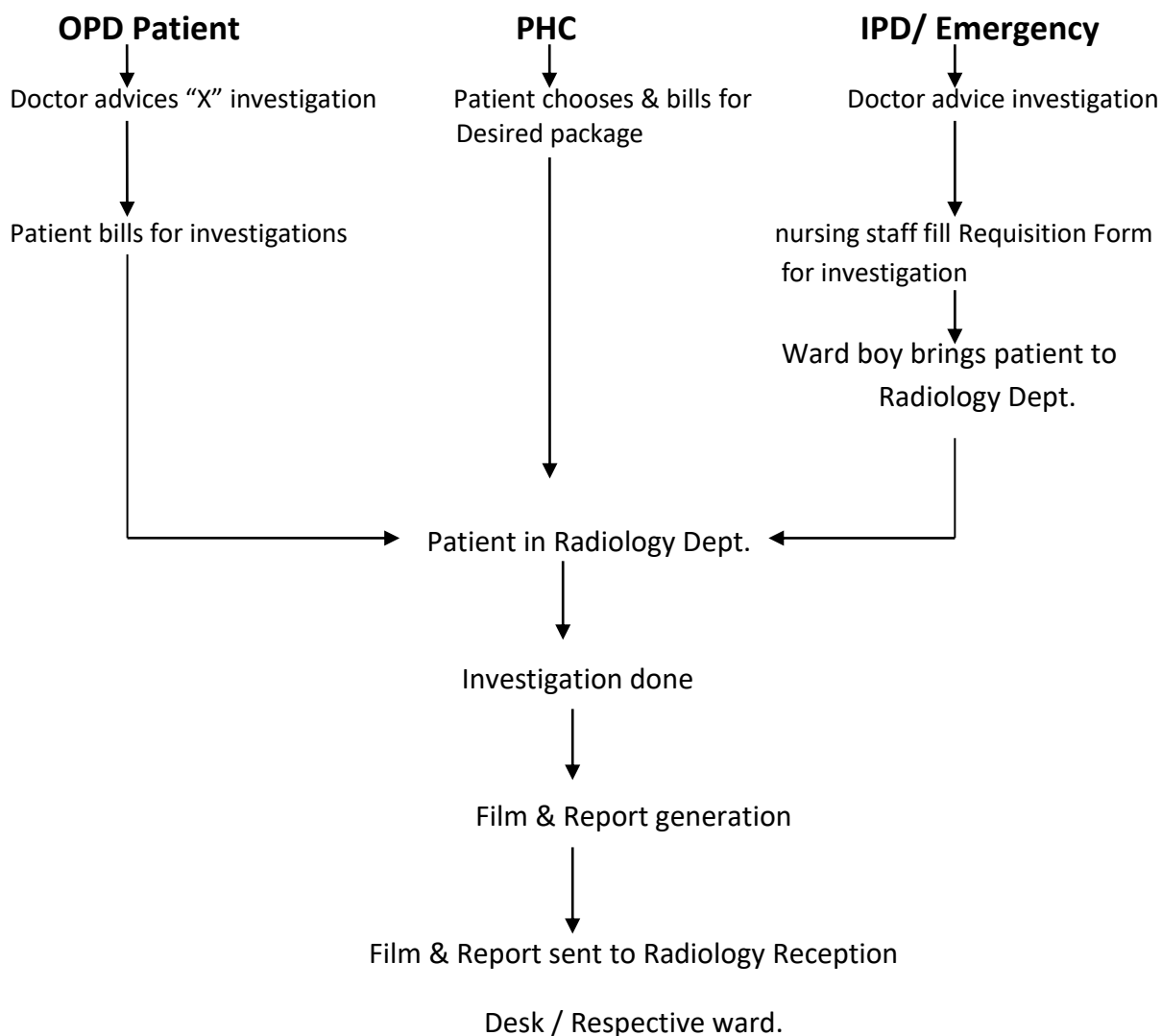
Technician: 5

Nursing staff: 1

Helper: 4

FOA: 4

WORKFLOW:



➤ **PHARMACY :**

Pharmacy is one of the most important units in the hospital. FHM has In Patient Pharmacy on 2nd floor, and the Out Patient Pharmacy on the Ground floor. The Chemist shop is right at the entrance that operates 24x7 and the aim of this Dept is to provide standard medicines to patients.

OP PHARMACY

- ❖ **PURCHASE** : request is send to purchase department
- ❖ **STORING OF DRUGS** : freezer: 2-8 degree Celsius
At room temperature: 24 degree Celsius
- ❖ **ISSUING OF ITEMS** : Depending on prescription
- ❖ **NARCOTIC DRUGS** : Not in OP pharmacy

Have **SCH H1 DRUGS** which are sold on doctor's prescription, entry done in separate register, if possible copy of prescription kept. E.g.: drugs like- ALPREX, LONAZEP, ULTRACET, CLOPIC, ZOLFRESH etc.

These drugs have warning printed on a box with red border on the label.

❖ **LOOK ALIKE AND SOUND ALIKE DRUGS :**

E.g.: TRAMADOL, TRAZODONE & TORADOL- similar generic names

MORPHINE & HYDROMORPHINE INJECTIONS

INSULIN PRODUCTS: NOVOLIN, NOVOLOG, NOVOLIN 70/30

DEPLATT 75MG & DEPLATT A 75 MG

To control this – TALL Man lettering eg. Predni**S**ONE & Predniso**L**ONE

➤ **BLOOD BANK:**

❖ **LICENSES :** NABH

❖ **EQUIPMENTS:** 1. Component centrifuge machine

2. Diagast (for grouping)

3. Platelet incubator

4. Deep freezer (-80 degree Celsius)

5. Platelet agitator (-40 degree Celsius)

6. refrigerator-: For reagent sample- 3

For blood samples - 2

7. Machine to defreeze the frozen elements

8. ECI Machine for testing blood samples

❖ **DIFFERENT ROOMS:**

- Counselling room
- Refreshment room

- NAT lab
- Screening cum medical examination rooms
- Blood donation room
- Apheresis room

❖ **STORAGE AND DISCARD: PLATELETS- 5 DAYS**

FRESH FROZEN PLASMA- 1 YEAR

PACKED RED BLOOD CELLS - 35 DAYS

❖ **TIME OF ISSUE: 1.5hr - Normally**

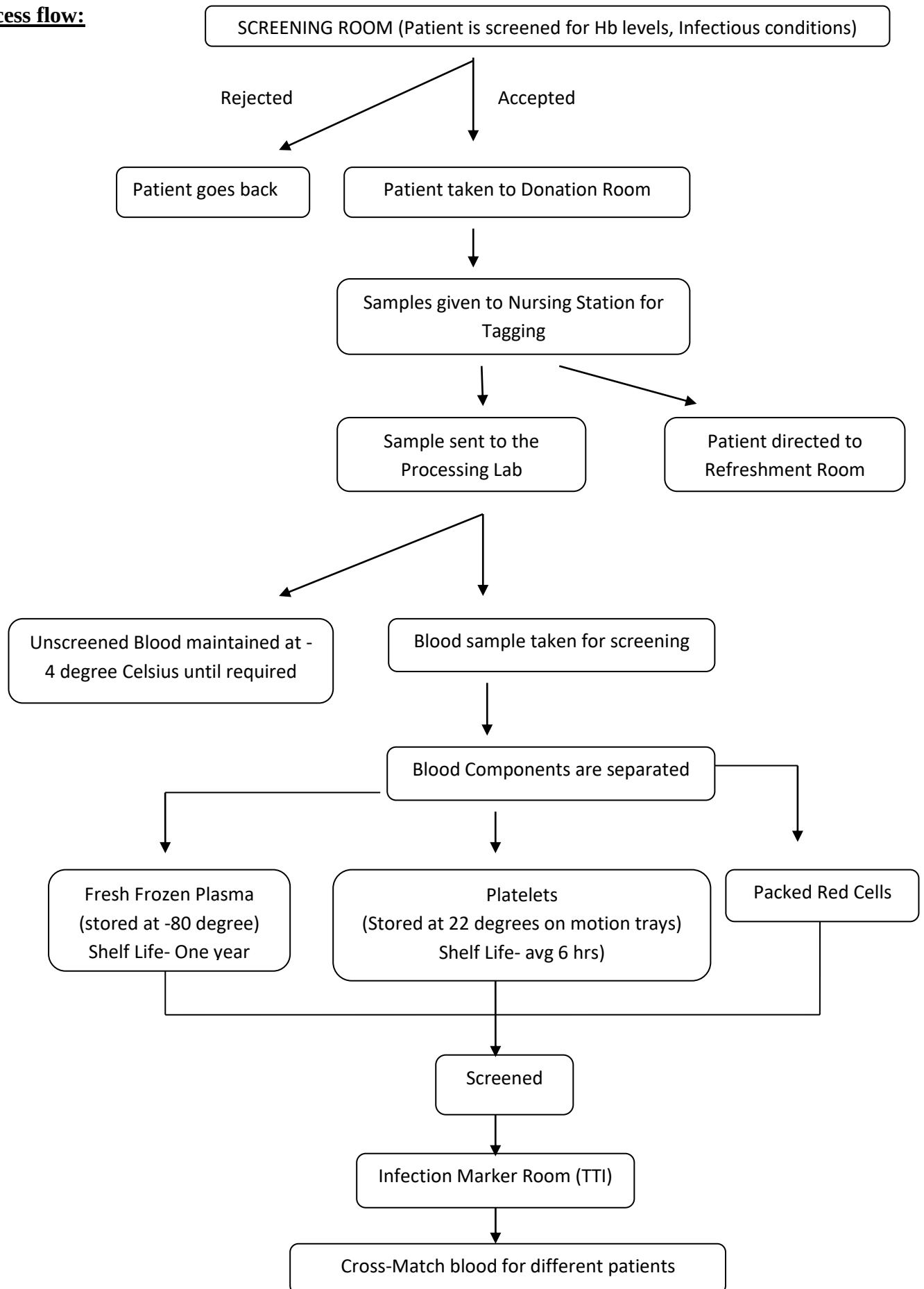
15min. - In emergency

- For emergency cases, where patient requires platelet, a separate apheresis room is available, where direct donation of platelets from donor to recipient is made.
- For patients who test positive for infectious /serious conditions like HIV, etc, counselling is done in a counselling room by a consultant doctor. First counselling is free of cost, rest the patient can decide as per the treatment plan.
- A separate washing room and autoclave room is available for processing the infected blood.
- **NAT LAB:** Specific testing of HIV,HBV,HCV

TIME FOR PROCESS- 4.5hr

Automatic processing of blood, 6 different samples make 1 pool which is kept in machine & scanned. Report checked on computer. If any one sample is positive for HBV, HCV OR HIV, it shows in that column and the pool is indicated as positive & then individual samples of that pool are scanned again for confirmation of which sample is actually positive in the pool.

Process flow:



➤ **HUMAN RESOURCE DEPARTMENT**

Total no. of employees: 1400+

Category:

- Medics
- Paramedics
- Administrative Staff
- Nurses
- Supportive Staff

Training:

Every employee receives Fire and safety, BLS, ACLS training at least once a year. Other Training programs vary according to staff and need.

Recruitment Process: Walk-in, word of mouth

Documentation is required

Interviews

Different sources to be used –

- Online Portal
- Employee Referral
- Consultants – Only Approved Consultants by Corporate
- Walk-Ins
- Data Base
- Campus – To be only routed through Head - Talent Acquisition
- Advertisement- If given in local newspaper, RHR approval needed and Head - Talent Acquisition to be informed. If the advertisement is in National newspaper, Head – Talent Acquisition's approval is required

Job Description:

It is prepared by the HR, has to be signed by the HOD, HR, and the joining employee

Performance Appraisal:

Yearly

Mid-term review

Retention Policy:

Employee engagement Policy, Awards, Insurances, Discounts, Annual health checks, Fortis Idol, Sports matches, Sparkle etc

Payroll: Doctors are on payrolls and empanelment,

For other outsourced deptt., paid to contractor.

Grievance Handling:

7 day process, if unresolved by boss/ super boss. Appraisal process does not fall under this.

Employee Rights:

List of rights is prepared.

Employee Rewards/appreciation systems: Monthly internal deptt. Recognition, rewards/bonuses for target achievers.

Exit Interview: Taken by HOD, HR to know the reason for exit.

➤ Some of the important functions of HR are:

Manpower planning, Recruitment and Selection, Training and Career Development, Periodic Employee Performance Appraisal, Employee Rights/Welfare/Grievance, Wage and salary administration, rewards, incentives, Trainings, Job description and Job Analysis, employee engagements programmes- Fortis idol, FHM Nach baliye, Doctor/Nurse/Staff of the month etc. Thus this Dept is one of the key depts. for functioning of the hospital.

➤ **IT- INFORMATION TECHNOLOGY:**

The mission of the dept. to implement and support the IT related infrastructure required to achieve the target of being a near paperless and film less institute. The major tasks include Systems support, looking after the installation and routine maintenance of the Computer systems and networking at FHM Mohali.

There are IT Help desk nos.6050, 6055, there are 13 servers, 450 work stations, call centre,etc.

Backups and internet are also maintained by this dept.

