

**Summer Training at
P.D. Hinduja National Hospital
&
Medical Research Centre
(April 1–May 31, 2014)**

**Study on Turnaround Time of Intensive Care Unit Beds and Reasons for
Delay in Transfer between the Intensive Care Unit and the Medical Floors**

**By
Manisha Maheshwari**

**Under the guidance of
Dr. S.D. Gupta**

**MBA- Hospital & Health Management (MBA-HM)
2013-2015**



**The IIHMR University, Jaipur
2014**

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CERTIFICATE

This is to certify that Dr. Manisha Maheshwari has undergone her summer training in P.D. Hinduja National Hospital and Medical Research Centre , Mumbai from 1st April, 2014 to 20th May, 2014. The candidate herself carried out all the studies related to her summer training. Her approach to the study has been scientific and analytical. This summer training is partial fulfilment of course requirement is recommended for the award of post graduate diploma in hospital management.

I wish her success in all her future endeavours.



Dr. Ashok Kaushik

Dean (Academic & Student
Affairs)

IIHMR Jaipur



Dr. S. D Gupta

Director

IIHMR Jaipur

**P. D. HINDUJA NATIONAL HOSPITAL
& MEDICAL RESEARCH CENTRE**

(Established and managed by the National Health & Education Society)

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June 2, 2014

TO WHOMSOEVER IT MAY CONCERN

This is to certify that Dr. Manisha Maheshwari , a student of Masters in Health & Hospital Administration , from Institute of Health Management and Research (IHMR), Jaipur did her project in our Hospital from 1st April, 2014 to 21st May, 2014. During this period her assignment was on the different departmental study as well as

- A study on Turnaround time Of Intensive Care Unit beds & Reasons For Delay In Transfer Between The Intensive Care Unit & The Medical Floors

I wish her all the success in future endeavors.

Joy Chakraborty
Chief Operating Officer

ACKNOWLEDGEMENT

The Project training at P.D. Hinduja Hospital and Research Centre, Mumbai, helped to provide me a both learning experience as well as a glimpse into the daily managerial level issues of this renowned hospital. I was fortunate enough to interact with the esteemed authorities and staff of the hospital, who have encouraged and guided me with their support and patience.

First of all, I would like to thank Mr. Joy Chakroborty **CEO** for providing me an opportunity to carry out my internship at **P.D. Hinduja Hospital, Mumbai**

I want to express my gratitude and sincere thanks to my mentor Dr. Preeti Goraksha, Senior Manager Clinical Services Unit, for her constant support and invaluable time-to- guidance and kind help in completion of this project.

I also want to extend my thanks to **Dr. S.D. Gupta**, Director-IIHMR for incorporating right attitude towards learning and **Col. (Dr.) Ashok Kaushik**, Dean-Academic and Students Affairs, IIHMR, for helping and supporting me to reach my goals and endeavours.

Finally I acknowledge my indebtedness to the staff of the Hospital and our respected teachers of IIHMR for providing their constant support by guiding me throughout my internship tenure.

MANISHA MAHESHWARI

May 2014

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P.D. HINDUJA NATIONAL HOSPITAL AND MRC

Introduction

The late Sh. Paramanand Deepchand Hinduja had in 1951 established a charitable hospital under auspices of “The National Health and Education Society”. Later the Hinduja foundation under the patronage of Sh. S.P. Hinduja, launched an U.S. \$30 million (about Rs 35 crore) project to develop this into a modern, technologically advanced Tertiary Care Hospital Medical Research complex. The Hospital project with 342 beds inclusive of 53 critical care beds was dedicated to the memory of late Sh. P.D. Hinduja and opened in August 1986. Today it is one of South Asia’s most modern centers for health care. It has a unique collaborations program with Massachusetts General Hospital, Boston and the Washington Hospital Centre, Washington D.C., U.S.A.

History

Behind the ultra modern and internationally acclaimed in extending world class medical services which are offered at P.D. Hinduja National Hospital & Medical Research Centre, lies a 50 years old dream.

A mission to assimilate the finest in medical and surgical talent and technique, to bring them closer to the common man, it was nurtured in the heart of great founder, **Shri Parmanand Deepchand Hinduja- a hard working philanthropist**, who laid the foundation of the National Hospital, way back in 1951. Today, the P.D. Hinduja National Hospital stands as a concrete testimony to the fulfillment of his dream.

Hinduja Hospital is an **ultramodern multi specialty tertiary care hospital with a Medical Research Centre in collaboration with Massachusetts General Hospital (MGH), Boston.**

The hospital has an inpatient capacity of 381 beds inclusive of 57 critical care beds in different specialties. As a tertiary care hospital, the services offered are comprehensive covering investigation & diagnosis to therapy, surgery & post – operative care. The inpatient services are complemented with a day centre, out-patient facilities and an exclusive centre for health check for executives.

Location

Located in Mumbai, the heart of the financial and commercial capital of India, it is landmark in itself.

Situated in Mahim, Veer Sarvakar Marg, its unique structure and immensity of size and its colour white and yellow edifice immediately distinguishes its from rest of the surrounding. The OPD block (Hinduja Clinic) and IPD (West Block) is connected through a bridge over the road. The hospital is well connected through roads, railway and air.

Philosophy

The Hospitals philosophy is ‘**To provide World Class Quality Health Care Services to all sections of the society**’ with emphasis on philanthropy. To fulfill this objective the hospital has highly qualified & dedicated medical professionals, paramedics and managerial support staff who regularly enhance their skills to the most contemporary world standards.

Mission

To create Hinduja Hospital as a world class medical institution by delivering quality medical care to all patients as well as continuing medical education to all doctors and training to nurses and by under taking basic and clinical research with a focused on the needs of the country.

Vision

Quality healthcare for all.

Quality Policy

To **our** patients **we** commit **our** best we aim to

- Assure best outcome.
- Build seem less services.
- Create values.
- Satisfied with personalized care.
- Pledge to set and practice high standards through an effectively quality management system and ensure that our services always meet the expected requirement of our clients and patients.

Quality Objectives

- To create a safer environment for the patient as well as staff by reducing the errors.
- Involvement of staff in the quality improvement to take the working to higher level continuously.
- Continual improvement in every area of the hospital services.

Achievements

- Hinduja hospital was the first disciplinary tertiary care hospital to have been awarded the **prestigious ISO 9002 certification** from **KEMA of Netherlands** for quality management system.
- Hinduja hospital was recently awarded the prestigious '**Golden Peacock Global Award for Philanthropy in Emerging Economics 2006.**'
- The First Hospital Laboratory in India to be **accredited by the College of American Pathologists.**
- P.D. Hinduja Hospital is the second hospital in the city to receive the **NABH accreditation**, on July 1,2009.
- Hinduja Hospital was recently awarded the **IMC Ramakrishna Bajaj Award** for Quality.

Medical Expertise

With over **86 hospital based consultants**; which is a unique feature of the hospital, there is always an experienced specialist available to initiate treatment without delay. The various specialties covered are Cardiology, Cardiothoracic Surgery, Neurology, Neurosurgery, Orthopedics, Oncology, Ophthalmology, Rheumatology, Endocrinology, ENT, Gastroenterology, Pediatrics, Pediatric Surgery, Pediatric Neurology, Urology, Nephrology, Dermatology, Dentistry, Plastic Surgery, Gynecology, Pulmonology, Psychiatry, General Medicine & General Surgery.

Technology Upgrade

1. Gamma Knife- gold standard in Radio surgery, a non invasive neurosurgical tool.
2. **Twin speed MRI**, a revolutionary technology in neurovascular and cardiology imaging.
3. **Bactec NR 730 analyzer** for micro culture.
4. **Gamma Camera / PET scan** which redefines the treatment in cancer management , orthopedics, neurology and cardiology.
5. Digital Linear Accelerator Clinac 2300 C/D with MLC & micro MLC with portal vision along with CT stimulator, dedicated 3D computerized planning system for achieving a high tumor dose and increased cure rate and a low normal tissue dose to reduce toxicity.
6. Vacutainer system for blood collection.
7. Holmium Laser, thus replacing surgeon scalpel.
8. Synchrom CX-7 fully automated for pick-up, delivery and analysis of the sample and reagent.
9. Computerized Humphrey's perimeter for early diagnosis of glaucoma.
10. Digital Subtraction Angiography for cerebral angiography, peripheral and renal angioplasty, biliary drainage and nephrectomy.
11. Viewing wand navigation system to conduct minimal invasive neurosurgery procedures.
12. **GE Volume Light Speed CT**, which captures images of the heart in just 5 heartbeats at the speed of light.
13. **GE INNOVA 2000 CATH LAB** machine for better visibility of blood vessels.
14. The **Radial Lounge, First of its kind in India**, is a unique concept for carrying out Coronary Angiographies and Angioplasties procedure. In support of the Nephrology services at the hospital.

Human Touch

1. Hospital provides charity to 20% of patients , spending approx 80 million for this purpose every year.
2. It ensures equal care and service to the charity and paying patients without discrimination in its OPD and Wards.

Milestones Achieved By Hinduja Hospital

The Firsts to Hinduja Hospital Credits to:

- One of the first hospitals in India to perform laparoscopic gall bladder surgery.
- One of the few hospitals in India to perform Cochlear Implantation.
- The first hospital in India to start a Pain Management Clinic.
- For the first time in India awake craniotomy for an epilepsy surgery was performed at the hospital.
- It offers the facility for Therapeutic drug monitoring for the highest number of drugs in the India.
- Started the first screening center for breast cancer in Mumbai.
- The first private hospital in Mumbai to perform cadaver kidney transplant & peripheral blood stem cell transplant.
- The first one in Mumbai to introduce high resolution scanning (HRCT) of the lungs.
- The first few in Mumbai to install Digital Video EEG which is capable of recording the electrical events of the brain.
- The first hospital in Mumbai to start Home Care, which is a service of nursing care at your doorstep.
- The first in India to set up Vulvar Clinic.
- The first hospital in Mumbai to start a Sleep Laboratory.

Basic Facts about P.D. Hinduja Hospital

- Bed strength = 402 beds inclusive of 52 critical care
- Bed occupancy rate = 100%
- ALOS = 5.1 days
- Mortality Rate = 35 death per month
- Patient to Nurse Ratio = 6:1
- Number of Discharges/month = 2000
- Number of OPD patient/day = 900-1000
- Number of Emergency case = 45-50 / day
- Building of Hinduja Hospital = 3

Hinduja Clinic (OPD) = 4 floors (3+1 floor)

West Block (IPD Block) = 16 floors

Lalita Girdhar Block = 8 floors

CLINICAL SERVICES

ADMISSION & BILLING DEPARTMENT

Introduction:

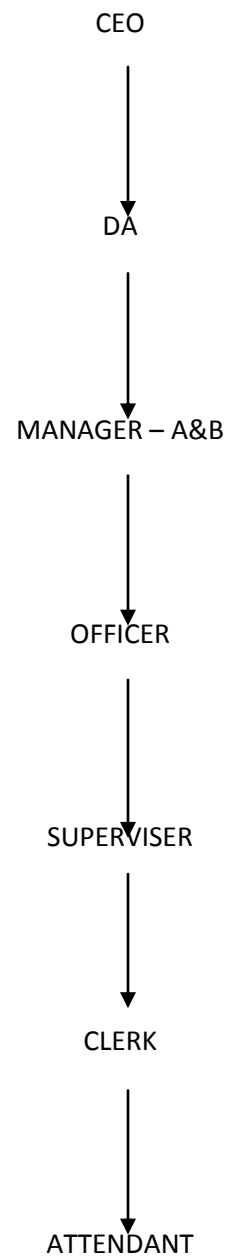
Admission & Billing Department in its endeavor ensures:

1. To provide excellent quality health care to all sections of society.
2. To provide a friendly, compassionate, humanely & satisfactory atmosphere during the stay of the patient at the hospital.
3. To create an environment of high quality patient care, treatment & management delivered effectively & efficiently starting from admission to discharge.

Following are the services offered----

1. Registration of the new patient
2. Booking/Reservation –Bed & Operation theatre
3. Admission
4. Billing
5. Discharge
6. Corporate/ T.P.A. Help Desk
7. T.P.A. Deficiency
8. Outstanding Counseling & Recovery
9. Lobby Reception
10. Accident & Emergency Counter

Organogram:



REGISTRATION

Patients want to avail in-patient service requiring registration.