The Software used here at FHM is: MEDTRAK and PYROGEN.

PYROGEN: operational only in the accounts and Pharmacy Dept.

MEDTRAK: is operational in all the depts. at FHM

Fortis was one of the first few hospitals to HIS Hospital information system.

➤ **FINANCE & ACCOUNTS DEPARTMENT**

One of the Most integral dept. of the hospital, which is responsible for Revenue collection, calculation and all money related matters, Purchases, allowances or salary of Employees

Location: B Block, 3rd Floor

Extension Numbers: 6040 to 6042

Functions of the Department

- Routine Finance & Accounting Functions like maintain of books of accounts, Cash & Banking Management etc.
- Contract & Hospital services Accounting
- Management Information System
- Closing & Finalization of Accounts
- Fixed Assets Register
- Budgeting
- Costing
- Inventory & Purchase Accounting
- Salary Preparation & disbursement
- Statutory Obligations like Income Tax, Sales Tax, and Provident Fund etc.
- Purchase Accounting
- Co-ordination for statutory & internal audits

Salary Disbursement

Salary is paid on the last working day of each month. If the last day of the month is a holiday, it will be paid on the following working day.

Salary Reimbursement

All reimbursement claims should be submitted to Accounts Department by 25th of every month so that reimbursement may be made on 2nd of the month.

Salary Advise

Salary is credited directly to bank account with IDBI Bank, Fortis Branch, Mohali.

Salary Advance

Salary advance can be claimed only in case of urgent need. Employees desiring to take a salary advance will make an application to HR Department duly approved by Departmental Head.

Other Claims for Official Expenses

Other claims for the official expenses should be submitted to accounts department after due approval of Departmental Heads. Normally all claims are processed and paid within three working days of submission.

➤ **MARKETING :**

FHM is the first of its kind of Hospital in this region, and FHL has been formed with the sole objective of providing total integrated healthcare by establishing State-of-Art Health delivery system. This dept along with Media and communication creates awareness through Ad, Banners, Hoardings Press releases and interviews on Radio and Seminars.

Catchment Area is as per the target audience (Corporate/Retirees/CGHS and ECHS)

Promotional Activities: CME/ Health Camps/Packages/ Radio and Newspaper Advertisement
Sale & Marketing given monthly targets.

➤ **CSR : CORPORATE SOCIAL RESPONSIBILITY**

For the upliftment and betterment of Society, this has now become a Mandatory issue, 2% of the profits are supposed to be used for CSR activities for the welfare of the people. FHM also is doing its bit, and has 21 programmes running like:

CHEटना: To provide help to the underprivileged girl child

ACTFAST: To spread awareness about HIV/AIDS

SAARTHAK: To extend support to cancer patients

SAHAYAK: A programme for Dialysis Patients

NANHI CHAH: To celebrate birth of a girl child and plant tree saplings

Friends of Fortis, Rural Outreach camp, Blood Donation Camps, Free Health checkups etc to name a few.

➤ **F&B –FOOD AND BEVERAGE DEPARTMENT**

This is again a vital part of the Hospital as it provides the restricted and special diet to the patients as per requirements. It is responsible for pre-preparation, Preparation, service, clearance of Food and Beverages.

Location

Ground Floor Block - C, In addition to this three units namely meat fabrication, bakery & confectionery are located in the basement block-C

As the name suggests this is a support service department at Fortis Heart Institute, which is responsible for the pre-preparation, preparation, service and clearance of Food and Beverages for the patients as well as the staff of the hospital.

Following functions fall under the purview of Food & Beverage;

Service of Food for Patients

This takes place in patients' rooms through room service trolleys and therapeutic diets are prepared and served on the basis of Dieticians advice. Service is carried out by qualified service staff in the main block and Rehabilitation Block.

The meals served to the patients are as follows

1. Bed Tea
2. Breakfast
3. Mid-Morning Tea/Coffee/Soup/Snacks
4. Lunch
5. Evening Tea/Coffee/Snacks
6. Dinner
7. Milk Service

Service of Food for Fortis staff

Fortis staff is served meals in the dining area located on 3rd floor, Block – B, Café Jamjaji

The meals planned for staff are as follows:

1. Breakfast
2. Mid-Morning Tea/Snacks
3. Lunch
4. Afternoon Tea/Snacks
5. Dinner
6. Midnight Tea/Snacks

Service of Food for Contractors staff

There is a cafeteria in the basement, Block-B where all contractual staff is served the meals

Service of food for guests / Visitors

Café 24 at Fortis Inn and Café Coffee Day is located in the IPD block on the ground floor, which caters to the needs of outside guests. Apart from that, Sagar Ratna and few other local eating shops are put up outside and opposite the OPD.

➤ MATERIALS/ STORES/PURCHASE

This dept is responsible for purchase storage of Medical Consumables, Stationary, Medical equipments, Pharmacy stores, its aim is to provide right item at the right time at the right price and quantity. Fortis have a CBU-Central Buying Unit that procures all the orders. Functions of this dept. are Procurement, Storage, and Distribution.

Location

1.	Medical Consumable Stores	Basement B
2.	Stationary/Medical Equipment Stores	Basement A
3.	Pharmacy Store	Basement A
4.	OPD Pharmacy	G. Floor A

In addition to the above the department there are sub stores in Cardiac OT and Cath Lab managed by the respective floor coordinators.

Objective:

To provide the right item, at the right time, at the right price and in the right quantity.

Functions of the Department:

Department of materials is a service-providing department for the internal as well as external customers of the Hospital. Its main functions are:

1. Procurement
2. Storage
3. Distribution

Types of Items

- Capital Equipments
- Items held in stock
- Items not held in stock (very rarely used items)
- Items on consignment
- Services

Functions of Purchase

- Timely Procurement
- Vendor Audit
- Development of alternatives for continuous improvement

Imp: For any non-stocked/ rare items purchase requisition authorized by appropriate authority should be submitted.

For capital items, Capex form approved by appropriate authority should be submitted.

Functions of Stores

1. Lay down stocking policies for main store and sub store based on consumption pattern

- SS (Safety stock),
 - MSP (Maximum stock potential)
 - ROL (Re-order Level)
 - EOQ (Economic order quantity)
2. Indenting of items based on the ROL preferably once/ twice in a month
 3. Receipt of items based on purchase orders.
 4. Check for quantity and quality
 5. Acknowledge the receipt
 6. Prepare goods receipt note
 7. Follow up for non receipt of items with purchase
 8. Proper and safe storage of items in racks
 9. Issue of items to sub stores, against patient requests and request from departments based on requests received.
 10. Physical verification of the quantity and quality
 11. Check for near expiry items and arrange for exchange of the same
 12. Return to suppliers
 13. Update inventory

Distribution

Requisitions for the indent of material from the end users are accepted through HIS.

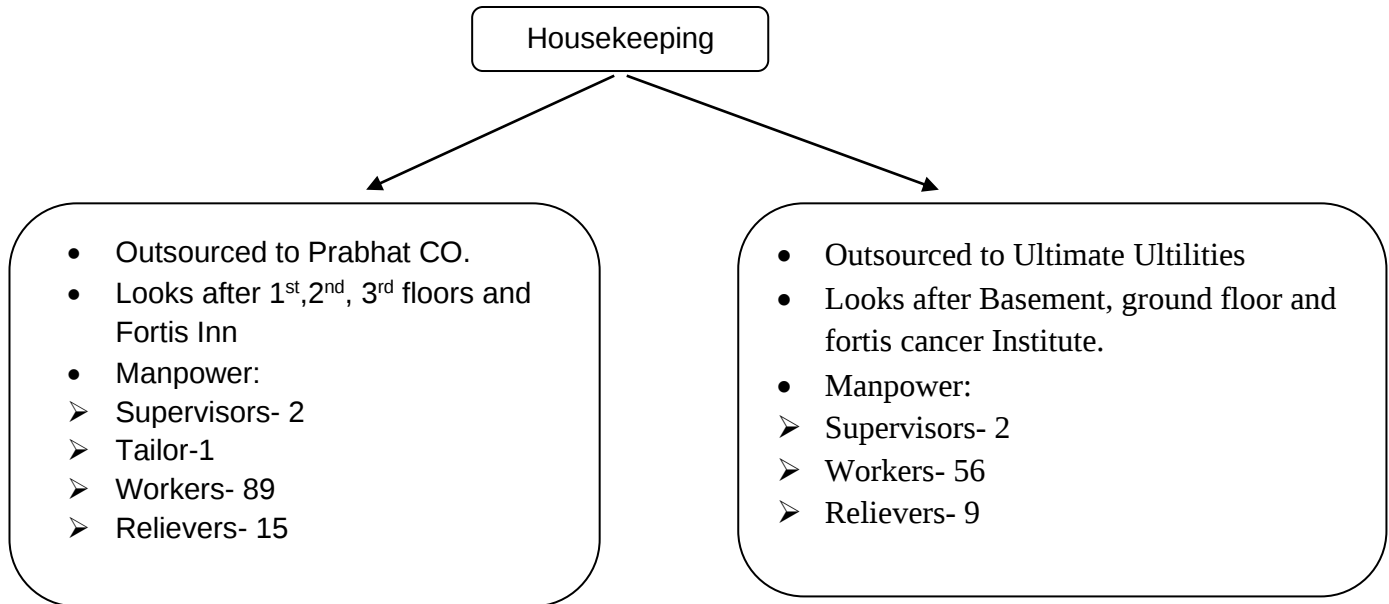
Timings for distribution of material are follows:

1.	Stationary Store	11:00am to 1:00 pm
2.	Pharmacy	9:00 am 12:00 noon 3:00 pm 6:00 pm 8:00 pm
3.	Medical Consumable Store	9:00 am to 5:30 pm

Any stat requisitions are also accepted by the pharmacy.

➤ **HOUSE-KEEPING**

- The department is outsourced to four companies.
- Includes Cleaning, Laundry and Biomedical waste transportation.



➤ **LAUNDARY:** Outsourced

Manpower:

- Supervisors- 1
 - Tailor-1
 - Workers-24
 - Relievers- 4
-
- Laundry collected every morning and then as per requirement.
 - Induction starts after three days of trial of the new joining.
 - Monthly training is given
 - Briefed thrice a day about responsibilities and work.

➤ **ENGINEERING**

The major work of this department is Building maintenance, Water supply, Power backup, Gas supply, Sewage treatment plant.

STP (Sewage Treatment Plant)

To treat all the waste water and sewage waste, sewage treatment plant has been planned which is located on the right side of the IPD entrance while facing Emergency. Enhanced Wapp Systems India Ltd has supplied it.

SAFF (submerged aerated fixed film) membrane is being used to bring down COD and BOD (Biological Oxygen Demand).

Capacity	200 m ³ / day
Post treatment BOD	5mg/l
Post treatment COD	10 mg/l

The water after treatment is softened and reused for cooling towers. There is a provision of using this water for irrigation.

➤ **BIOMEDICAL WASTE MANAGEMENT**

Waste is collected in three shifts: Morning, Afternoon and Night

Process Flow:

Area —→ Loaded onto Trolley —→ Transferred to STP —→ Collected by Contractor
(Evening/ morning) after segregation

➤ **MRD – MEDICAL RECORDS DEPARTMENT**

Situated at the basement, the MRD keeps a record of all the patient files along with their details and history. Retention Period – 2 years

Arrangement of medical records-

- IPD- UHID wise
- OPD- Day wise

Retrieval Policy- A form has to be filled and got duly signed from Medical Superintendent, MR Department.

➤ **MANIFOLD ROOM:** Central piping system

GASES	PIPE COLOR	BAND COLOR
OXYGEN	YELLOW	WHITE
NITROUS OXIDE	YELLOW	BLUE
AIR	SKY BLUE	BLACK & WHITE
VACCUM	SKY BLUE	BLACK
AGSS	MAROON	MAROON

AGSS - Anaesthesia gas supplying system.

Black cylinder- oxygen

Blue cylinder- nitrous oxide

Huge cylinders for air compression, oxygen and vacuum.

Pressure maintained -4.2

If any change in pressure, light blinks red to check that supply

OT & OPD – Have same coded pipes and receivers. Direct supply to the departments through centralized system.

➤ **PWD - PATIENT WELFARE DEPARTMENT:**

Fortis healthcare has an established PWD and the welfare officers, termed as the pink ladies – due to their uniforms act as liaisons between the patients/customers and the hospital. They are patient's advocates or representatives striving to provide solutions to any problem they may encounter here at Fortis.

➤ **OTHER DEPARTMENTS:**

Nuclear Medicine: This Dept. uses Safe, Painless, cost-effective method to image body with specialized diagnostic Gamma Cameras, in order to identify organ function and find out if presence of any disease.

Pathology: SRL Ranbaxy manages the Path Lab at FHM. One of Asia's leading clinical testing facilities, SRL follows the protocol of College of American Pathologists Staffed with highly skilled technicians and equipped with digital analyzers and complete automation in Biochemistry, Haematology Serology, Microbiology and Pathology and these services are rendered round the clock 24x7, and has also been Awarded NABL.