Patient fills the registration form (available at Lobby reception and accident and emergency counter)



Hand over registration form to any of the above counters.

-HH No. Issued
-HH Card Issued
-Registration folder is issued to relative and later on sent to MRD.

Service vouchers generated (ODE)

OUTPATIENT DEPARTMENT

Patients who in the considered view of a competent medical professional, do not immediately require Hospital admission and who can be satisfactorily treated on a domiciliary basis are classified as Ambulatory Patients, and are commonly referred to as outpatients. Hence the department of ambulatory care is also known as Outpatient Department.

The Hinduja Clinic aims to provide:

High quality of ambulatory care services to the community in a secured environment.

Ensuring safe, Appropriate interventions, treatment and care which are delivered humanely and efficiently.

Location and Layout

FLOORS	WING 1	WING 2	WING 3	WING 4
Ground Floor	Medical/Surgical/Oncology	Radiation Oncology	AKD Department	Gamma Knife, Medical Reports Delivery Counter and OPD Path Lab
First Floor	Consultants	General Radiology and Ophthalmic	ENT and Medical Records	Consultants
Second Floor	Consultants, Neurology Department	Consultants	Consultants, CDC and Physiotherapy	Dental and Consultants
Third Floor	Blood Donor Room, Blood bank and Stat. Lab	Endoscopy, Bronchoscopy, Urodynamic	Cardiac, PFT Lab, Consultants	Executive Health Check up

Sections and Timings of OPD

HInduja is divided into:

- a) Hinduja Clinic: where patients have to pay for the services rendered

(Timings: 8.00 hrs to 20:00 hrs-from Monday to Friday)

(Timings: 8.00hrs to 18.00 hrs-Saturdays)

- b) Free OPD :** where patients get free consultation

(Timings: as per consultant's schedule)

- c) Report Delivery

(Timings: 8:00 hrs to 20.00 hrs- Monday to Friday)

(Timings: 8:00 hrs to 18.00 hrs-Saturdays)

OPD ORGANOGRAM

DIRECTOR ADMINISTRATION

MANAGER NURSING

SENIOR MANAGER OPD

MANAGER HEALTH CHECKUP

SENIOR HEALTH CHECKUP

EXECUTIVE OPD

TYPING STAFF

NURSING DIRECTOR

SPL DEPT

OPD HEAD NURSE

SENIOR SUPERVISOR

Paramedical

OPD

FRONT OFFICE STAFF

OPD ATTENDANTS

Staff
Nurse

Nursing Attendants

Following Services are provided in the OPD:

- Medical/Surgical/Oncology
- Healthcheckup Packages
- Laboratory Investigations
- Imaging Services
- Cardiology Investigations
- Neurology Investigations
- Pulmonary Investigations
- Pain Management
- AKD (Artificial Kidney Department)
- Gamma Knife
- Endoscopy
- Bronchoscopy
- Urodynamic Study
- Physiotherapy
- CDC
- ENT
- Ophthalmology
- Dental Procedures
- Radiation Oncology

ACCESS TO OPD SERVICES:

HINDUJA HOSPITAL CARD (HH NUMBER)

All patients who visit the Hinduja Clinic or Free OPD for the first time for consultation/other services are issued a card. This card is known as the HH Card and is attached to the registration form and is issued to the patient at the time of registration. The HH number is present on the card.

The HH number and card being important as with the help of it, Medical Record folders can be accessed. Patients are advised to always carry their HH card number whenever they are visiting the OPD for follow up visits or when admitted as inpatient.

PATIENT CARD-STAFF

All time full employees of the hospital and their dependent family members are entitled to free treatment, as one of the staff welfare measures. For this purpose the employees are issued a patient card-STAFF.

EXTERNAL PATIENT TOKEN NUMBER

Outpatients visiting OPD for the first time, as referrals from external sources, and requiring only investigations, are not issued a HH card. The system generates an EX no. for that particular transaction only.

OPD APPOINTMENT

Appointments can be fixed over the telephone to the HTMT Call centre (facility for patient appointments have been outsourced) or personally across the Reception counter. Fax and e-mail facilities are also available.

NON APPOINTMENT PATIENTS

In the normal course, consultants in the Hinduja Clinic see the patients only by prior appointment. However exceptions are made to this system in the interest of the patients, or Non Appointment or Walk in patients are given appointment if a time slot is available. Patients, who have come as Non appointments are normally seen by the consultants after all the other waiting patients with prior patients, are seen (except in emergency cases).

HEALTH CHECKUP

The Executive Health Checkup department ,a part of OPD services is a wing of this Multispeciality Hospital dedicated to the diagnostic and preventive side of patient care. The executive Health Checkup department is a place where healthy patient come in for prognosis of disease or to know about the preventive and curative aspect of Conditions they may already have.

This system facilitates the patient to get all the required investigations/consultations done without having to pay for either consultation and/or for each individual item of Pathological or Imaging Investigations.

It is a centre point where the potential customers come directly in contact with the hospital services. This department therefore can be a point to draw in patients to become in-patients or for them to come even for follow-up OPD consulatations.

The health checkup consists of 7 employees.

The packages in this Health check programme have been developed by a team of highly qualified and experienced medical personnel and are designed to offer a complete medical check-up and within their limitations detect any latent health problems. In addition, these packages are offered at special discount rates that make them truly worthwhile. At the end of the day, candidates leave the hospital with all their reports. The customers of this department are called Executives. On an average the inflow of customers is 25-30/day however on weekends the number rises to 45.

The departments with which the Health Checkup team works in Co-ordination are:

Pathology,Cardiology,ENT,Dental and Radiology

The visiting consultants are from the following facilities: Physicians,Surgeons and Gynaecologists.

The range of packages provided are:

1. Premium Package
2. Special Package
3. Special Ultra Package
4. Comprehensive Package
5. Comprehensive Plus Package
6. Basic Package
7. Well women Pearl package
8. Well women Ruby package
9. Care Plus Package

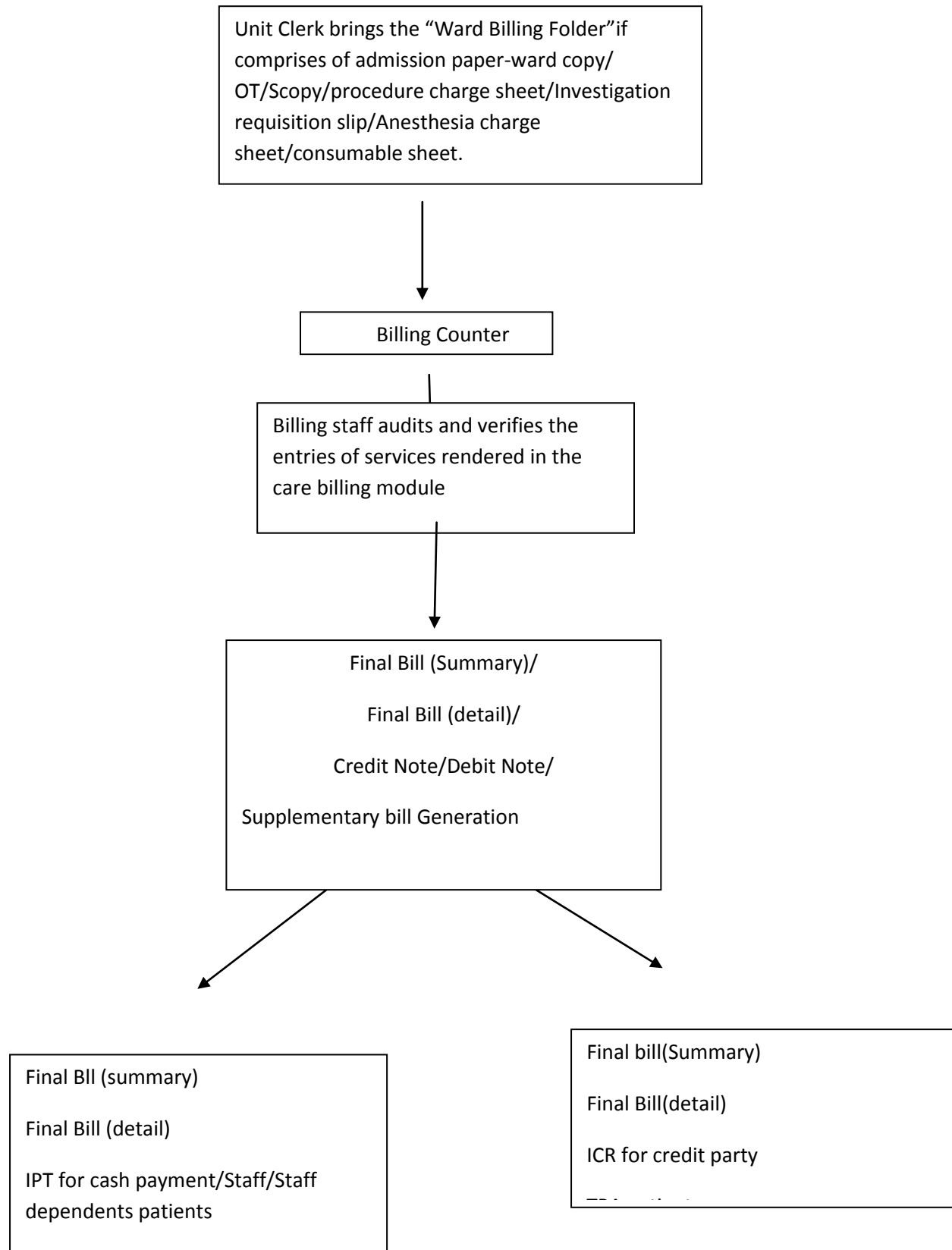
IN-PATIENT DEPARTMENT

The IPD Building is a 16 floors building.

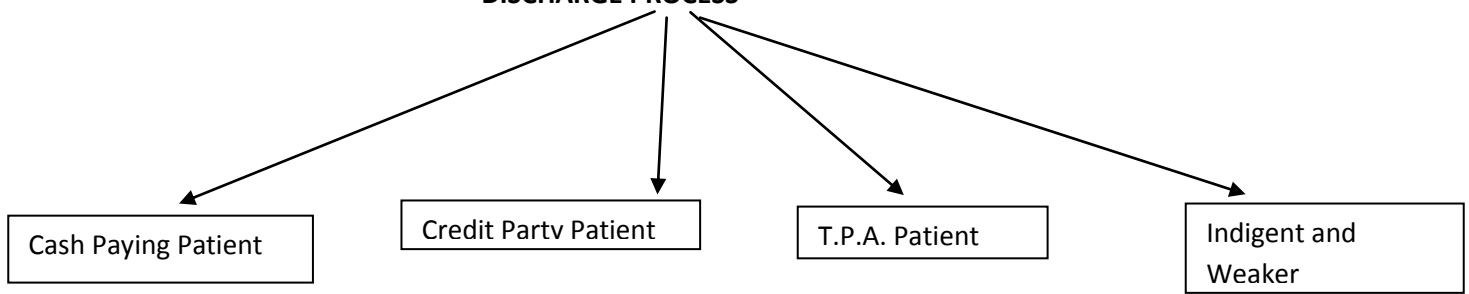
- First Floor-admission and billing Department, Accident and Emergency, MRI ,Customer Care
- Second Floor- Cath Lab, I.C.U.(Non-ventilated)
- Third Floor-Operation Theatres(9)
- Fourth Floor-Short Stay services, Stop Over Unit,2 Operation Theatres(for minor surgeries)
- Fifth Floor-CSSD, Medical Stores, Pharmacy
- Sixth Floor-Food Services Department, Provision Stores, Cafeteria
- Seventh Floor-Special and Deluxe Rooms ,PICU(6 beds) and NICU (3 beds)
- Eighth and Ninth Floor-General Wards-median, median-A and Median-B (42 beds each)
- Tenth Floor-Intensive Care unit: ICCU (12 beds) and critical Patients (11 beds)
- Eleventh Floor-Deluxe and Suites(8 beds)-earlier there were 30 general beds
- Twelfth and thirteenth floor-Median-A and Special (26 beds each)
- Fourteenth Floor-(28 beds) Specially for Day care and Kidney transplant patients
- Fifteenth Floor-Suites (2) and Deluxe(12)
- Sixteenth Floor-24 beds for median, Median-a, Special and 9 beds for oncology patients.

FINAL BILL

GENERATION



DISCHARGE PROCESS



SHORT STAY SERVICE UNIT (SSSU)-4th Floor, West Block

STAGE-I Patient Selection

The patient concerned will be seen by the consultant on an OPD basis. For a new patient, there would be necessarily Registration followed by vouchering.

In the event that the patient meets the selection criteria for Short Stay surgery, the patient has to proceed with Pre admission procedures.

STAGE-II Pre-Admission Procedure

The patient would proceed to do OT/Bed Booking in SSSU Completion of relevant Lab investigations.

STAGE-III Pre Operative Stage

Based on the consultant's decision for Preoperative anesthetists work up,fitness for surgery would be given by the anesthetists.

Patient would follow up with concerned surgeon with lab reports/relevant investigation reports/fitness certificate.

In the event that the patient is fit to operate,the consultant can choose to give Consent for the same at this stage.

STAGE-IV Pre-Admission

Patients will be asked to report at the Reception desk in Casualty area 1 hr prior to schedule timing.A designated CCC will then escort the patient to the SSSU billing area.

STAGE-V Admission

Following biling formalities, the patient will be taken to the SSSU. The nursing staff will inform the OT desk/concerned Consultant/Registrar about the arrival of the patient.

The SSSU staff nurse will coordinate transport of the patient to the OT at the scheduled time.

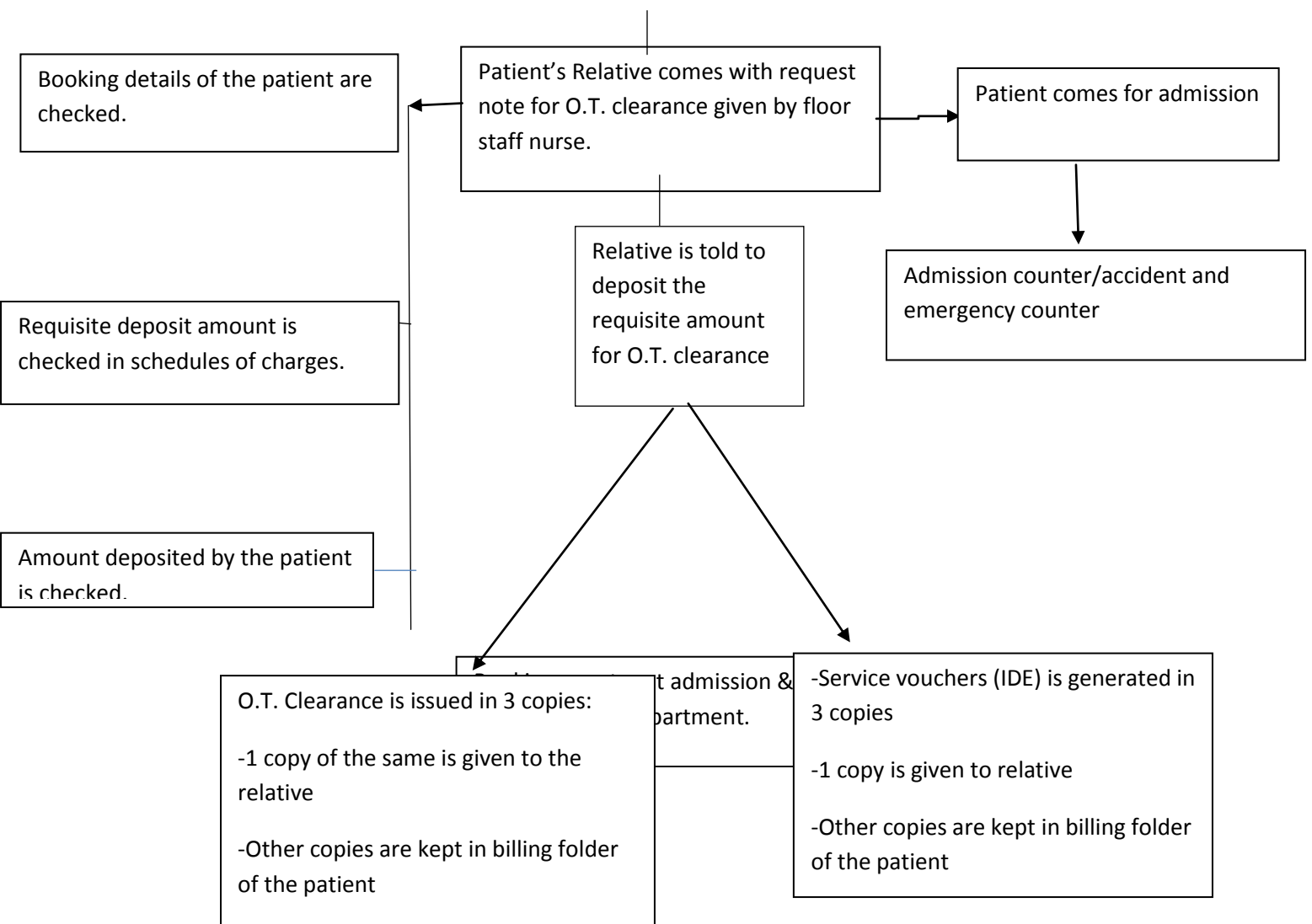
Following surgery the recovery area staff nurse will keep the SSSU staff nurse informed about the patient's status. After the patient has been shifted to the recovery area, concerned surgeon would need to visit and complete the discharge formalities including preparation of discharge.

Admitting Consultant/nominated medical officer will examine the patient and will give the order to physically discharge the patient. The SSSU nursing staff would discharge the patient ,based ONLY on written order from the concerned authority.

STAGE-VI Discharge

Following recovery in SSSU and discharge ,the patient will be shifted in wheel chair/stretchers; herein the patient will be accompanied by the CCC till Casualty exit. The CCC will also enquire on the necessity of clinical care for the patient, and if so,details of “Care @ Home” will be given.

OT CLEARANCE SLIP ISSUANCE



ACCIDENT & EMERGENCY

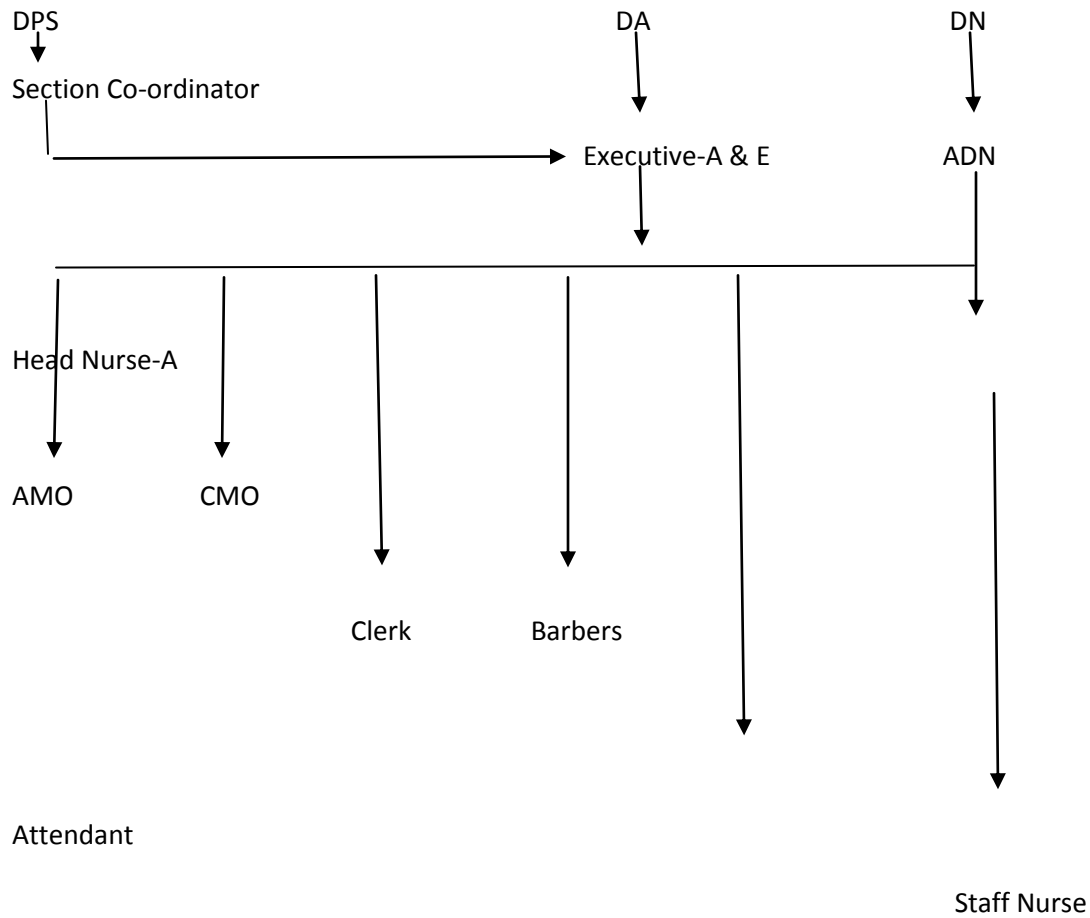
Introduction

- The A & E Department is the face of any hospital, which works around the clock through the year.
- Department is manned by highly trained medical & paramedical staff & it serves all the immediate emergency medical interventions.
- It can be divided into the following areas-Accident and Emergency, Casualty Centre and Minor OT.
- 4 bedded Accident & Emergency department along with 2 casualty centre beds is an ultra modern facility well-equipped with sophisticated & advanced equipment specialized & skilled doctors and nurses is highlight of the department.

Scope of Services

- The department is responsible for treatment of emergency cases.
- The department is responsible for informing the police in cases of traumas, poisoning, suicide, homicide, rape, assault etc.
- Notification of all notifiable diseases to BMC.
- A & E is also a centre for all immunizations for staff as well as patients. The needle stick injury protocol for all staff is also carried out here.
- A & E is a very important constituent of the disaster management team-internal as well as external.
- Transfer of patients.
- First aid camps/teams
- Responsible to arrange for the ambulance services for transportation or transfer of patients. It also in arranging Hearse services.