Physiotherapy: FHM has a dedicated Physiotherapy dept. which facilitates quick rehabilitation and pain management plus manages patients with musculoskeletal, cardiothoracic and neurological conditions. They also aid in Geriatric care from Degenerative diseases and provide Rehabilitation post trauma /surgery.

Dietetics: The goal of the Diet clinic is to provide diet consultation to patients and their attendants and satisfies their diet related queries. This dept organizes specific individual counselling and diet education to the pts based on the clinical parameters and Doctors prescription.

Fortis Paalna: FHM has launched a complete Obstetrics and Maternity division .It aims at offering young expectant mothers an excellent experience of childbirth and care. FHM aims to make the delivery safe and comfortable.

Library: A library is present on the Third Floor that houses various reference books, Journals, articles etc and every employee is a member.

Security: The security although is outsourced gives a 24X& cover to the entire Hospital and especially regulates the traffic in the parking areas.

➤ Some of the other facilities available are :

- **Fortis inn** : a paid rest house for the attendants of Out-station patients, or the Attendants of Patients for some rest within the hospital
- **Café 24:** an in house Restaurant that offers a wide variety of food for the attendants and family members of the patients.
- **Bank/ATM** : IDBI Bank and ATM is also present within the premises that can be very helpful to the customers in cases of need for money, and don't have to run around to get instant financial aid

- **Café Coffee Day:** CCD as is it well known is also present in the premises near the waiting area, again which is there to cater the needs of the people.
- **Prayer Room** : keeping in mind the religious and spiritual needs of the people, such a room is created where people can pray for their loved ones
- **Play area:** for Children

SPECIAL STUDIES:

- **A study on factors affecting lead time in purchase & store department of FORTIS HOSPITAL**
- **A time motion study in radiology department with main focus on CT/MRI-scan.**

A STUDY ON FACTORS AFFECTING LEAD TIME IN PURCHASE & STORE DEPARTMENT

INTRODUCTION

LEAD TIME:

It is the average duration of time in between the placing of order and the receipt of material.ⁱ

When determining the quantity of any material to be order we have to take into account the LEAD TIME so that the orders could be placed at a time when the existing stocks are sufficient for the needs of the hospital during the lead time.

The lead time to procure any item can be divided into two types:

1. **INTERNAL LEAD TIME-**: It is the time required for organisational formalities to be completed e.g. Placement of requisition from the user department to the purchase department, tender notification ,tender opening and making purchase order by purchase department.ⁱⁱ
2. **EXTERNAL LEAD TIME-**: It is the time taken in placement of order and receipt of goods.ⁱⁱⁱ

By streamlining the whole process of procurement, lead time can be reduced to great extend. The total lead time can be compute by working out the time taken in internal and external procurement processes.

According to study published in International Journal of Engineering and Advanced Technology (IJEAT^{iv}: In today's competitive business world, companies require small lead times, low costs and high customer service levels to survive. Because of this, companies have become more customers focused. The result is that companies have been putting in significant effort to reduce their lead times. Short lead times are essential to provide customer satisfaction.

Silver et al. defined, lead time as the time that elapses between the placement of an order and the receipt of the order into inventory.

In hospital operations lead time reduction minimizes complexity, streamlines processes and decreases stock-outs. This also allows organization to eliminate bottlenecks, decrease unproductive waiting time and reduce inventory carrying costs. This also improves work flow and decision making throughout the organization.

Uses of Lead Time reduction:

1. Increase productivity and employee effectiveness.
2. Increase profit margins by lowering ordering costs and inventory carrying costs.
3. Better customer satisfaction hence, retained and loyal customer.
4. Quick adoption of newer products and technologies.

REVIEW OF LITERATURE

According to a report of International Journal of Innovation and Applied Studies on Factors Influencing Procurement Performance in Private Sector in Kenya by Haron Barsemoi (Department of Entrepreneurship and Procurement, School of Human Resource Development, Kenya) : Procurement performance is the backbone of an organization success since it contributes to competitive purchase and acquisition of quality goods that puts the organization products or services in the competitive edge in the market. However, on several occasions, poor procurement performance has caused private sector financial loss due to delivery of poor quality work materials, loss of value for money and inflated prices. Poor procurement performance also contributed to decrease of profitability of private sector (Juma, 2010)^v. According to Migai.J , 2010)^{vi} , poor procurement performance is a major hindrance to private sector organizations growth since it causes the delay of delivery, increase of defects, delivery of low quality goods or non delivery at all. This problem can be due to incompetent staff, traditional procurement procedures, and inability to embrace e-procurement, poor coordination of procurement activities, lack of quality assurance policies and lack of proper regulations. In addition, procurement is a new field and issues such as training and ethical policies are yet to be fully developed in this field.

STAFF COMPETENCE IN PROCUREMENT

According to Banda (2009)^{vii}, many procuring organizations do not have staff with the right competence critical to good procurement process management. There is need for authorities to give much greater emphasis to developing such competence and to adopt best practice more widely. Monitoring and enforcement of Quality standards is sometimes weak. Sometimes the failure can be traced back to problems in human resources capacity to monitor procurement process, poor determination of specifications, weak definition of requirements and/or inadequate budgets, and failure to enforce the conditions of the contract is due to inadequate supervision from within the private sector as well as weak enforcement of regulations. Regulatory agencies rarely manage to enforce standards due to lack of capacity. According to Berger & Humphrey (2007)^{viii}, a procurement function that is carried out professionally is the heart of delivery of any service on value for money principle.

FACTORS INFLUENCING PROCUREMENT PERFORMANCE IN PRIVATE SECTOR

Boyan (2003)^{ix} reveals that there are clear benefits in ensuring that staff who handle suppliers are professionals and approaches are handled well. Competence can ensure that the benefits of new products and services are brought to the attention of the right person in the organization. It can protect the organization, keep work to a minimum, avoid souring relationships and add to the organization's reputation for efficiency and good management.

1. ORGANIZATIONAL STRUCTURE AND PROCUREMENT PERFORMANCE

According to study by Yasuhiko (2003)^x, a system theoretic law insists that system must have at least the same degree of behavioural variety as its environment does in order to survive. The study asserts that a surviving organization has functions to decrease the variety of environmental input by some market research mechanism to reduce information input according to organizational objective and to increase the variety of organizational behaviour by appropriate market means. Operating procedures and performance standards are set for employees to enable understand what is expected of them. Procedure of collecting and evaluating information to help managers make decisions and solve problems are defined through the organizational structure. An organization structured that is appropriate to the task of an organization encourages creativity and enhances quick decision making concerning new business opportunities, products, customers suppliers, market and technical development enable the organization to survive and compete in dynamic and competitive situations.

2. QUALITY MANAGEMENT AND PROCUREMENT PERFORMANCE

According to Berger and Humphrey, quality management can be considered to have four main components: quality planning, quality control, quality assurance and quality improvement. Quality management is focused not only on product/service quality, but also the means to achieve it and whether motivation plays significant role in its achievement. Quality management therefore uses quality assurance and control of processes as well as products to achieve more consistent quality. In quality work, where consumer responsibilities are very important and non-negotiable, customers recognize that quality is an important attribute in products and services. Procurement employees therefore must be provided with all tools and motivated in order to deliver quality services.

3. APPLICATION OF IT IN PROCUREMENT PERFORMANCE

According to Campbell (2005)^{xi}, technology is the change or integration of means of processing a product or service from what is perceived not be a good version to a better one. It is also change of system or way of operation from inefficient or manual to automatic operations. Private sector procurement activities have evolved from orders, systems to nowadays E-procurement. If you always

remember that technology is a tool and that you need to know how to use it, for it to be productive, the money that you spend will never appear to be wasted. The one thing to always remember about technology it's just a tool to assist you in getting your sourcing and procurement related activities done in the organization. In the latest era, the significant usage of E-Procurement systems by governments and enterprises led to significant savings. The implementation of E-Procurement has some restrictions namely technology adoption and usage of E-Procurement systems by suppliers. E-procurement has high maintenance costs and required level of professionalism that needs to be investigated in terms of sustainability.

In an article on Co-operation between different units to make the purchasing process of indirect material more effective; Marcus Nilsson, Anna Eriksson (2006) states that the development in the world moves faster and faster and the organizations have to be more efficient in order to be able to make competitive products in the future. The new organizational structure is the result of this. Organizations must change in order to be able to follow the expansion in the world and be competitive along with other organizations in the global market. To successfully efficient the organizations reduce their purchasing costs for material and products. One way to reduce the purchasing costs is to centralize all purchases in an organization. When a big organization does that, they use, among other things, the economies of scale. This means that organizations purchase a larger quantity of material or products from one supplier. Another step in this central purchasing strategy is to centralize the purchase of indirect material. Indirect material is products that an organization needs in order to be able to produce the products that they sell, for example computers and computer applications. Big companies or organizations have started centralizing their purchases of indirect material. There are a lot of reasons to centralize purchases of indirect material. The main reason is to take advantage of the economies of scale. Employees that have purchase as their main assignment can work with purchases all the time. That way the organization uses their employees more effectively, instead of having a responsible purchaser in every unit of the organization that have a lot of other assignments as well. One big difficulty with centralized purchases is to get the different units to co-operate.

The conflicts in Centralized purchasing can occur in various functional areas of the hospital.

Expenditure on hospital materials ranks 2nd next to the cost on hospital personnel.

PURCHASE AND ITS 5'R

Purchasing is one of the basic functions in industrial, commercial or public utility concerns. It involves many intricate decisions on what to buy, when to buy, where to buy, how much to buy, how much to pay and how much to stock. All these require considerable expertise, study of economic trends and market performance of the purchasing department.

Purchasing is both science & art. It is a science since it is based on certain basic principles when put into practice, purchasing assumes the dimension of an art.

Materials represent the most expensive asset of any organisation.

For effective performance, it is necessary to follow five essentials of right purchasing:

1. Right quantity
2. Right quality
3. Right price
4. Right delivery (time)
5. Right source of supply

RIGHT QUANTITY:

Maintenance of a regular flow of materials for the operations of the hospital is the main aim of the purchasing organisation. For this the right quantity of materials has to be purchased.

Excess purchases are to be avoided as they result in overstocking of materials resulting in unnecessary blocking of capital and high inventory carrying cost. At the same time, it is also essential to ensure uninterrupted flow of materials for the smooth functioning of the organisation.

Buying the right quantity can result from an effective inventory control. The inventory control is basically a scientific system which indicates what to order, how much to order, how much to stock so that the purchasing and storing costs are kept as low as possible.

RIGHT QUALITY:

Right quality means that the item must confirm the predetermined standards. Quality is related to the suitability and cost rather than the intrinsic excellence.

It is the duty of the materials manager to inform the user department of availability of various qualities so that they can select the right quality material for purchasing. Determination of right quality involves numerous factors like price, installation cost, maintenance cost, market availability, operational workability and attitude of users.

The user department is responsible for suitability determination and purchasing department is responsible for the economic consideration of quality.

The quality of material should be described correctly so that the vendor can understand exactly what is required. The most common methods of describing quality are market grades, brand or trade names, chemical or physical specifications, samples etc. Often Combination of two or more methods is utilized.

The standardization of various products required for the hospital has to be carried out in order to evaluate the voluminous and continuous flow of new products. Adopting the policy of standardization and simplification improves the procurement in hospital by eliminating the wasteful and excessive variety of products.

RIGHT PRICE:

Right price is the value of goods and services asked for and paid in monetary terms. It is difficult to assess the correct value of goods and service since it is the utility and satisfaction which helps in assessing the value.

It is the purchaser's skill in negotiating, using the existing competition in the market and his relation with the suppliers which will determine the actual purchasing price. Competitive bidding, cost analysis, price negotiation, quotations, are various methods in determining the right price.

It may be emphasised that right price may need not be the lowest price.

RIGHT TIME:

The store's manager must carry out the critical analysis of availability, criticality, sources, lead time and accordingly place the orders to prevent stock out positions.

RIGHT SOURCE:

The source/supplier from whom the products/equipments have to be procured must be reliable. Vendor rating and evaluation should be carried out over a period of time.

RESEARCH METHODOLOGY

Research Objective:

1. To study the process flow of the Purchase Department at a multi-specialty hospital.
2. To study the factors affecting the Lead Time and study the average lead time.

Research Methodology followed:

A prospective study was carried out to study the insights and functioning of purchase department.

Data collection tools:

For Research Objective 1: Primary data was collected using the unstructured interviews and the secondary data was collected from the Standard Operating Procedures of the Purchase Department.

For Research Objective 2: Close ended Questionnaire (Annexure2.) was made which was filled by purchase, stores and OP Pharmacy department. Secondary data was collected from the department system of one month period. The data consisted of report regarding the Purchase Requisition (PR), Purchase Orders (PO) and Goods Received Note (GRN).

Sample:

The sample was from Purchase and Stores Department at Fortis Hospital, Mohali

. Data Analysis:

The data was analyzed by using Microsoft Excel.

Time of Data Collection:

The study was carried out for period of 1 month (23rd march-23rd April 2015)

RESEARCH FINDINGS

Process flow of the department

PURCHASE DEPARTMENT:

The purchase department is responsible for procurement of every item needed in the hospital; from stationary to engineering goods; and from routine drugs to various equipment required by the hospital. The department procures items for the following departments:

1. Inpatient Pharmacy
2. Outpatient Pharmacy
3. Medical Consumables
4. Engineering goods.
5. Bio-Medical
6. Housekeeping.
7. General Items
8. Stationary

The rate and vendor are decided by the Central Buying Unit (CBU). The central procurement provides the following benefits:

1. Hospital can save up to a lot as the volume of procurement is high and hospital is able to well negotiate with the vendor/ manufacturer.
2. Uniformity of price, service and quality.
3. Cost effective: as separate units do not have to repeat the same process as it is done centrally at one point.
4. Greater discounts can be availed due to the scale of the purchase made by the hospitals.

Functions of the Department

- 1) Conversion of Purchase requisitions to Purchase Orders
- 2) Inviting Quotations
- 3) Negotiations through the Purchase Committee
- 4) Approval of Purchase Orders

5) Planning of Monthly Purchases

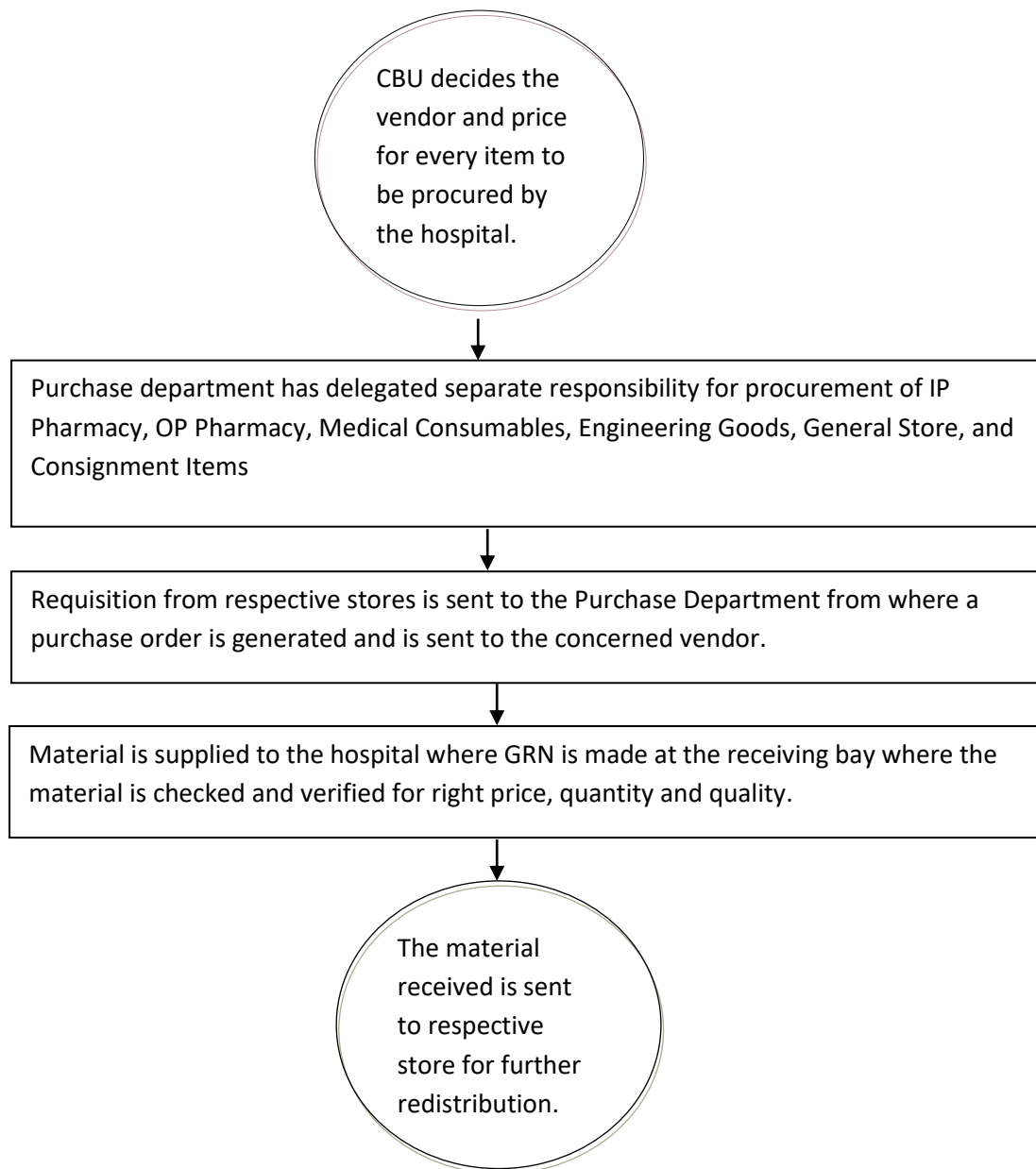
PURCHASE ORDER:

PO is a legal document.

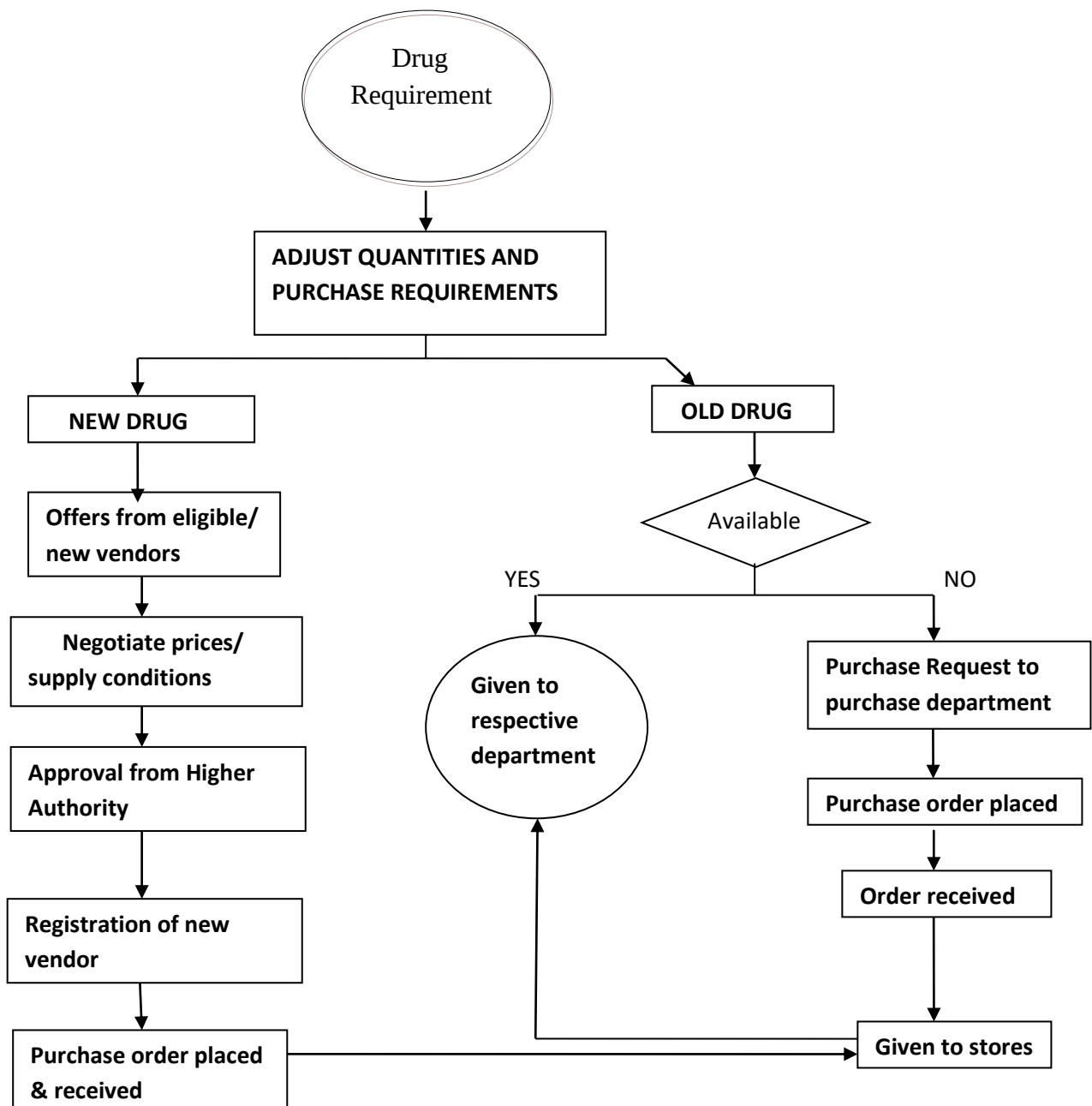
It contains:

1. Order number
2. Date
3. Serial number
4. Full name & address of supplier
5. Consignee's name & address
6. Terms & conditions
7. Description of goods
8. Quantity
9. Supplier's quotation reference
10. Price terms (MRP, List price, tax, discount)
11. Billing
12. Mode of payment
13. Delivery date & schedule

PROCESS FLOW

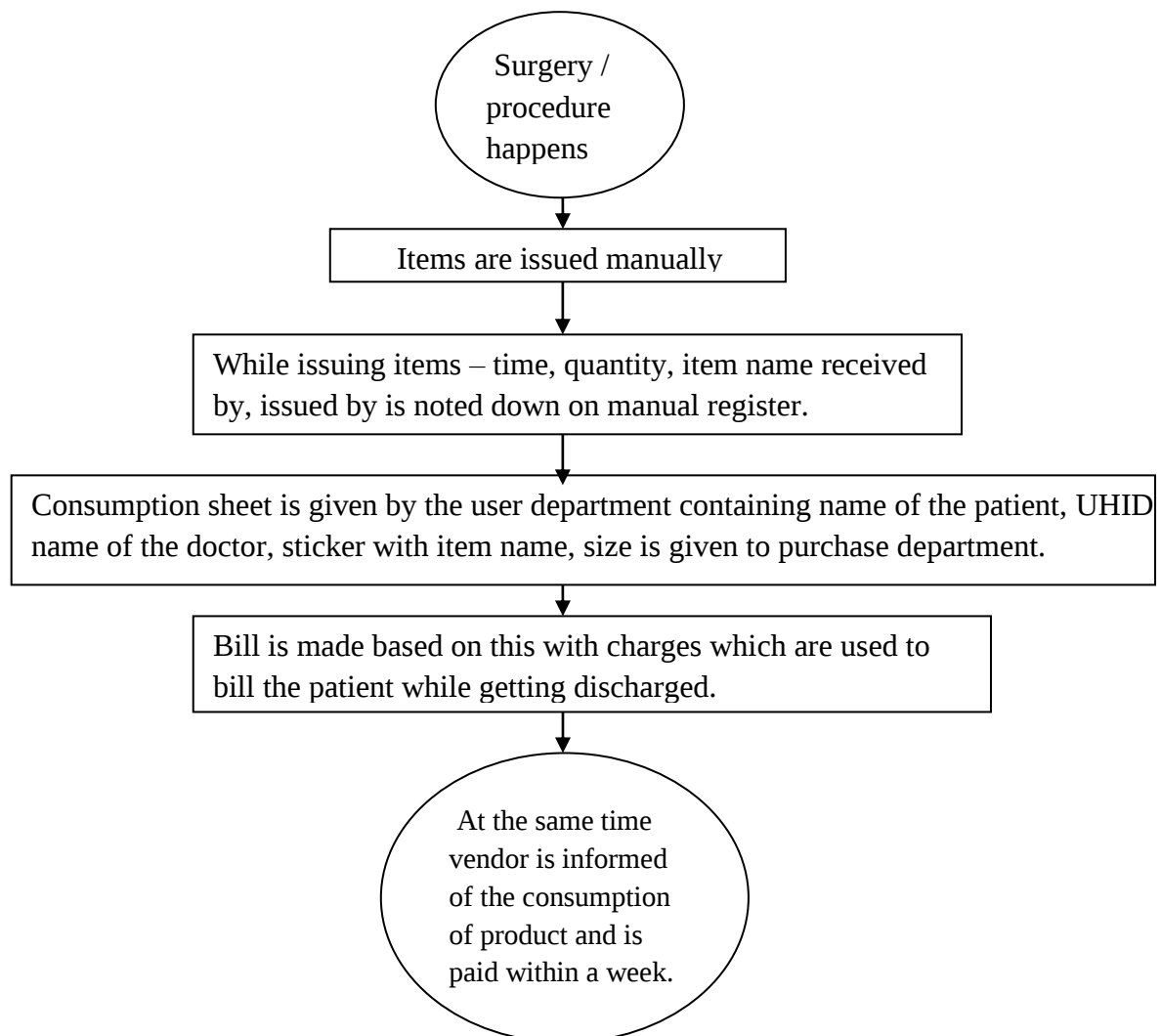


WORKFLOW OF THE DEPARTMENT:



CONSIGNMENT ITEMS: These are the high value items that are billed as and when they are consumed. They are stocked in the stores but vendor/ manufacturer is not paid until the item is consumed.

For stents, total knee replacement, balloons, neuro and ortho items:



CASH PURCHASES are made at the time of Emergency only and the selected vendors are opted for those cases as well. Local purchases are made only when the selected vendor cannot supply the required items.