Organogram

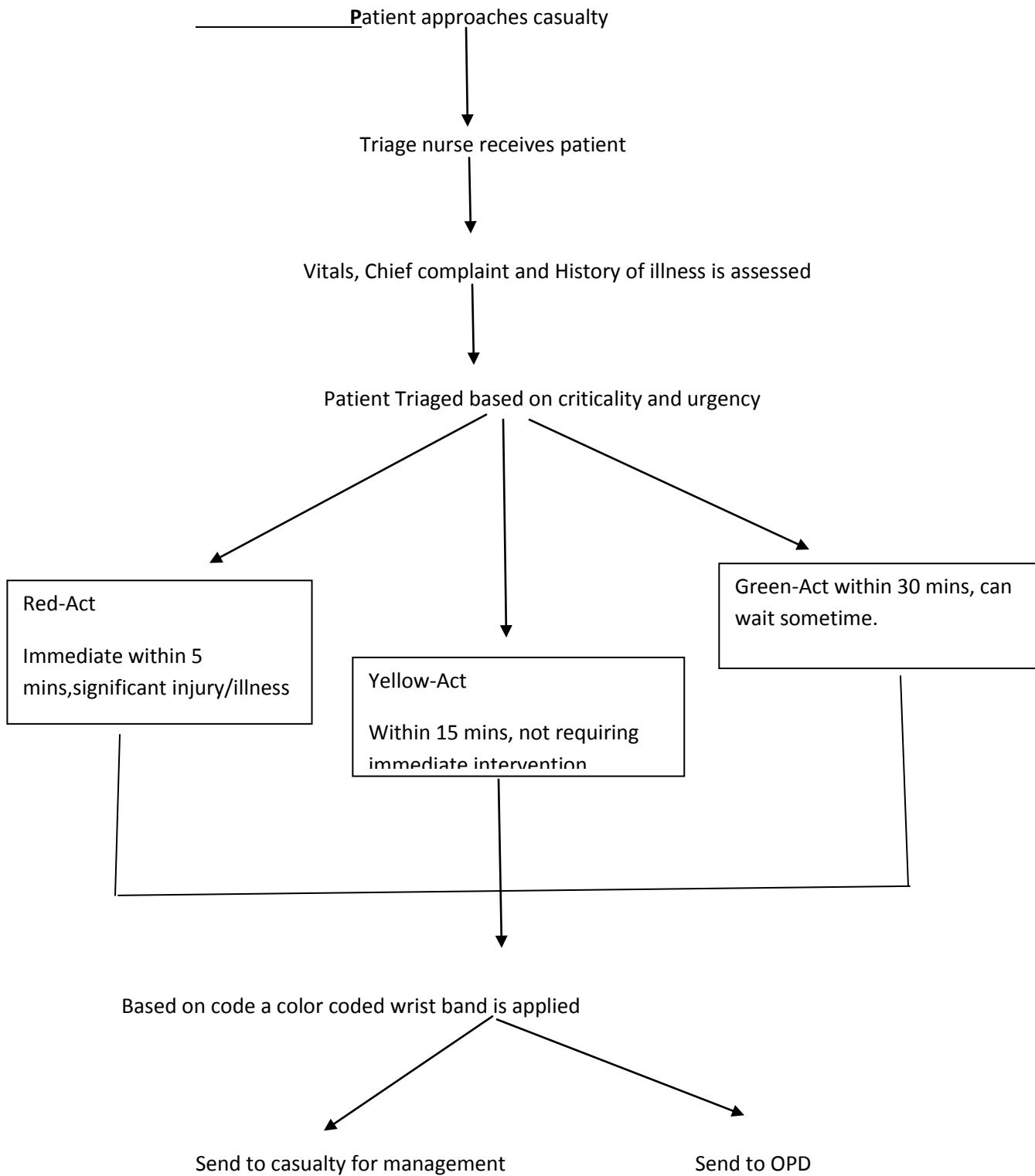


STAFFING

Categories of staff numbers:

- | | |
|-----------------------------|----|
| 1. Executive Administration | 01 |
| 2. CMO | 08 |
| 3. Nurses | 16 |
| 4. Nursing Assistant | 02 |
| 5. Clerks | 02 |
| 6. Attendants | 15 |
| 7. Barbers | 03 |

TRIAGE PROCESS FLOW



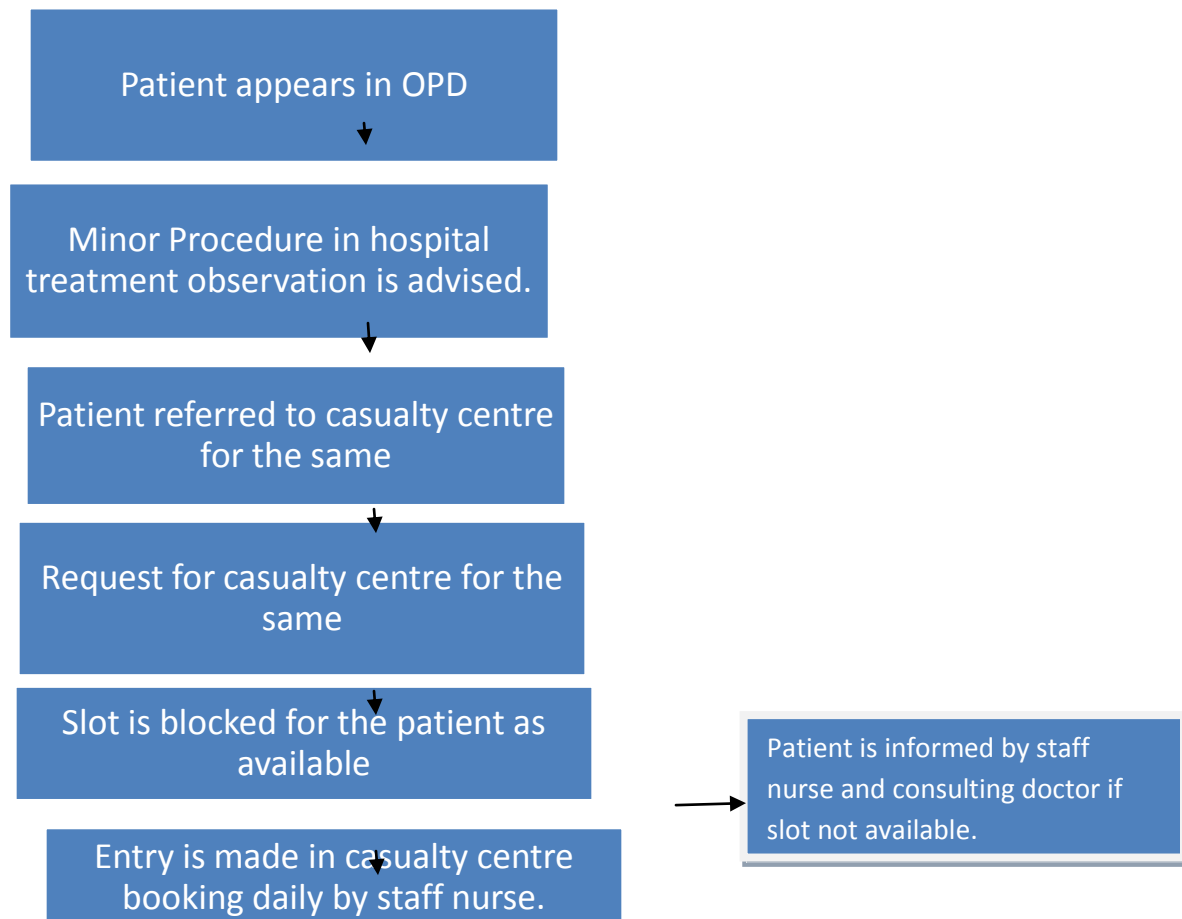
TRIAGE:

Triage is a French word meaning classify or sort. The triage desk is strategically situated in the lobby of the Accident & Emergency Department. Staff deputed at the desk is a Triage Nurse.

Purpose:

To ensure a standardized system whereby patients seeking medical care in the Accident & Emergency are seen in order of priority based on Acuity Level.

Casualty centre booking



CATH LAB

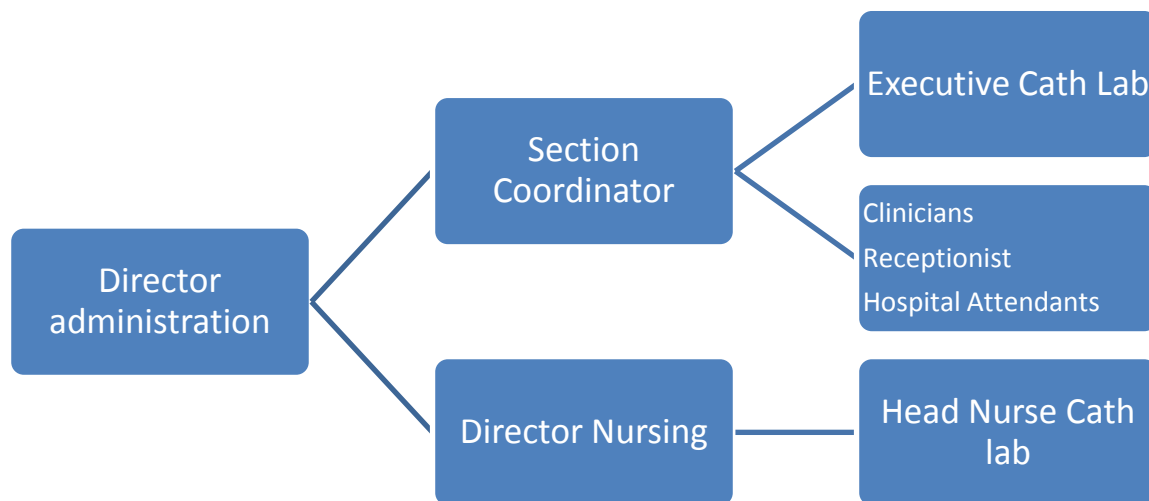
Introduction

Cath Lab is located on the second floor of IPD building. It is well equipped to perform various heart related procedures such as Angiography, Angioplasty, Pacemaker etc. Two types of packages are provided-Radial Package and Femoral Package. It has a separate admission counter,which takes admissions till 9 A.M. There are on an average 8-10 cases /day.

Scope of services

- Diagnostic Services
- Therapeutic Services

Organogram



Categories of Staff

TYPE	NO.s
Executive-cath lab	1
Technicians	4
Receptionist	2
Hospital Attendants	4
Nurse	3

Billing:

Primary Responsibility : Technician, Receptionist, Billing Clerk

- After completion of the procedure, receptionist does the entries of the services rendered for billing
- O.T. Details
- Cardiologist/Anesthesia Details-
- Consumable/equipment details
 - Categorized into : Consignment and Stock items
 - Consignment items charged after preparation of GN number and by intimating the Medical store and Material Department does entries at the billing counter.
 - Catalogue number of the items is put by the receptionist and the items are selected by the drop down menu.
 - Voucher number is generated.
- Sending of procedure Requisition Slip & Cath Lab Charge Sheet

Procedure for Admission

- Primary Responsibility: Clerk from Admission Counter, Receptionist
- Admission for IPD Patients:
 - Patient is admitted to the hospital on a written note whether from Cardiologist Admission cum O.T. booking form, which state about the demographic details of the procedure.
 - Staff at the admission counter does the admission formalities.
 - Visitor pass is issued then and Admission deposit is taken through cash/credit card/pay order/Demand draft/cheque and service is generated.
 - Then the O.T. clearance slip is issued for the procedure.
 - Admission for day care procedures i.e. Angiography Packages-Radial and Femoral
 - In the morning 7:30 am to 9:30 am all day care admission is being procedure in cath lab, afterwards same is done for Accident and Emergency.

Working

- Primary responsibility: Admission billing staff, Receptionist
- Working can be done in either of the following ways:
 - Direct call from the cardiologist/clinical associate
 - By patient's on the basis of consultants letter/admission cum O.T. booking form
 - By receptionist at Cath lab
- Reservation done by cardiologist/clinical associate-Depending on the type of procedure,cardiologist/clinical associate calls at the booking counter/accident & emergency counter at admission and billing department.
- Reservations done by patient- Depending on the type of procedure-Patient/Relative approaches booking counter /accident and emergency counter at admission and billing department.
- Reservation done by receptionist-
 - Majority of them done by this
 - Cardiologist calls the reception counter and gives the patient's HH number details,name,demographic details,date of admission,date of procedure,bed class,slot if any etc.
 - Depending on the type of procedure i.e. Day Care or Routine cares,receptionist calls the respective counter for booking all day procedures booking is being done at the accident and emergency counter/booking counter.
 - Reservation number is then generated and staff gives that number to the receptionist.

Discharge

Primary Responsibility: staff Nurse,Receptionist,Billing Clerk

Type of Procedure	Location and Discharge Process
Day Care Angiography-Radial	Accident and Emergency counter
Day Care Angiography-Femoral	Accident and Emergency Counter
Therapeutic procedures- Femoral/Angioplasty/BMV/Post plasty thrombosis/pacemaker implantation	Cashier counter of the Admission and Billing department

- After completion of discharge formalities at the respective counters, patient's relative is being given the discharge slip.
- Discharge slip is pre-printed in 4 copies-
 - White original-to be given to receptionist at cath lab or floor staff nurse
 - Pink-attached to respective billing folder of the patient
 - Blue-to be given to security while going out
 - White-is the book copy
- Document given to patient can be categorized into 3 parts:
 - Cash paying patients-Inpatient final bill-patient copy, settlement service voucher and Inpatient final bill
 - Credit party patients-Inpatient final bill (detail)
 - TPA Patients-Inpatient final bill(detail) & settlement slip of TPA security deposit
 - Procedural Chart

CLINICAL SUPPORT SERVICES

LAB MEDICINE

Hinduja Hospital's fully automated laboratory Medicine department is the First Hospital Laboratory in India to be accredited by the College of American Pathologists in the year 2006. The Laboratory has also received ISO-9002 IN 1996 for quality, Ram Krishna Bajaj Award in 2007 and NABH Accreditation in 2009.

The lab Medicine department of Hinduja Hospital covers about 13000 sq.ft. area in 2 different buildings. It includes the following-

1. Biochemistry
2. Hematology
3. Radio Immune assay
4. Microbiology
5. Serology
6. Histopathology
7. Stat Lab
8. Blood Bank
9. OPD LAB

The Lab has its own Laboratory Information system, which is called the "LABWARE" software. The work in Lab is divided into 3 phases i.e.

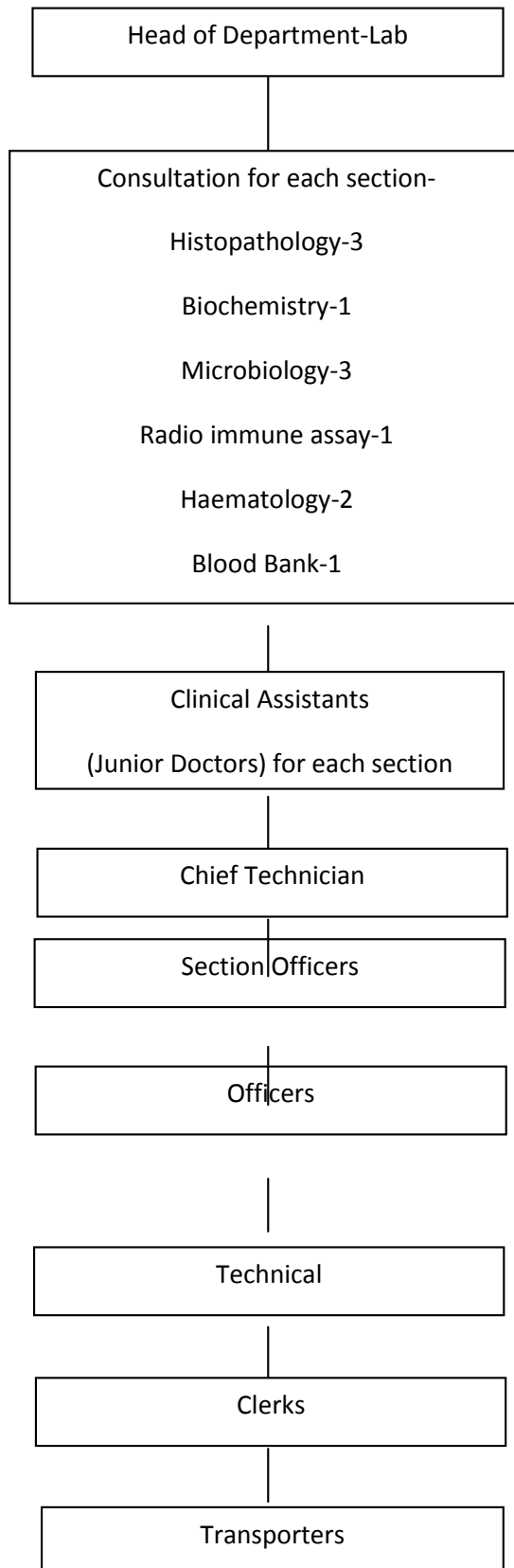
- Pre-analytical,
- Analytical
- Post analytical.

There are 2 different teams for OPD and IPD.

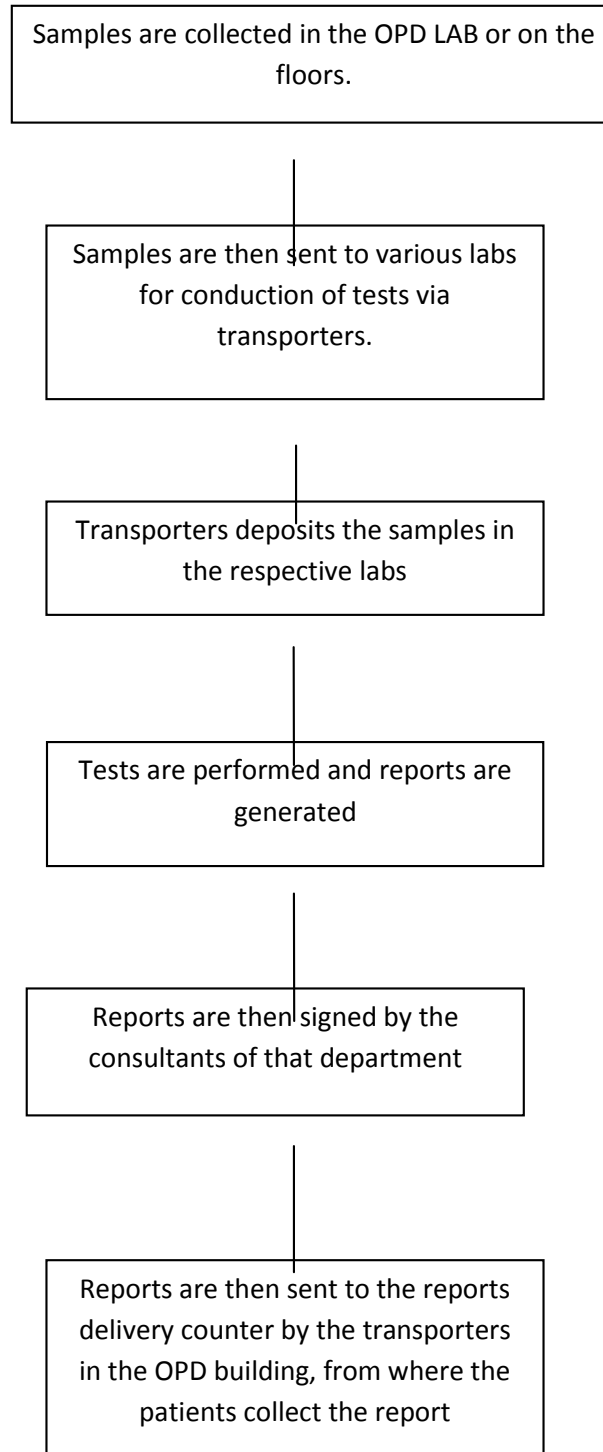
The Lab also conducts quality assurance programs-Internal and External.

- 1.** Central processing laboratory is spread over more than 10,000 sq.ft which follows a strict internal quality compliance for all analysers.
- 2.** Exhaustive menu of tests from routine to esoteric.
- 3.** Excellent Laboratory management system which handles both pre analytical and post analytical aspects.
- 4.** Dedicated courier and logistics services.
- 5.** Stringent quality control monitoring which satisfy the quality assurance elements elaborated by GLP and GCP and readily available documented evidence of quality assurance and quality control proficiency scheme.
- 6.** Constant improvisation and technological innovation using over 150 state-of-the art equipments.
- 7.** Quality control and quality assurance executive that monitors pre-analytical and post analytical processing of the samples.
- 8.** Fully automated laboratory using positives identification of bar-coded specimens.
- 9.** Trials specimen kits can also be customised if required and bidirectional interfacing.
- 10.** Customized management report (MIS-Management Information System)
- 11.** An active IRB and Ethics committee which oversees clinical trials proposal when required.

ORGANOGRAM:



PROCESS FLOW:



BIOCHEMISTRY

Biochemistry lab is at the 3rd floor in the Lalita Girdhar Building. The department has an automatic machine to carry out various tests. A machine print out is received, entered in the register and report is generated. The biochemistry department also maintains a follow up card for patients. The tests on OPD samples are conducted here, and also any special tests on OPD as well as IPD sample is also conducted here.

HEMATOLOGY

Hematology lab is on the 5th floor of Lalita Girdhar building. The department has got an automatic machine for CBC(Complete Blood Count). It has a separate coagulation room and Fluocytometry room, for carrying out various tests.

MICROBIOLOGY

The microbiology department is on 5th floor of Lalita Girdhar Building. It has got a separate mycobacterial room for tuberculosis tests, where a negative pressure is maintained. The lab has a hot room, storage area, incubators and refrigerators.

SEROLOGY

The department of serology is a part of microbiology department only. It receives the samples in test tubes and the various tests are performed. The Department consists of a Laminar air flow machines for culture preparation.

RADIO IMMUNO ASSAY

The RIA lab is on the 4th floor of Lalita Girdhar building. The various radio immune assays are carried out in the lab.

OPD LAB

It is located at the ground floor of OPD building. The lab collects samples for various tests, assign them a bar code, and send them to various labs for the tests to be conducted. All the entries are made in the LIS.

STAT LAB

Stat lab is at the 3rd floor of the old building. Here all the tests are performed for the IPD patients. It also carries out emergency tests, which require immediate reports.

BLOOD BANK

Blood bank is located on the 3rd floor of old building. It consists of a separate donor room. The donor is assigned a donor unit no. and given a donor card. It also has an apheresis room for platelet pheresis, and a storage area with refrigerators with a central monitoring system. For the IPD patients a requisition slip from the floor of the patient is received and then the patient's identification and donor's details are checked in the blood bank and on the floors. The department maintains daily records of blood donation and dispatch.

POISON & DRUG INFORMATION CENTER

P.D. Hinduja Hospital & MRC has now added a new dimension to fill up lacunae in the health scenario in Mumbai. One such endeavour is the starting of a facility, the Hinduja Hospital poison and drug information centre which is the first of its kind in the city of Mumbai. This facility is for the fraternity, hospitals and other medical centres that need information.

The center will receive queries on poison and drugs and will provide information on antidotes as well as information on various therapeutic and toxic drugs. The information on poison and drugs would include treatment, monitoring side effects, adverse drug reactions and the recommended relevant lab tests using micromedex database which is well accepted all over the world.

The poison and drug information centres will liaise with various poison centres across the world as and when required. The specific queries will be answered, once the relevant information about the patient details is made available to the pharmacists who will attend to the queries. At present, it functions from 8:00 am to 6:00pm. This centre is managed by a team of pharmacists.

SAMPLE COLLECTION DETAILS FOR VARIOUS CATEGORIES OF PATIENTS

Category of Patients	Place of sample collection	Sample collection done by
OPD Patients	Sample collection Room	Lab technician from the pathology department who is posted on duty in the sample collection room.
IPD	respective wards from where the requests for lab investigation had originated.	Lab technician incharge of sample collection
Patients referred by general practitioners & other specialists not attached to the Hospital	Sample collection Room	Lab technician from the pathology department who is posted on duty in the sample collection room.

IMAGING DEPARTMENT

The Imaging department is a diagnostic department where various investigations of the patients are done. The patient comes for the investigation and after viewing the images of the scan the radiologists report. On the basis of the reports the diagnosis is done.

In the department there are 9 sections, namely MRI, CT, General Radiology, DSA, Color Doppler, Mammography, Ultrasonography, Nuclear Medicine and BMD (Dexa Scan).

MRI is located at the ground floor and rests are on the 1st floor of the new building. There is separate x-ray for the OPD patients located in the OPD building.

There are two reception counters, one located on the 1st floor for the sections located on the 1st floor and the other on the ground floor for MRI.

Both OPD & IPD patients come for the investigations either through an appointment or as a walk-in-patients. In the department walk-in-patient means the patients without having any appointment.

Objectives of the Department

1. To do quality imaging using all necessary safety measures in radiation.
2. To perform quality reporting and interacting with clinicians on regular basis through follow ups and clinical meetings about veracity of reports.
3. Conduct teaching programmes for residents in imaging as well as for clinical branches.
4. Monitor the work for all technicians on regular basis to maintain as well as improve quality.
5. Monitor and regulate usage of different equipments in imaging department.
6. Interact with Bio-medical department on regular basis for upkeep of all equipments.