Issues observed in the department:

- ✓ The efficiency of the staff is decreased as the duplicity of the work is there (in making PO , rate change)
- ✓ Manual indenting of the item being procured is done.
- ✓ ROL issues.
- ✓ Lack of coordination between stores and purchase department.
- ✓ Delays in process because everything from vendor creation to rate change is to be approved from CBU which takes time.

The reasons for receiving the items manually were:

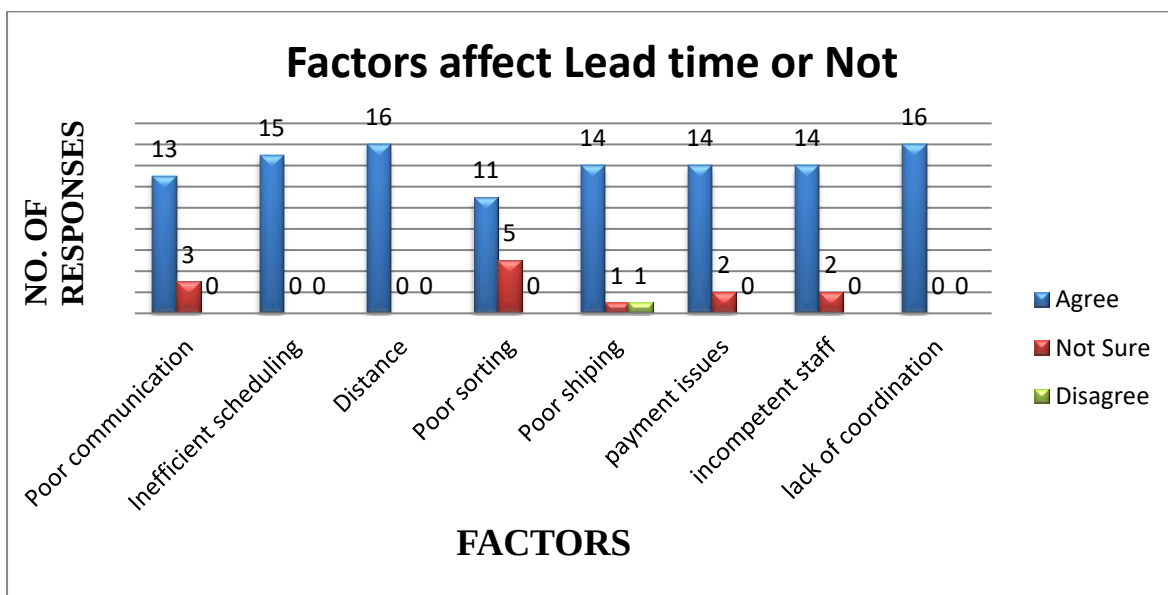
- i. During night time, Sundays; the items received are taken manually as no staff is there at receiving bay, so the user department receives the delivery themselves.
- ii. Emergency Purchase: If any item is stocked out, and it is an urgent requirement then it is received manually.

RESEARCH OBJECTIVE 2. Factors Affecting Lead Time

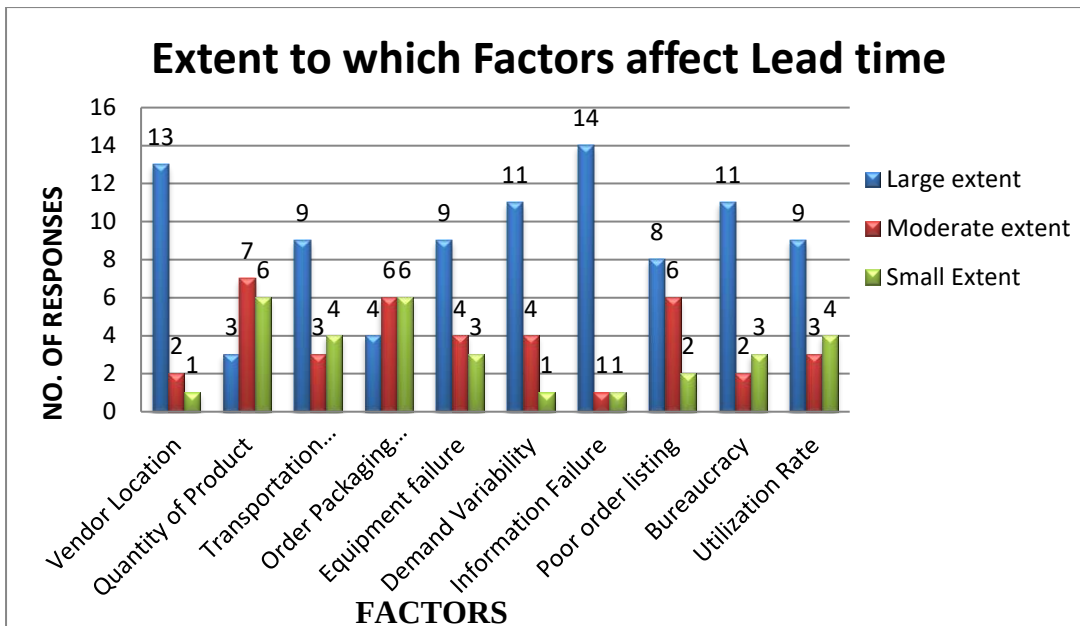
A. According to the research questionnaire, the major factors that affect Lead time in Fortis Hospital, Mohali are:

1. Lack of coordination within the system and with the vendor is the major factor that affects lead time. Delay in information about the product, its availability and uninformed price changes by the vendor affect the coordination.

2. Distance of the vendor is also one of the important factor that affect lead time. In case the procurement is to be done from the local vendor lead time is less. If the distance is more than time taken for supply is more because of various transportation and packaging issues so the products need to be scheduled earlier when stores have enough buffer stock to cover the lead time.



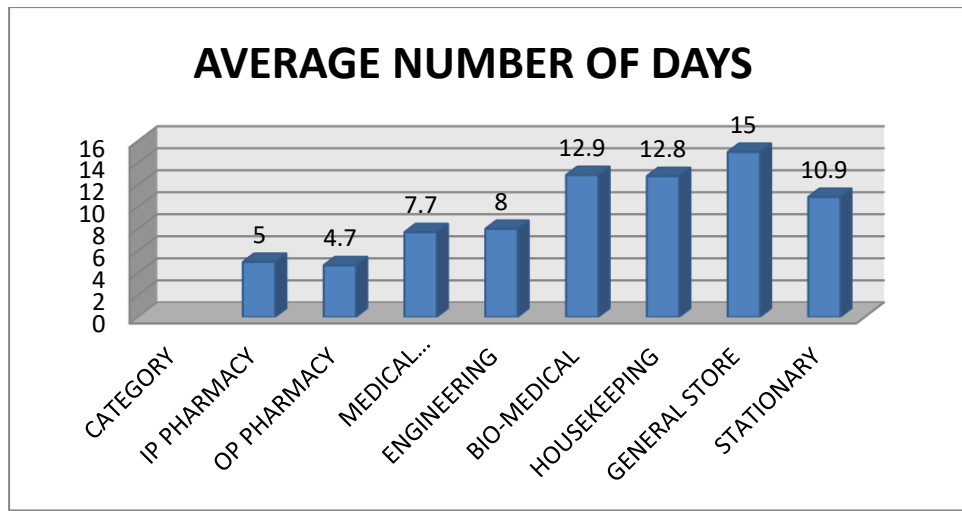
B. EXTEND TO WHICH THE LISTED FACTORS AFFECT LEAD TIME



1. Factor such as Information failure is one of the most important factor that affects the Lead time to large extend. This information failure is because of lack of coordination between the stores and purchase as well as because of the operating system i.e. Oracle which is a new operating software in the organisation.
2. Other factor like distance of the vendor also affects the lead time to large extend.

AVERAGE LEAD TIME:

While analyzing the Lead Time for various items procured, it was seen that average time for delivery by various vendors was found to be 9.67 days. For separate categories the average is given in (Annexure: Table 1). Lead time here is calculated by using the time taken from PO to GRN validation.

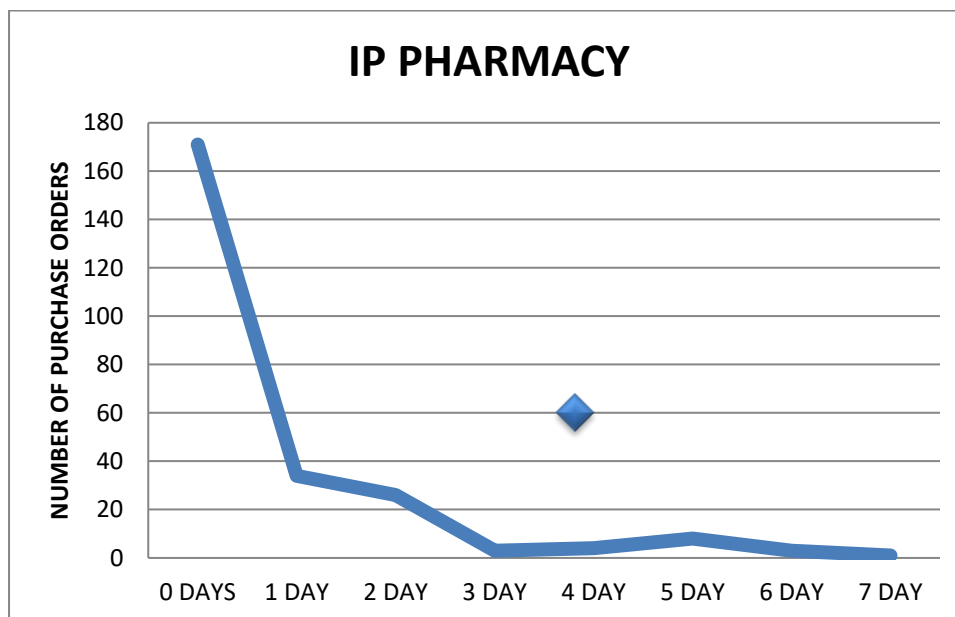


RESULT: It is clear from the graph that vendors for IP and OP drugs took minimum time to supply the order to the hospital. But general store items had a longer lead time.

NOTE:

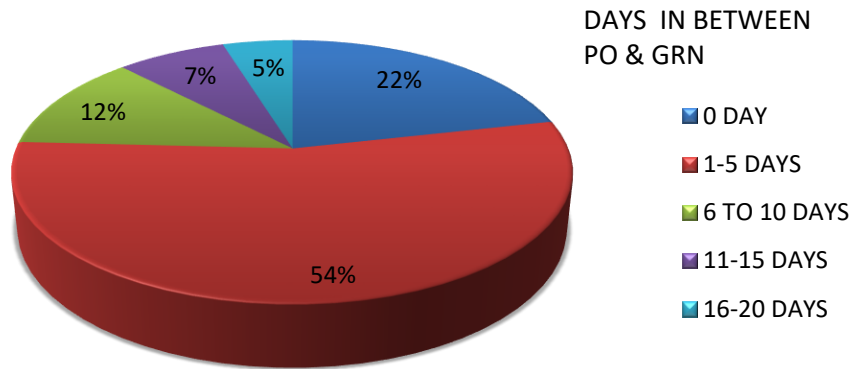
- ✓ Monthly order for next month which is placed after 20th of going month , is normally closed by end of month and items are received in next month which increases lead time.
- ✓ PO validation from higher authorities increases lead time.

1. LEAD TIME FOR IP PHARMACY



Time from Purchase request to purchase order

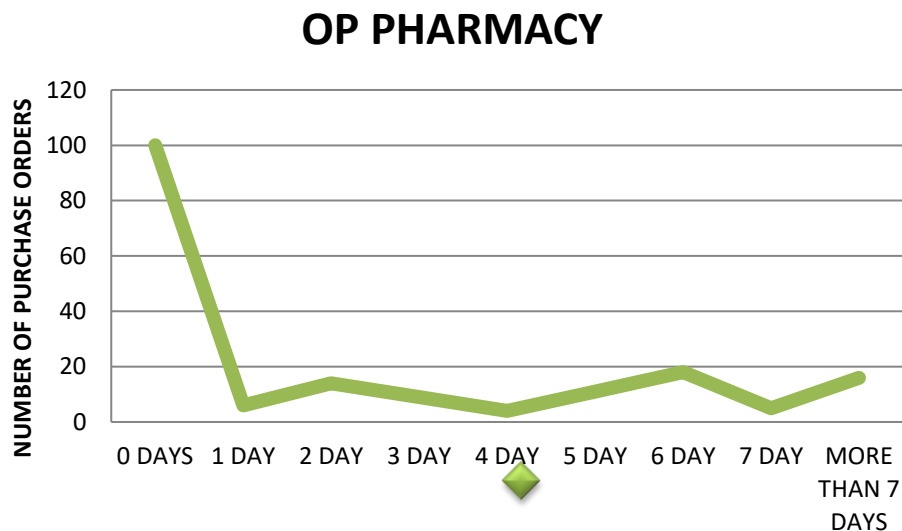
IP PHARMACY



Time from Purchase
order to GRN

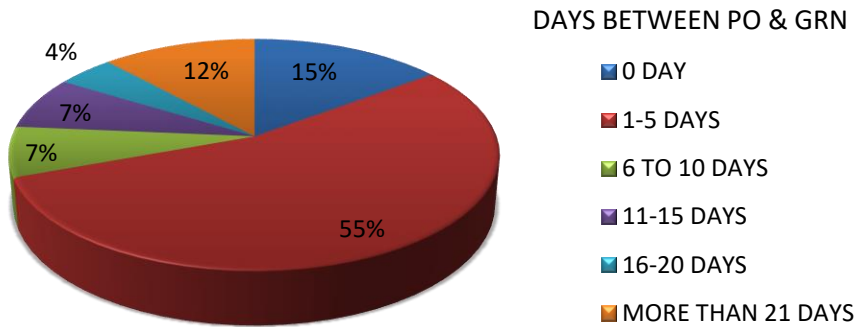
RESULT: It is seen that there were no orders that were made after 7 days. As drugs are one of the most critical items its procured and delivery as early as possible is important; and it is seen that around 76% of the drugs are delivered within 5 days of placement of the order.