LOCATION AND LAYOUT

OPD X-ray	1st floor east block wing no.2
IPD X-ray	1st floor west block
X-ray procedures	1st floor west block
Ultrasound(USG)	1st floor west block
Color Doppler	1st floor west block
Mammography	1st floor west block
BMD	1st floor west block
CT	1st floor west block
DSA	1st floor west block
Nuclear Medicine	1st floor west block
MRI	Ground floor west block

CATEGORIES OF STAFF

TYPE	NOs
Head of Department	2
Consultants	8
Executive	1
X-ray technician	11
DSA technician	2
CT technician	6
Color Doppler/Mammography technician	2
USG technician	4
MRI technician	4
Nuclear medicine department technologist	5

Nursing staff	8
Receptionist Clerk	5
Typist Clerk	6

PROCEDURE:-

Appointment can be given on the following basis:

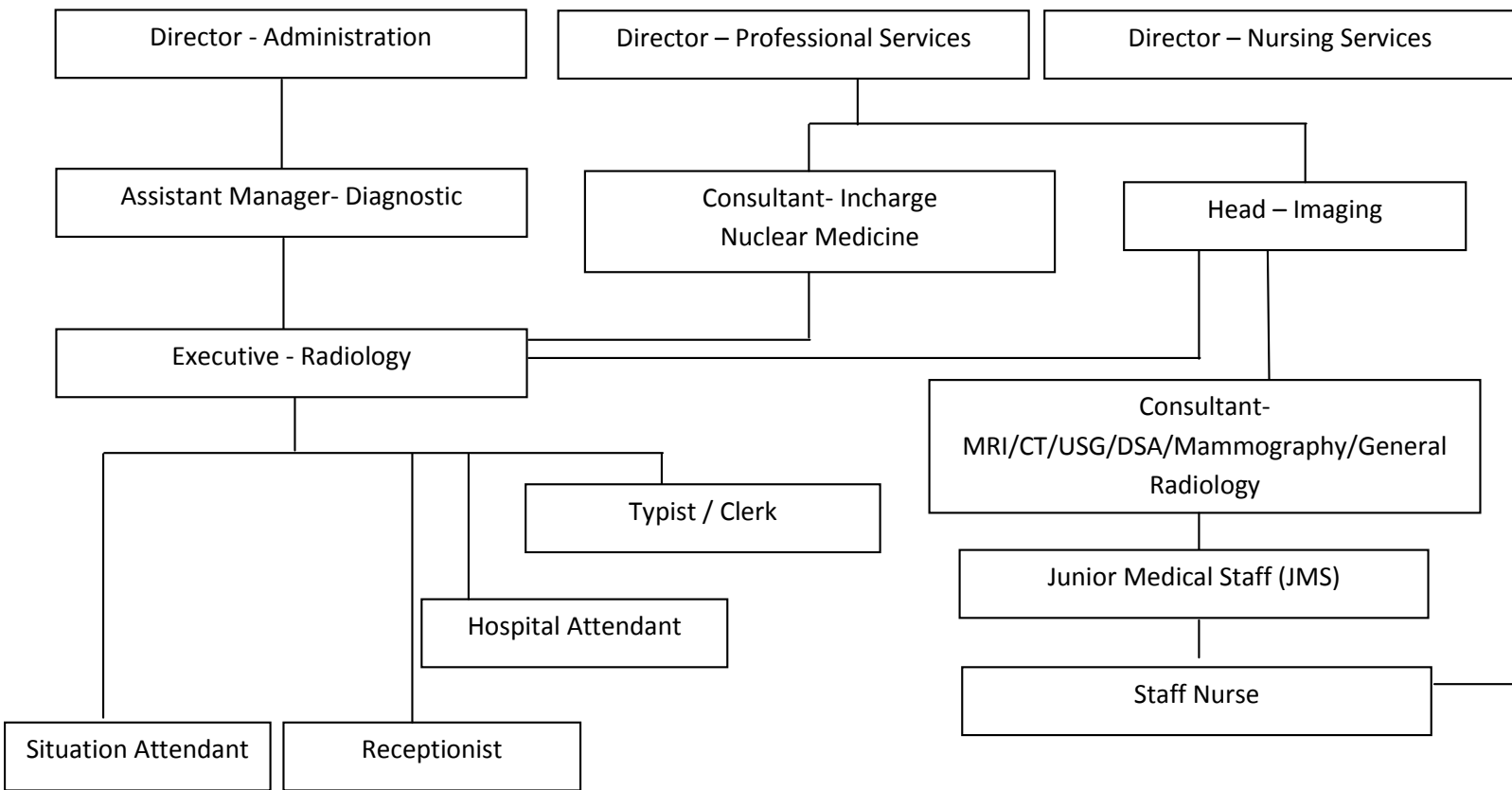
A) Telephone Appointment

Receptionist does the appointments on telephonic calls from the patient/relative/

consultant on the basis of following details:

- 1)** H.H Card NO-However appointment can also be given on the basis of executive number.
- 2)** Referral doctors name.
- 3)** Date and description of registration/procedure.
- 4)** Receptionist does the appointment on the basis of date and slot availability tells the patient about the same and gives the following instructions to the patient -
 - a)** Inform date and time of registration/procedure.
 - b)** Inform charges of investigation/procedure.
 - c)** Asks to bring consultant's letter.
- 5) Ask to bring all earlier investigation/procedure reports and films.
- 6) Instructions about the diet intake specific for the investigation/procedure.

ORGANOGRAM:



B) OPD/Walk in appointment

- 1 .Receptionist does the appointment on the basis of consultant's letter brought by patient/relative and available slot.
- 2 .Inform date and time of investigation/procedure.
- 3 .Inform charges of the investigation/procedure.
4. Ask to bring consultant's letter.
- 5.Ask to bring all earlier investigation/procedure reports and films.
- 6.Instructions about the diet intake specific for the investigation/procedure.
- 7.She gives a manual written appointment slip having details of date/time of appointment.
- 8.Appointment for nuclear medicine scan is given by receptionist from the appointment register.
- 9.For PET scan and some other deposit amount is taken at the time of giving appointment or DSA procedures. The appointment is given by DSA technician after taking patient's clinical history.

C) IN-PATIENT APPOINTMENT

APPOINTMENT FOR MRI

- 1.** Staff floor nurse sends the MRI request from two copies by attendant to the receptionist at the MRI counter for appointment for the same day or any earlier slot available.
- 2.** Receptionist enters the patients name and demography details/date and description of the procedure in the request form.
- 3.** Receptionist gives the white and blue copies of the MRI request to the technician inside the department.
- 4.** It is the responsibility of the technician to take care of the slot and calling up of the patients for the procedures.

APPOINTMENTS FOR X-RAY PROCEDURES / USG / COLOUR DOPPLER /NUCLEAR MEDICINE / MAMMOGRAPHY / CT

- 1.** Staff floor nurse does the online entries of registration for any above investigation of the system.
- 2.** In every 30 minutes receptionists check the outer floor. Wise request statement after the details in the same;she does the booking in the molecule (system).

PACS-PICTURE ARCHIVAL COMMUNICATION SYSTEM

It is an image management system. Under this system, the pictures generated in various departments of radiology are uploaded in the system, to make them available to the constant. Login and passwords are given to all the departments. The consultants can view them from any computer in the hospital using internet. These pictures are also available on internet in read only mode. This system saves time and improves efficiency.

LEGAL REQUIREMENTS AND GUIDELINES

1. All sections in the imaging department follow various legal guidelines set by government of India.(Refer to annex for the list of certificates and guidelines).

All imaging services follow regulation by the AERB and all new interaction are subject to approval by AERB before commencement of services.

2. For all radiation emitting or generating equipments in medical use, whether it is in diagnosis or treatment purpose { such as x-ray(low energy),X-ray (high energy), Brachy therapy units,CT, Fluoroscopy,Dental X-ray units,PET CT,and gamma camera etc.}, the hospital should get first authorisation from AERB to use the above units in the hospital.

3. Next, Hospital should get NOC FROM Serb for importing the units/radioactive sources from BRIT/ outside country/private-it os valid only for 1 year and for subsequent usage the hospital needs to apply for the NOC for each units.

4. Next after importing units/radioactive sources the hospital should send the form for registration units(of installation) with plan.Type approval certificate of unit,QA details,survey details to AERB/RSD.In the case of radioactive sources,the hospitals should intimate the arrival of above from(inland/outland)in a particular form,and then only the hospital can use the unit or source after confirmation.

5. In the case of radioactive sources used or decayed,hospital should get NOC fromAERB for re-export to supplier outside country(it is internationally accepted norms). This will also be valid for 1 year only.

6. The AERB conducts random checks of the department on routine basis.

CSSD

INTRODUCTION:

- The department is located on 5th floor close to the OT. The used material (linen, equipments etc) and sterilised material from and to the OT. are conveyed through two separate decided elevators.
- Department send their used articles while, from wards CSSD personnel collect and used articles every night.
- During the day the used articles from the wards are sent to CSSD by their personnel.
- The lay out of the department and flow of materials ensures that there is no possibility of mix up of unsterile material.
- The department is divided into 3 parts-dirty area, clean area, and sterile area.
- OT instruments are collected by CSSD in OT instrument wash area and are send to CSSD through unsterile dump elevator. In night, sundays and holidays the instruments are sent to CSSD through unsterile dump waiter by theatre nurse.
- Ward instruments are collected early in the morning by CSSD department like cathlab, AKD, radiology, casualty OPD send their used sets themselves.
- All sterilizers are cleaned once a week. The inside of the steriliser is cleaned every morning with a disinfectant solution.
- Micro biology department checks the air count weekly and issues a report of sterile area. In case of unsatisfactory levels, microbiology department intimates the CSSD within its report.

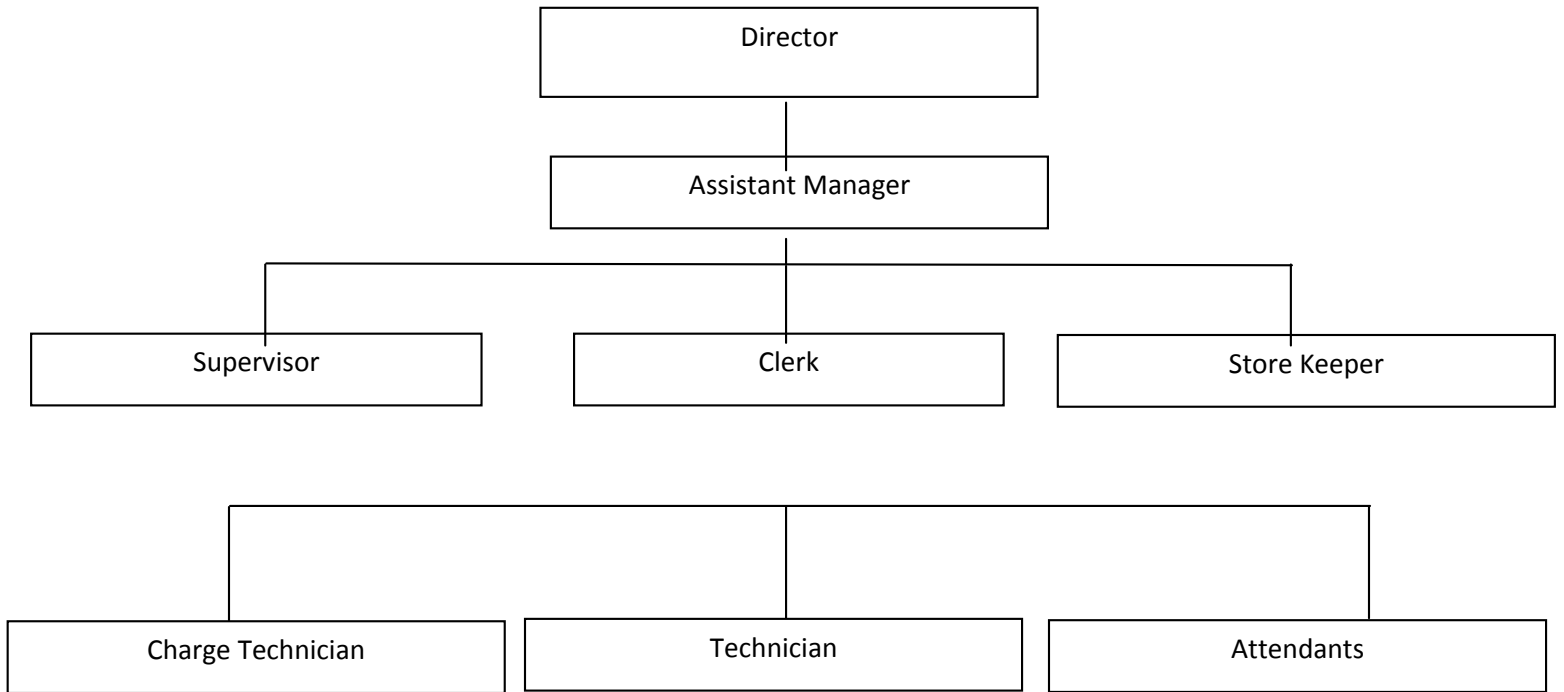
OBJECTIVES OF THE DEPARTMENT

- Central sterile supply department is responsible to sterile material for use in the OT and wards in order to control the incidences of nosocomial infections.
- The department is also responsible for maintaining sufficient stock level of all surgical instruments, drapes and other accessories required for surgical procedures in good condition.
- The following type of items are sterilised :
 1. Surgical instruments
 2. catheters (rubber)
 3. Linen
 4. Dressing materials
 5. Laparoscopic instruments
 6. PVC Tubing etc.

STAFFING PLAN:

Category	No.
Asst. Manager	1
Supervisor	1
Sr. Charge Technician	1
Charge Technician	6
Sr. Technician	10
Technician-II	5
Assistant-II	1
Store Keeper	1
Attendants	23

ORGANOGRAM



HOUSE KEEPING

INTRODUCTION:

Housekeeping services plays a vital role in the management of complex facilities in a hospital. On one hand the management of bio medical waste as per the regulation is of prime importance to comply with legal norms and on other side, handling of patients on wheel chair, beds, stretchers require an alert housekeeping staff for safe transport of patients in hospital focused to deliver safely across the hospital.

S. NO	DESIGNATION	NOs
1	Asstt Manager	1
2	Sr. Officer & Officers	3
3	Senior Supervisor & Supervisors	4
4	Team Leaders	4
5	Health care workers	309
	Total Manpower	321

RANGE OF ACTIVITIES

- Maintaining the aesthetic and cleanliness of all the hospital properties which include inpatient and outpatient areas and SI building.
- Planning and controlling all inventories to ensure clean, hygienic and safe environment.
- Systematic collection and disposal of hospital waste.
- Quality sanitary procedures in every area including the sanitary needs of the patients.
- Issuing and controlling replacement of furniture to other departments as per their requirement .
- Accurate and timely meal services for patient and their relatives.
- Safe transportation of the patients.
- Pest Control management.

TELEMEDICINE

INTRODUCTION:

Telemedicine refers to the use of various telecommunications by physicians and medical institutions that provide health care to the patients through electronic digital means, way far in the patients' homes or in other remote areas with the help of medical data transfer, still images, and live audio and video transmission. "It ensures delivery of: right medical advice at the right place on right time"

Why it is needed:

- Non availability of facilities locally
- Non availability of appropriate skills/technology locally
- Huge money wasted in travelling and searching for appropriate healthcare
- Huge population with inadequate distribution of resources
- 70% of India's population lives in rural areas whereas 73% of qualified consultants practice in urban centres.
- Vast land area with difficult/inaccessible terrain.
- Seasonal isolation of some tracts of land e.g. due to flood, snow.

Helps in:

- Remote consultation and follow up
- Second opinion
- Joint interpretation
- disease management through data mining
- Evidence based medicine
- Virtual patient visits
- Remote and mentored tele-surgery
- Medical training
- Medical tourism
- Makes expertise available-anywhere
- Early institution of appropriate treatment
- Decreases need for transfer

- effective utilisation of transport
- Saves cost to patient, provider, system

Entities involved in telemedicine:

- Telemedicine platform
- Telemedicine devices
- Clinical devices
- Communication media

Facility setup at Hinduja Hospital:

The setup comprises of an interactive video front with voice output and polycom came attached to a terminal for data transfer and net meetings, supported by ISDN and IP lines.

What do we deliver:

- Online continuous medical education for doctors of different medical specialities
- Teaching & training for students
- Expert advice in almost all medical specialities through videoconferencing
- Complete report analysis by online transfer of reports
- Post operative and follow up consultations without travelling
- Tele- health campaigns at remote sites for different specialities.

CLINICAL ADMINISTRATIVE SERVICES

AMBULANCE SERVICES

Introduction

Ambulance services under the purview of the Accident & Emergency department. Hospital offers round the clock ambulance services, geared to meet any emergency – surgical or medical.

There are two types of Ambulance services.

- Cardiac ambulance (Advance care ambulance)
- Non Cardiac ambulance
- The cardiac ambulance serves all critical all critical patients coming in from
 - Nursing homes
 - Office
 - House
 - Accident site- RTA
 - All critical patients who requires medical intervention immediately
- The Non cardiac ambulance serves patients who are
 - Discharged
 - Planned admissions
 - For appointments to Hinduja clinic.

Air Ambulance

Air ambulance is a blessing when the critical patient is in a remote area and urgently needs to be transferred to a tertiary care centre like Hinduja hospital for specialist treatment. Hinduja hospital, in its continuous endeavor to provide quality health care for all now offers air ambulance services for seamless transfer of national and international patients.

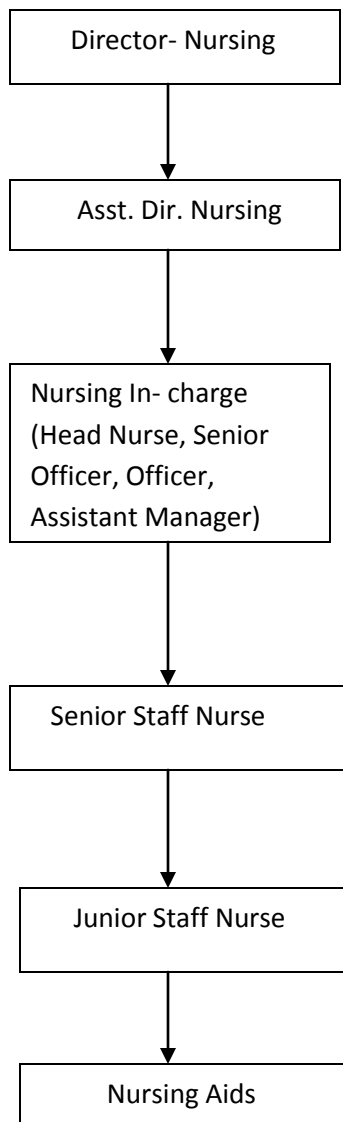
NURSING DEPARTMENT

Introduction

Hinduja hospital has a very efficient nursing department. This department is divided into two categories, **Clinical** and **Administrative**. It also has Special Nurses who are trained in a particular area and work only in that area.

Clinical:

The division deals with administration of clinical services to the patients. The Hierarchy in Clinical Nursing division is-



Administrative:

The Administrative Nursing Division comprises of staff development. It deals with providing continuous training with formal structural programs and informal training. Induction Training and On-job training are also a part of staff development. Once a week, mainly on Thursdays, in-house training is given to the nurses.

Special nurses

The special nurses are trained in a particular area, and are assigned to work in that area only.

There are 8 special nurses-

1. Diabetic Nurse Educator
 2. Oncology Nurse
 3. Infection Control Nurse
 4. Breast Clinic Nurse
 5. Stoma Care Nurse
 6. Pain Management Nurse
 7. Diabetic Foot Care Nurse
 8. Home Care Nurse
- The patient to nurse ratio in the hospital varies from 4:1 to 6:1
 - The nurse work in the OPD, IPD, Radiology, S1.
 - In the IPD building, at each floor nursing stations are present in each wing. The nurses operate from these areas.

Education and training facility for nurses

In line with its continued commitment towards education and training in the field of healthcare, particularly the preparation of highly competent nursing professionals dedicated to patient care, the Board of Management has upgraded its school of nursing to a fully fledged **College of Nursing**. Prior to this, the hospital successfully conducted over two decades, a recognized three and half year diploma in General Nursing & Midwifery (GNM) for female candidates. Its students over the years excelled in academics, co- curricular, extra curricular activities and clinical practice.

LAUNDRY SERVICES

- The importance of a clean, hygienic, un-stained and defect free linen for optional patient care has been stressed upon since the very inception of hospitals. Clean linen delivery in a timely manner to healthcare areas is important.
- Laundry service is responsible for providing an adequate, clean and constant supply of linen to all users. The laundry facilities is designed, equipped and ventilated to reduce the dissemination of microorganisms on to finished textiles. The basic tasks include: sorting, wasing, extracting, drying, ironing, folding, mending and delivery.
- Cleaning of soiled linen collected from patient care areas.
- Storage and distribution of clean, unstained and defect free linen to various areas of hospitals like floors (for patients), CSSD (for sterile linen supply to operation theaters), housekeeping and food service department (for conference and other functions).
- Cleaning, storage and distribution of uniform to all employees and consultants.
- Specific procedure for handling, including labeling of materials contaminated with hazardous materials or body fluids.
- Policies and procedures for cleaning of contaminated materials.
- Storage and distribution of curtains across the hospital facilities.

MORTUARY SERVICES

- Mortuary at Hinduja hospital is managed by A & E department and security and is maintained by Housekeeping department. It currently has capacity to keep 6 bodies.
- Only inpatient bodies are allowed to keep at Mortuary.
- Mortuary is also used to keep Amputated body parts.

ADMINISTRATIVE SERVICES

MEDICAL RECORDS DEPARTMENT

Introduction

A medical record, health record, or medical chart is a systematic documentation of a patient's medical history and care. The term 'Medical Record' is used both for the physical folder for each individual patient and for the body of information which comprises the total of each patient's health history. MR is intensely personal documents and there are many ethical and legal issues surrounding them such as the degree of third –party access and appropriate storage and disposal. MR traditionally compiled, stored and maintained by MRD of the P.D. Hinduja hospital from 1987.

Terminal digit system of files is most secure and safe system as far as the identification of the file is concern. New Registration forms are kept at various stations i.e. OPD, Casualty and admission counters etc.

Patient or next of kin fill up the form for all demographic details and puts the signature, and then the entry is done by the receptionist at counter in the system.

The patient is given a ID card which has 6 digit HH no, and name, sex, age etc. The file has 6 digit numbers where last 3 digits are color coded. The filing system is dependent on the last 3 digits; hence total confidentiality of the patient's file is maintained.

The information contained in the medical record allows health care providers to provide continuity of care to individual patients. The medical record also serves as a basis for planning patient care, documenting communication between the health care provider and any other health professional contributing to the patients care, assisting in protecting the legal interest of the patient and the health care providers responsible for the patients care, and documenting the care and services provided to the patient. In addition, the medical record may serve as a document to educate medical students/resident physician, to provide data for internal hospital auditing and quality assurance, and to provide data for medical research.

The most basic rules governing access to a medical record dictate that only the patient and the health care providers directly involved in delivering care have the right to view the record. The patient, however, may grant consent for any person or entity to evaluate the record.

Research, auditing and evaluation

Individuals involved in medical research, financial or management audits, or program evaluation have access to the medical record. They are not allowed access to any identifying information, however the patients or their representatives the right to a copy of their record, except where information breaches confidentiality (e.g. information from another family member or where a patient has asked for information not to be disclosed to third parties) or would be harmful to the patient's well-being (e.g. some psychiatric assessments).

Objectives

1. To aid in the diagnosis and treatment of patient
2. To provide written documentation of directed medical care and to show services were medically necessary
3. To assist in the research of disease and injuries so other patients may benefit from previous patient care
4. To substantiate procedure and diagnostic code selection for research purposes
5. To comply with legal requirements
6. To legally defend the physician in the event of lawsuits

Location & layout

The MRD is located on the 1st floor, 3rd wing of the OPD. It is spread over 1500 sq.ft. with additional area of allocated for the storage of records.

The department has over 80,000 active files in the OPD, while are being maintained in archived form for legal/research purposes.

Nature of activity

1. Allocation of H.H. No.
2. Collection of computerized list of Discharged / death cases
3. Collection of health record charts from wards / casualty
4. Assembling in standard order
5. Deficiency check
6. Medical coding
7. Indexing
8. Filing of various reports
9. Operation procedure
10. Retrieval and issuance of files
11. Receiving and storing of files
12. Medical certificates, injury certificate, correspondence of L.I.C claims and legal matters etc
13. Third party administration queries and any other insurance companies queries pertaining to the patient illness and its duration

INFORMATION TECHNOLOGY

Introduction

Primary purpose of Information Technology department is to:

- Cater to any needs of computerization within the organization
- Maintenance of existing hardware and software
- Provide guidance to the user in terms of operation procedure
- Develop a user friendly and automated software system

Today, I.T. department is the backbone of hospital operation which facilitate in achieving the quality service, performance and maximum results. The department is responsible for providing highly automated user friendly and zero defect computer based solutions as per the requirements of the Hospital. This department works under the direction and supervision of the Dy. Director (Information Technology)

Scope of services

I.T department has three sections.