2. LEAD TIME FOR OP PHARMACY



Time from Purchase
request to purchase
order

OP PHARMACY

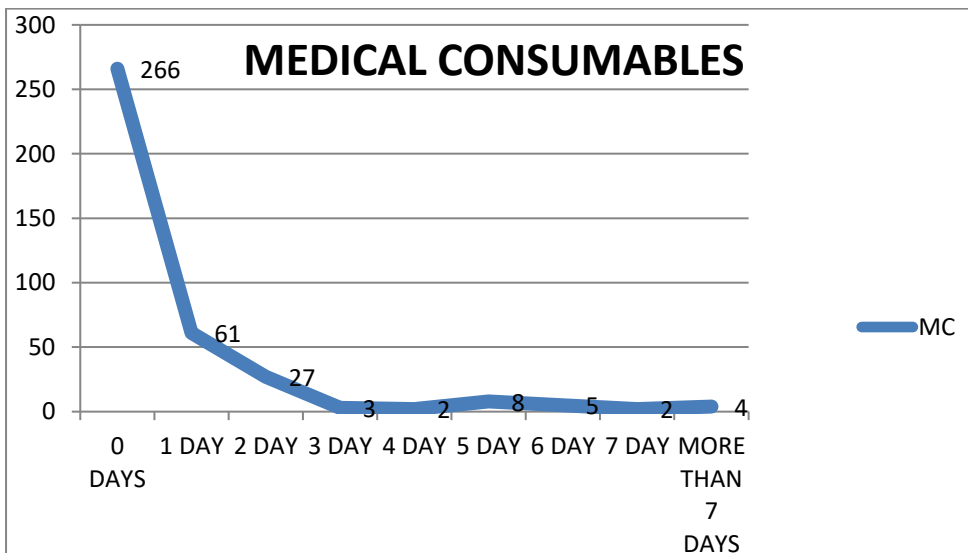


Time from Purchase
order to GRN

RESULT:

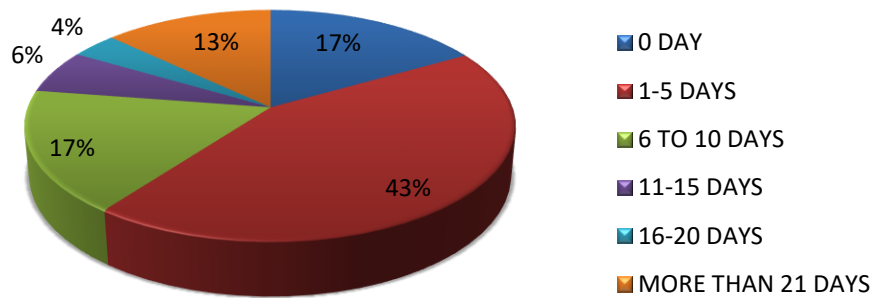
It is observed that maximum PO are made on the same day when PR is send and around 70% of the drugs are delivered within 5 days of placement of the order.

3. LEAD TIME FOR MEDICAL CONSUMABLES



Time from Purchase
request to purchase
order

MEDICAL CONSUMABLES

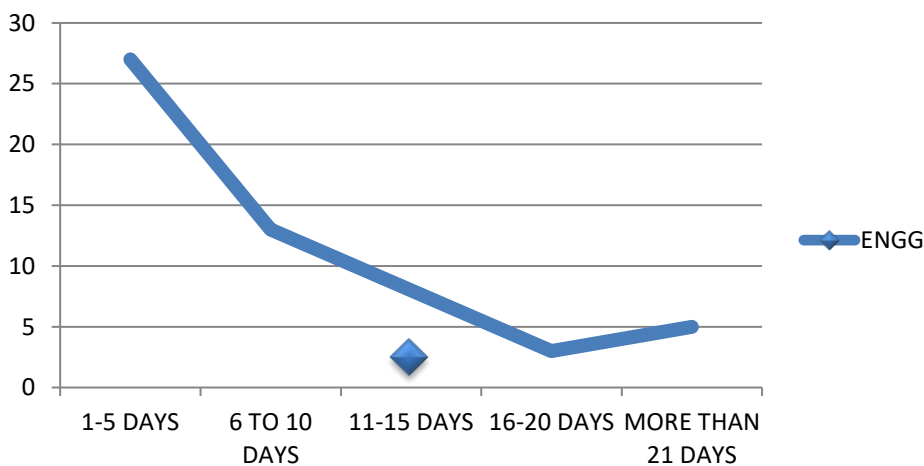


Time from Purchase
order to GRN

It is seen that most of the orders (86%) were made within 1 days of placement of request. 77% of purchase orders are received within 10 days.

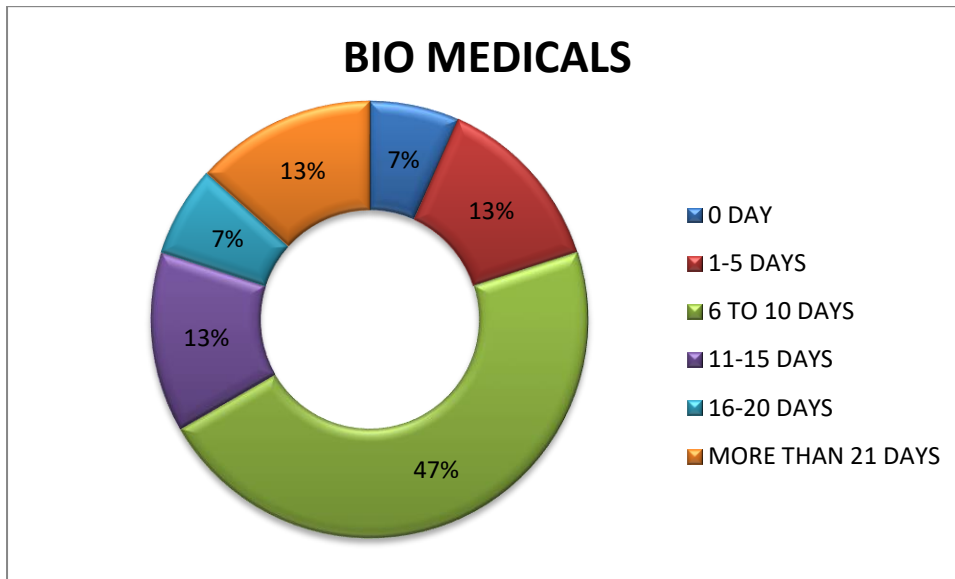
4. LEAD TIME FOR ENGINEERING:

ENGINEERING



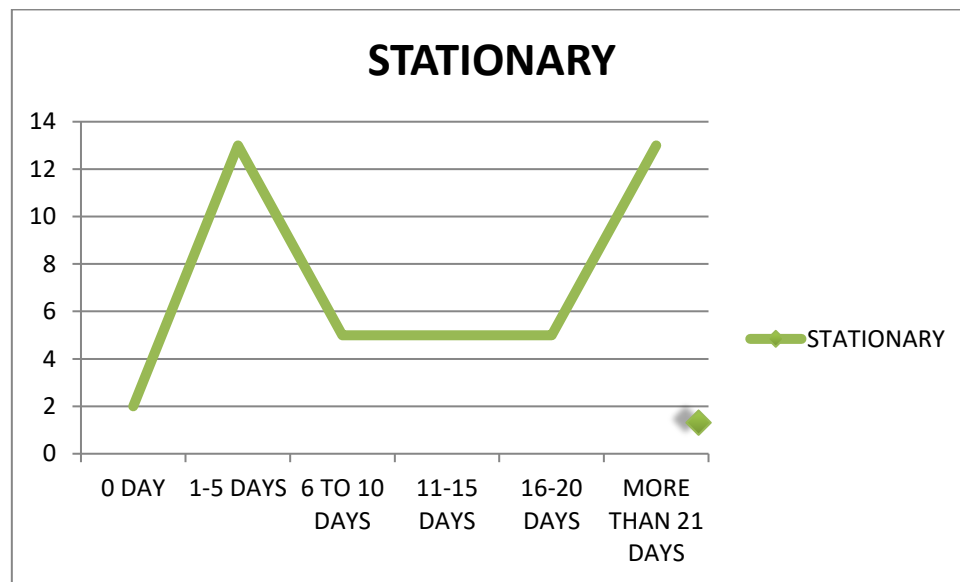
RESULT: Maximum numbers of orders are received within 5 days of placement of order. About 71% are delivered within 10 days.

5. LEAD TIME FOR BIO MEDICAL GOODS:



RESULT: About 67% orders are delivered within 10 days of order placement.

6. LEAD TIME FOR STATIONARY:



RESULT: Maximum number of orders is delivered within 10 days of order placement. Increase in lead time of more than 21 days is because of monthly orders that are placed in end of month but received in starting of next month to decrease inventory.

LIMITATIONS:

Time from purchase request to purchase order is recorded in the system but time period from validation of PO to GRN is not there, instead of this, system records time between PO & GRN which increases Lead Time.

SUGGESTIONS:

1. **Review of reorder level:** To minimize stock outs and emergency purchases, regular review of the inventory must be there and requisition from stores to Purchase Department should be sent in time. This will also decrease the emergency purchases ensuring optimum availability of the drugs and consumables in time.
2. **Price changes** in some cases vendor keep on changing the price frequently. Price change in itself is a huge process which needs CBU approval and amendments which waste a lot of time.
3. **Staffing:** If at the receiving bay, another staff can be employed during night time, it will divide the workload hence improve the efficiency of the Purchase Unit.
4. **Updating the challan and bill** early so as GRN can be validated: if there are discrepancies in the Order sent and item received then it should be immediately updated so that the items can be updated on the system.
5. **Regular Audits of the stock:** These can become an inevitable tool to measure the consumption and value of the stock present. Weekly audits will also help in re-ordering at proper time and quantity.
6. **Streamlining the process,** reducing the over repetition of work can make the purchase more efficient.

A TIME MOTION STUDY IN RADIOLOGY DEPARTMENT WITH MAIN FOCUS ON CT & MRI

INTRODUCTION

Increased focus is being placed on the quality of care provided by Hospital Healthcare Systems around the country. Caught in the middle between tightening government standards, stricter compliance guidelines for insurance companies, and the basic mission to serve those in need with quality and compassion; hospitals are looking for ways to improve their processes (services) for the benefit of all.^{xii}

CT (Computed Tomography) and MRI (Magnetic Resonance Imaging) services in the hospital radiology departments are revenue-generating areas. The reimbursement rates for these services are very high, the scan times (especially in CT) are relatively low, and so the potential for additional revenue to the hospital comes with increasing patient capacity for these services.

However, it is also a very competitive time for hospital radiology departments as many outpatient diagnostic centres are being built, drawing patients and physicians to their fast, efficient, no hassles approach to imaging. This brings additional hurdles to the already struggling hospitals. The diversity of inputs and ranges of services provided makes the radiology department a very complex system to run. One of the hallmarks of a well managed radiology department is the short length of time patients spend before accessing a radiology service. Previous studies on the factors that affect patient's satisfaction with health care services show that they are patient centred, and include the time spent with the health care provider, willingness of the physician to listen to the patient, and expectations for treatment. Lengthy patient waiting times have been fingered as the major cause of dissatisfaction with health care services.

The radiology department under study provides several radiological services like Accident and Emergency Radiology, Conventional and Special radiological examinations, Computed Tomography examinations, Mammography examinations, MRI and Ultrasonography. The objective of this study was to find out the average length of time a patient spends from reporting to the department to the time he/she leaves, and identify how the steps in patient registration contribute.

REVIEW OF LITERATURE

“Despite of all the challenges of the broken system, there are hospitals that are figuring out a way to create patient-centred culture—they're doing it...And it's the little things that they put into place that actually impact the patient's experience. But when you take them all together they begin to change the culture. And even though they may not have a huge impact on the macro system, in that hospital and for those patients, they are making a difference.”

(Dr. Susan Frampton, Planetree)

Background ^{xiii}

Hospitals understand where their revenue generating areas are. In most cases, these areas are surgery (especially Orthopaedic), Cardiology/Cardiovascular, and Radiology. These areas are utilized to offset the losses incurred within other areas in the hospital to meet bottom line revenue goals. They have taken a serious look at the Weaknesses of the hospital model, turned them into Opportunities for their business, and focused efforts into making them the Strengths within their business model (SWOT/TOWS analysis). In radiology specifically, the outpatient diagnostic centres have listened to the Voice of the Customer (VOC) and made dramatic improvements in the areas Critical to Quality (CTQ). They also understand that their customers (physicians and patients) have choices for where they receive service and so they have a strong marketing presence to promote their facilities, services, and improvements over traditional hospital processes. Radiology is a major source of revenue generation within healthcare. Insuring the referral base for a specific radiology department and service area is an important component to providing a consistent revenue stream for a healthcare facility. The important components to maintaining the referral base include:

- 1) Timely patient scheduling
- 2) Timely reporting of results to physicians
- 3) Providing an expected level of technology

According to a report on TODAY'S MRI MARKET-The leading MRI producers are GE, Siemens, Philips, Hitachi and Toshiba. Products range from Low Field systems (<0.5T) through Mid Field

(0.5-1T) High Field (usually 1.5T) to Very High Field (usually 3T). Currently the greatest demand for MRI procedures in the US is for Brain, Head and Neck scans with spine and extremity scans running a close second. The following chart shows a breakdown of procedure types in the years 2010 and 2007.^{xiv}

MRI PROCEDURE TYPE	2010		2007	
	PROCEDURE NUMBERS (MILLIONS)	% OF ALL PROCEDURES	PROCEDURE NUMBERS (MILLIONS)	% OF ALL PROCEDURES
Spine	7.5	25%	7.1	27%
Brain Head and Neck	8.7	29%	8.5	32%
Extremity	7.3	24%	5.3	20%
Vascular (MRA)	2.3	8%	2.4	9%
Pelvic & Abdominal	2	7%	1.9	7%
Breast	1.1	4%	0.5	2%
Chest, other cardiac	1.1	4%	0.8	3%
Other (interventional)	0.2	1%	0.2	1%
Total	30.2		26.7	

The spectrum of clinical MR examinations has hardly changed during the last decade. Brain and spine studies make up more than 50% of all studies, breast, heart and interventional studies less than 5%. Functional brain MRI and other sophisticated examinations add up to less than 1% of all clinical MR studies. The biggest markets are still the United States of America with some 46% of worldwide sales followed by Europe which buys approximately one quarter of all units, and Japan with 15%.

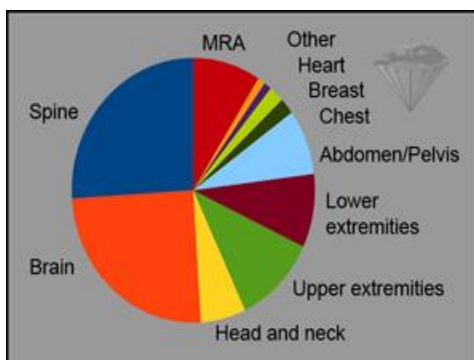


Figure 21-01:

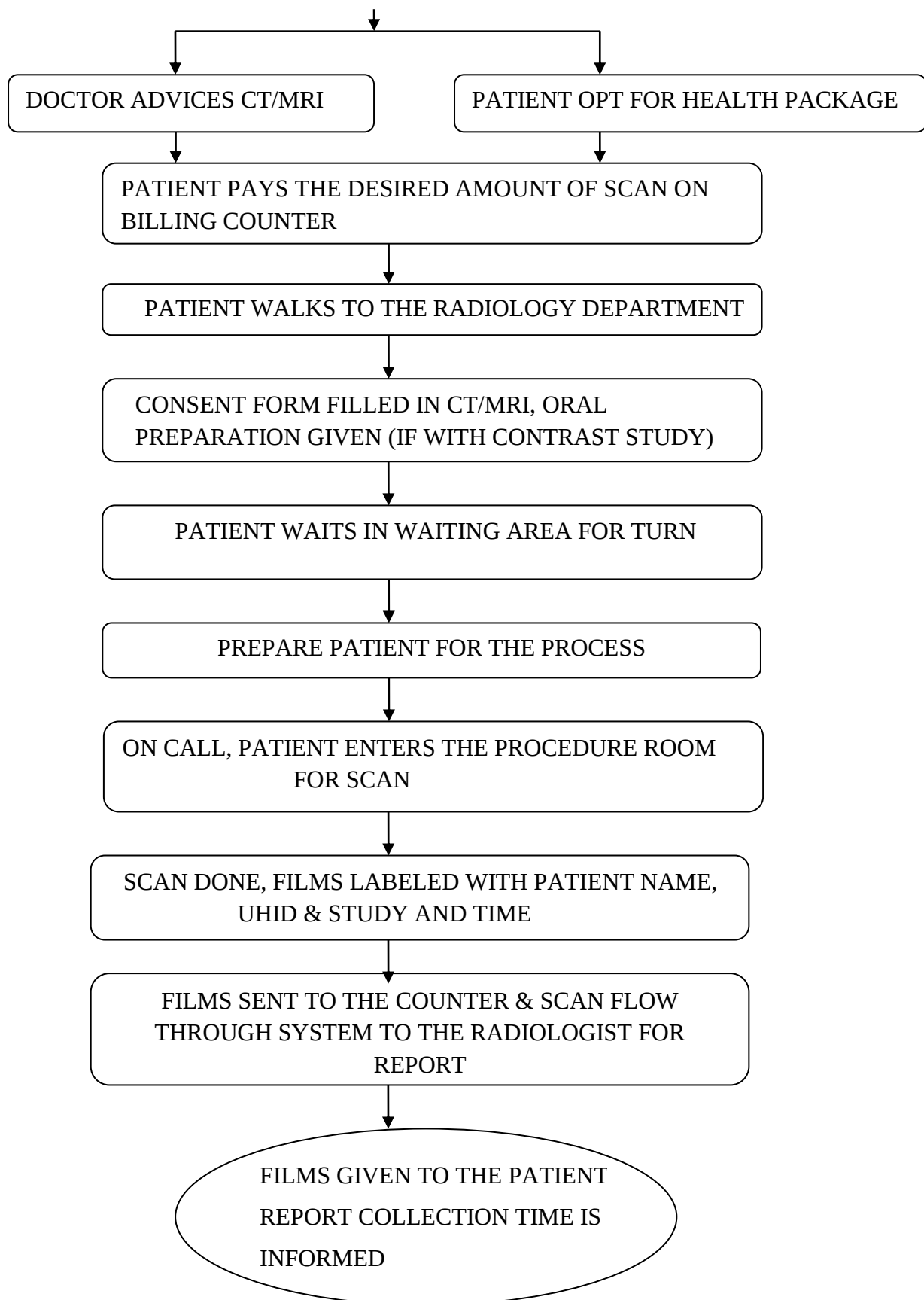
MR examinations in percent (2010):

Spine 26%; brain 25%; head and neck 6%; upper extremities 11%; lower extremities 9%; abdomen and pelvis 8%; chest 2%; breast, 2%; cardiac 1%; angiography (MRA) 9%; other ≤ 1%.

Source: EMRF estimates 2012/2013.

PATIENT PROCESS FLOW

PATIENT
REGISTRATION



The benefits of streamlining the process flow

GOOD COMMUNICATION

- Builds trust between patient and doctor.
- Enhances patient satisfaction.
- Leads to more realistic patient expectations.
- Produces more effective practice.
- Reduces the risk of errors.

RESEARCH METHODOLOGY

AIM:

To study the average waiting hours of CT & MRI Department.

OBJECTIVES OF THE STUDY:

The objectives of the study are as follows:

1. To study the process flow of radiology department.
2. To assess the average waiting time from the arrival in the department to get the process done and further report collection.
3. To give recommendations to reduce the waiting time.

RESEARCH METHODOLOGY:

Research Design: A prospective analytical design

Sample Size: CT-100 patients, MRI-80 patients

Sampling Units: All the OPD patients in CT/MRI department in FORTIS HOSPITAL, MOHALI

DATA COLLECTION

Primary Data:

The primary data regarding various time variables was collected for 1 week. It includes recording the time of billing, arrival in the department, in and out process time, report time. The responses for each OPD/IPD patients was taken and recorded accordingly for each parameter. The filled up information was later analyzed to obtain the required interpretation and the findings.

Secondary Data:

In order to have a proper understanding of effective process flow, data was also collected from the official system (FOS and IT data) and staff of Fortis Hospital Mohali.

What is TAT (turnaround time):

TAT for the process is the time when patient arrives in the department till the time patient enters the procedure room.

TAT for the report is the time taken for the execution of reports after the completion of procedure.

According to Fortis Hospital Mohali: TAT (Turn around Time) for CT/MRI is:

TURN AROUND TIME		
	PROCESS	REPORTS
CT	30 MINS	4 HR
MRI	1 HR	4 HR

SAMPLING PLAN:

The survey was conducted in FORTIS HOSPITAL, MOHALI, a tertiary care super specialty hospital for the period of 1week.

The survey took place in reception & waiting area of CT/MRI department to collect the data regarding various time variables associated with the patient movement from arrival in the department to process completion.

DATA COLLECTION TOOL:

Data was collected through a structured time variable data format. (Annexure: Table 3)

GRAPHICAL TOOLS USED:

- Pie Charts, Bar graphs

LIMITATIONS OF THE STUDY:

1. The survey is based on personal observations combined with data from system of hospital, so there may be chances of variation to small extend.
2. The study is mainly done for OPD patients.
3. Study was limited to waiting & reception area, and not in scan area. So internal system and scan findings remain unnoticed.

DATA ANALYSIS & INTERPRETATION

❖ CT – DATA

1. TIME FOR THE PROCESS TO BE DONE i.e. average time when the patient enters for scan and came out of the scan room, depending upon type of process.

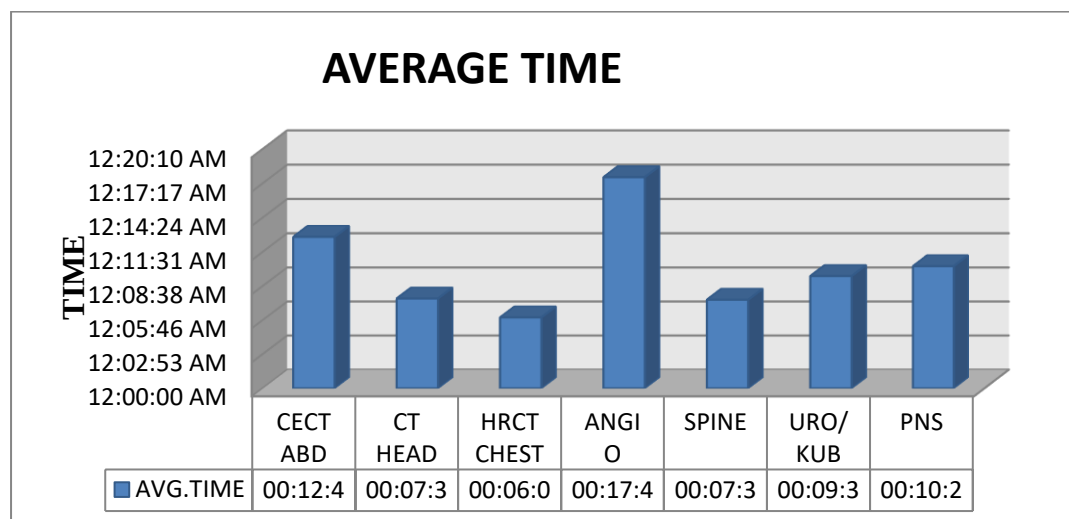
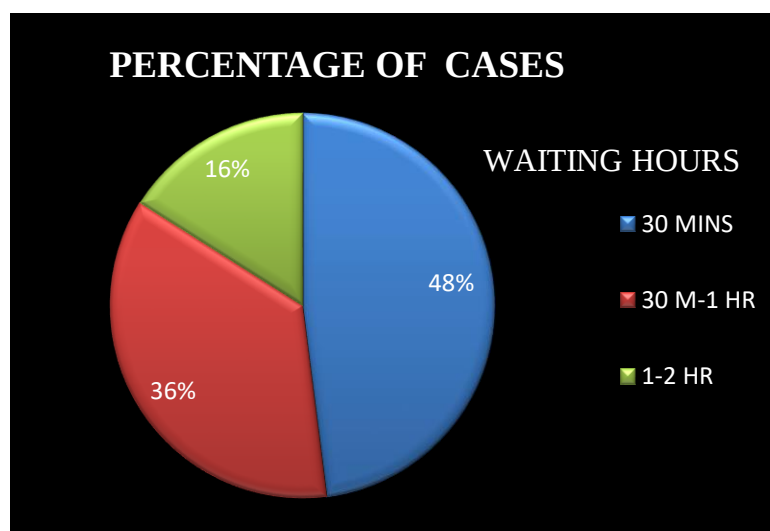


Fig 1 .Column chart depicting average time for various CT-SCAN procedure

2. WAITING HOURS FOR THE PROCESS i.e. time when the patient arrives to the department to the time he/she enters the scan room.



WAITING HOURS FOR PROCESS	PERCENTAGE OF PATIENTS
30 MINS	48
30 M-1 HR	36
1-2 HR	16

Fig 2 .Pie chart depicting waiting time for CT-SCAN procedure

RESULT: According to the Fortis Mohali, TAT for CT scan process is 30 min & data indicates that 52% of cases have to wait for more than 30 min.

3. WAITING FROM SCAN COMPLETION TO FINAL REPORT i.e. time when the patient gets the scan done to the time the result is validated.

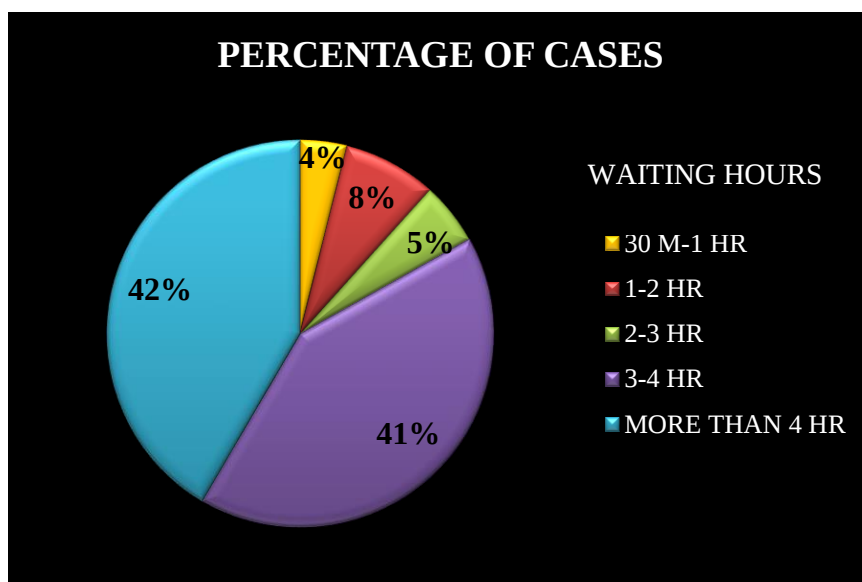
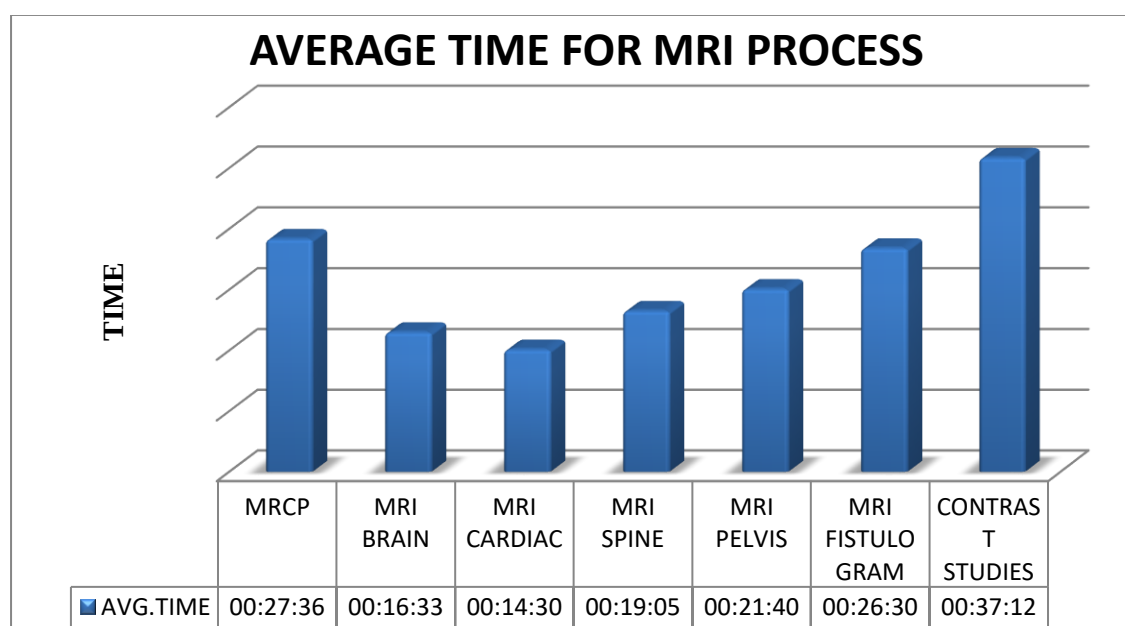


Fig 3 .Pie chart depicting waiting time for reports of CT-SCAN procedure

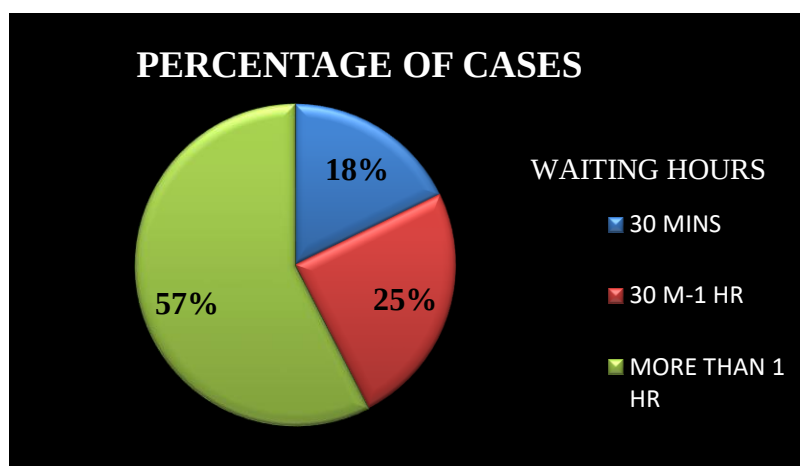
RESULT: 58 % cases receive report within 4 hr of scan completion as according to TAT whereas about 42% cases receive late report.

❖ MRI – DATA

1. TIME FOR THE PROCESS TO BE DONE i.e. time when the patient enters for scan and came out of the scan room, depending upon type of process.



2. WAITING HOURS FOR THE PROCESS i.e. time when the patient arrives to the department to the time he/she enters the scan room.

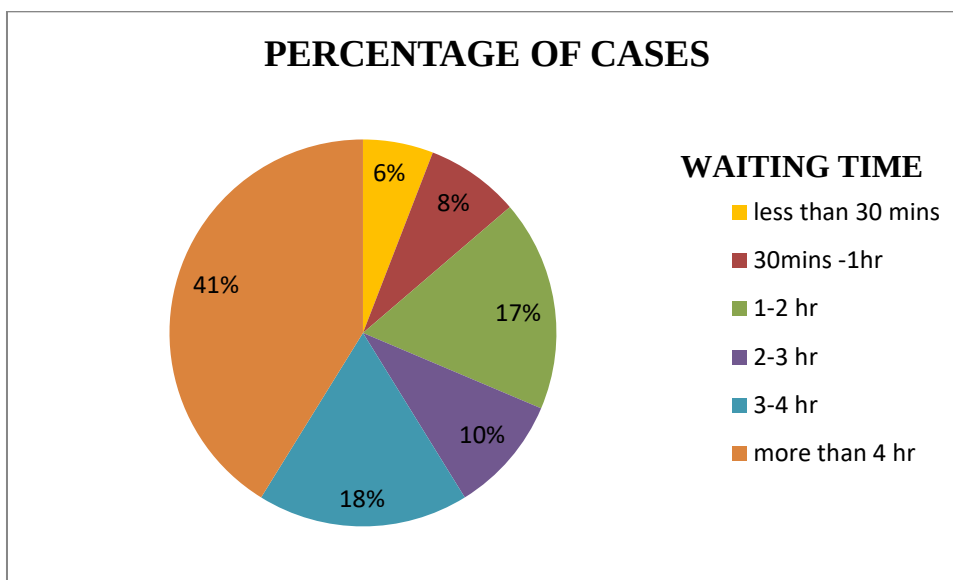


WAITING HOURS FOR PROCESS	PERCENTAGE OF PATIENTS
30 MINS	18
30 M-1 HR	25
MORE THAN 1 HR	57

RESULTS:

- According to TAT average waiting hour for the process is 1 hr. However it is seen that about 57% cases have to wait for more than 1 hr for the process.
- Reasons are:
 - Longer unscheduled studies
 - Patients need to wait for reports of other investigations.
 - Adjustment of delayed appointments
 - IPD & Emergency patients adjusted in between OPD schedule.

3. WAITING FROM SCAN COMPLETION TO FINAL REPORT i.e. time when the patient gets the scan done to the time the result is validated.



RESULT: 41% of the total reports are delayed i.e. are not within the standard time limits.

FINDINGS

- Communication gap between Reception staff & staff inside CT & MRI room.
- No crosscheck of appointments. Even if the appointments are late they are adjusted in between OPD patients which disturb the whole schedule.
- Patients need to have other investigations done.
- Only one common changing room which is common for all radiological procedures.
- Common counter for registration, billing and report dispatch of radiology department which cause hustle in the area.
- IPD/ emergency patients need to be adjusted in between OPD patients which increase waiting for OPD patients.
- Only 1 CT & MRI machine while number of patients advised for scan are more.
- In some case, patient factors such as claustrophobia, movement by the patient during scan increase the time of scan and thus increase waiting time for rest of the patients.

RECOMMENDATIONS

IMMEDIATE:

- ✓ In cases if possible, email the reports to patient or doctor to reduce the waiting time for report collection.
- ✓ On observation, system on the counter was not working. Making it work can make it easy to get the reports printed from there only in case results are validated.
- ✓ Slots of patient's process wise i.e. lengthy patients either early in morning or late evening.
- ✓ In case of IPD/emergency patients, they should be called only when the scan room is about to get free. Calling them before time not only make patient to suffer but also create hustle in the corridor.
- ✓ Report system can be changed to common format, with space for special findings of the scanned area.
- ✓ While giving Appointment it should be informed to the patient that in case of delay, they should inform prior to coming whether they will be adjusted or not.
- ✓ On observation, Saturday is less busy day. So appointments can be adjusted according to that.

IN FUTURE:

- ✓ Communication: When patient arrives for the process it is necessary that he should be well informed about the process. This can make the process easier for the patient and will also reduce the rush.
- ✓ A separate counter can be there for report collection in front of reporting room so that patients asking for report can be guided better.
- ✓ In future, waiting area of CT/MRI can be extended to accommodate the patient demand.
- ✓ In case of MRI, if possible department can be made 24 hrs open with night shift which can take the load of IPD/ Emergency patients so that they need not have to be adjusted in busy hours.
- ✓ At last if feasible, new MRI machine can be installed according to increasing demand of MRI.

ANNEXURE:

Annexure 1.

DEPARTMENT	AVERAGE LEAD TIME
IP PHARMACY	5.15
OP PHARMACY	4.76
MEDICAL CONSUMABLES	7.7
ENGENNERING	8.2
HOUSE KEEPING	12.8
BIO-MEDICAL	12.9
STATIONARY	10.9
GENERAL STORE	15

Annexure 2.

QUESTIONNAIRE TO STUDY THE FACTORS AFFECTING LEAD TIME IN FORTIS HEALTHCARE LTD. MOHALI

Please fill this Questionnaire. Your identity and responses will be kept confidential. The data will only be used for my MBA Project and the information given by you, will not be revealed anywhere.

Name of the respondent.....

Name of the department.....

Designation of the respondent.....

1. Do you have a supply chain/procurement department?

a. Yes ☐ b. No ☐

2. Is your procurement department

- a. CENTRALIZED ☐ b. DECENTRALIZED ☐
c. PARTIALLY CENTRALIZED AND PARTIALLY DECENTRALIZED ☐

d. DON'T KNOW

☐

3. What is the average lead time in your department.....

4. Kindly indicate the extent to which you agree with the following statements on the impact of logistics management on lead time. Use the following scale:

1= strongly agree; 2= Agree; 3=Not sure; 4= Disagree; 5=strongly disagree

Sr. No.	FACTORS	1	2	3	4	5
a.	Poor communication leads to high lead time					
b.	Inefficient scheduling of products/ supplies lead to high lead time					
c.	Distance of the vendor lead to high lead time					
d.	Poor sorting/ misclassification of products lead to high lead time					
e.	Poor shipping / transportation leads to high lead time					
f.	Payment issues leads to high lead time					
g.	Incompetent staff lead to high lead time					
h.	Lack of coordination between stores and purchase department leads to high lead time					

5. Kindly indicate the extent to which the following factors influence lead time in your hospital, clinic, health centre etc. Use the following scale:

1= Very small extent; 2 =small extent; 3 = Moderate extent; 4= large extent; 5= Very large extent

Sr. No.	FACTORS	1	2	3	4	5
a.	Location of vendor					
b.	Quantity of product					
c.	Transportation networks					
d.	Order packaging challenges					
e.	Equipment failure that affect operations					
f.	Demand variability					
g.	Failure of information in orders processes due to computer hardware/software/virus					
h.	Poor order listing/ sorting					
i.	Bureaucracy(approval from different departments)					
j.	Utilization rate					

.....*Thank you for your valuable time.*.....

Annexure 3.[illegible]

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