- Software section
- Hardware section
- Telecom section

1. Software section is responsible for system operation & control, software maintenance, controlling database backups & their libraries and to provide ongoing assistance to the application users. It is also responsible for system recovery in case of failure and for recording and monitoring down time of the system for optimal & smooth performance of the organization

2. Hardware section is responsible for hardware functions of the system with zero downtime and high availability. It also fulfill the hardware related requirements from users and supports there systems. This section introduces the technology which is use full for users in there day to day working.
3. Telecom section is responsible for implementation of new technology and maintenance of telecommunication operations of the hospital. Telecom section also looks after the maintenance of wireless system and paging system.

ENGINEERING DEPARTMENT

Introduction

Engineering and Maintenance Department is manned for 24 hours for keeping round the clock vigil on the proper functioning of plant engineering equipment coming under the purview of the department. This covers maintenance of major supplies to the hospital such as power, water, medical gases, air- conditioning and related equipment supporting the same, which form the life line to the hospital's activities.

The responsibilities of the department are:

1. Operation and maintenance of plant equipment installed in the basement of main building and various other areas to support the normal functioning of the hospital.
2. Repair work of equipment related to the department's responsibility

The policy of the department is:

1. Serve well with safety and in time
2. Continuous improvement, cost saving
3. Optimum utilization of manpower and equipment
4. Optimum utilization of inventory
5. Teamwork

Objective: To ensure uninterrupted support and supply of engineering services to end users by adopting correct process and practices leading to successful maintenance of all engineering systems in fully operational condition, at all the times.

Scope of Engineering Services:

The major engineering services involved are as follows:

- Electrical power supply- Normal & Emergency
- Air conditioning, ventilation & refrigeration
- Steam & Hot water supply
- Water stations & cold water supplies- Filtration systems
- Medical gases supplies
- Fire detection, alarm & fighting systems
- Internal & External plumbing systems
- Civil works- Masonry, Carpentry, Glasswork, Upholstery, Painting etc
- PNG & LPG supply
- Safety assessment of facilities

THE KNOWLEDGE CORE

Introduction

Research is an important activity of Hinduja Hospital. It is recognized as a Research Organization by the Department of Scientific & Industrial Research, Ministry of Science & Technology and Government of India. Various clinical research projects are carried out with the objective of improving medical practices. A Research Advisory Committee with eminent scientists and researchers from all parts of the country guide & give direction to the research programme. The hospital is recognized by the Bombay University for M.Sc. and PhD in Applied Biology. The faculty members are recognized guides for M.Sc and PhD, Bombay University. The Hospital is approved by the Diplomate National Board for specialization in the following DNB RECOGNIZED SPECIALITIES.

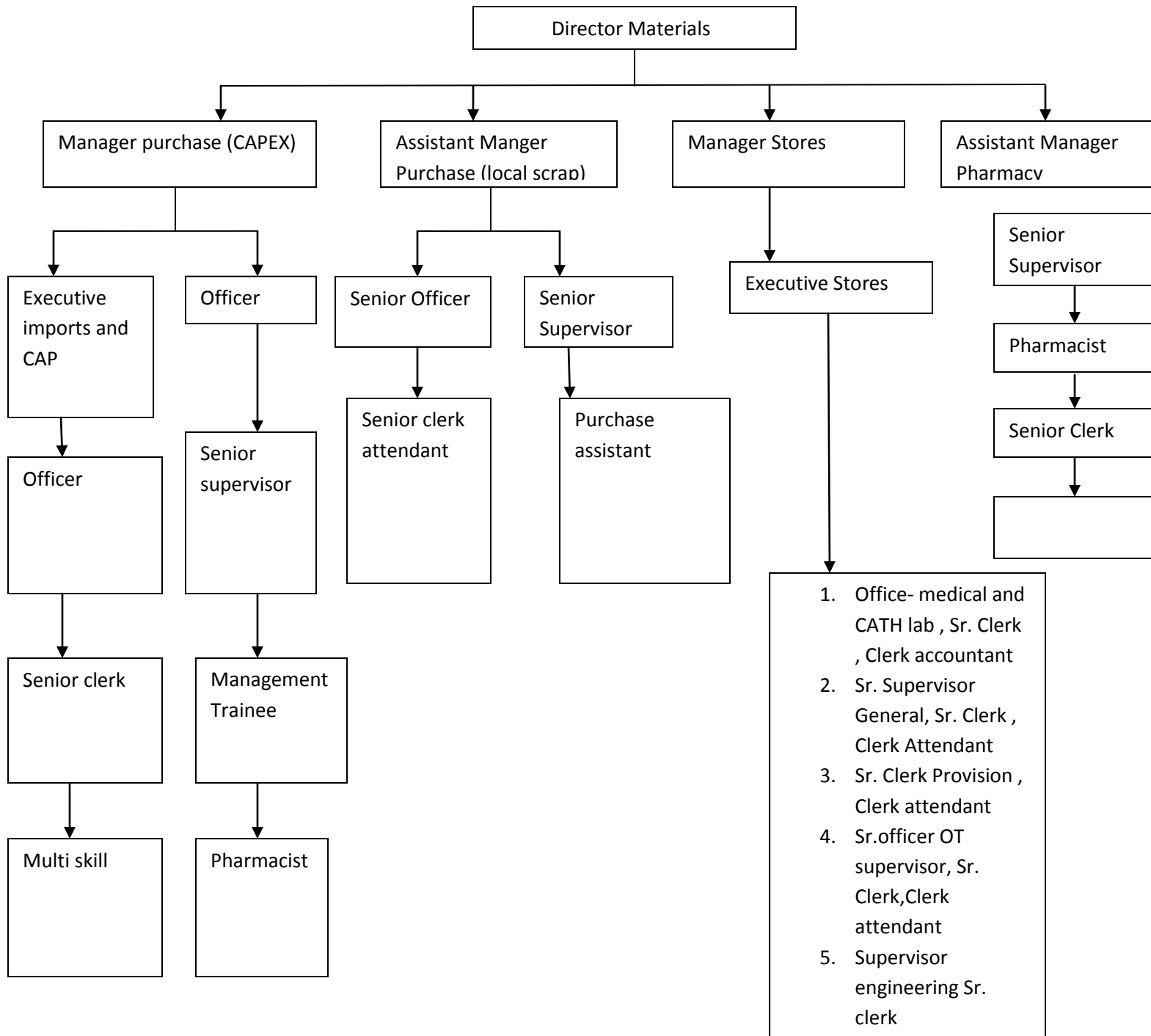
MATERIAL MANAGEMENT

The materials management department aims at maintaining uninterrupted supply chain without effecting cost, quality and service parameters.

The materials management department can be classified majorly under 2 heads i.e. purchase department and stores.



Organogram



Categories of staff:

Type	<u>Nos.</u>
Director	1
Manager	3
Executive	2
Sr. Officers	2
Officers	3
Executive Secretary	1
Sr. Supervisors	5
Supervisors	3
Management Trainee	1
Pharmacists	15
Senior Clerk	10
Clerks	3
Purchase Assistant	1
Attendants	18
Multi skills	2
Piece Rate	1
Casual	5
Temporary Attendant	1
Total	77

Pharmacy

Hinduja Hospital runs an inpatient pharmacy which works 24/7 throughout the year and consists of Dispensing area and store. It is located on the 5th floor of the new building. The Pharmacy also has a formulary with around 3000 items mentioned in it and also a DTC (Drug and therapeutic committee), with senior doctors, nurses and pharmacists as its members. In the pharmacy no cash transaction take place and no relative has to go there, the nurses enter the medications required into the system from the floors, and then a floor wise consolidated report is taken and all the items are sent together in 7 rounds to the nursing station at each floor by the pharmacy attendants. The patient is billed from the pharmacy on his HH No. and the information is sent to billing department directly. The pharmacy keeps only 1 brand of the drugs, which is generally the research molecule. They also have a provision for narcotic drugs, which they store in a lock according to the narcotic drugs and psychotropic substances act. The narcotic prescriptions are kept in a record. The hospital formulary is updated periodically. A pharmacy news bulletin is also prepared and is given to the doctors.

The inventory control methods used are:

1. ABC- Always better control
2. HML-High Medium Low
3. VED- Vital essential Desirable
4. XYZ
5. GOLF-Government Open Local Foreign Product
6. SDE- Scarce Difficult Easy
7. FSN- FAST, SLOW and Non- Moving

SUMMER INTERNSHIP-PROJECT REPORT

Study on Turn Around Time of ICU bed and Reasons for Delay in Transfer between the Intensive Care Unit and the Medical Floor

EXECUTIVE SUMMARY: This study describes the turn around time of critical care unit bed between the Intensive care unit and the medical floors, along with reasons for delay in transfer at a 402-bed hospital in Mumbai. A paucity of literature exists regarding delays in transfer out of the intensive care unit. Therefore, we sought to analyze the incidence and causes of delayed transfer from an intensive care unit. We conducted an observational approach to assess the turn around time of critical care bed in transfer process, to identify patients with delay in transfer, and to find the causes for delay.

Overall, mean time for allotment of appropriate floor bed was 4.34 hours. The mean delay in being transferred out of ICU was 2.38 hours. After transferring the patient, the mean time for critical care unit bed to return back to ICU and for cleaning & preparation was 20 minutes and 1.10 hours respectively. Noting that 78% (98 of 125) of transfer delay were more than 45 minutes and 62% (61 of 98) of non- clinical reasons were primarily the cause for delay. The most common reasons for delay in transfer were unavailability or business of nurses and patient attendant (25%(25 of 98)) with mean time of 49 minutes , waiting for primary consultant confirmation(23%(23 of 98)) with mean time of 3.18 hours, post mobilization (19%(19 of 98)) with mean time of 2.7 hours , floor bed to get vacant and ready(12%(12 of 98)) with mean time of 30 minutes, post mobility and drain removal(9%(9 of 98)) with mean time of 2.13 hours , post observation(4%(4 of 98)) with mean time of 6.28 hours and others(6%(6 of 98)) with mean time of 5.33 hours.

INTRODUCTION: Optimal use of intensive care unit (ICU) resources is an important goal for individual hospitals and healthcare systems and is an essential component of the effort to contain healthcare expenditures. Delay in transfer from ICU is common and costly. At P. D. Hinduja Hospital & Medical Research center, investigation was conducted to determine the turn around time of ICU bed in transfer process along with incidence and causes of delayed transfer. Many patients who met criteria for transfer out of the ICU remained in the ICU for a longer time than necessary. As hypothesized by Sister In-charge of ICU that on an average 45 minutes is the maximum time required to transfer out the patient, after the allotment of completely vacant and ready bed. Thus on taking this in consideration, we determine the turn around time of critical care bed and incidence of beds that are transferred out within 45 minutes and beds that are transferred out after 45 minutes along with the reasons for delay.

OBJECTIVES:

To analyze how long critical care patients has to wait for allotment of appropriate floor bed.

To determine the incidence of patients whose transfer out is delayed.

To analyze delay in transferred from ICU.

To know what are the most common possible reasons for delay.

METHODOLOGY:

Study Area and Design: The prospective, observational time-in-motion study was conducted in the Adult Intensive Care Unit (ICU) of P.D. Hinduja Hospital & Medical Research Center from April 8, 2014 to May 10, 2014. Informed consent was not necessary because of the observational nature of the study. Patient care was not affected by the study, and individual patient information was not used during the analysis of data.

P. D. Hinduja is a 402-bed NABH accredited, a leading multispecialty and tertiary care hospital having in total 52 critical care beds, where 43 were adult critical care beds and 9 were paediatric critical care beds. This observational study was conducted on the 43-adult critical care beds which were distributed on second and tenth floor, the former having 20-bed unit whereas the latter having 23- bed unit, respectively. It is staffed 24 hours per day by attending intensivists in addition to critical care fellows.

Sampling Unit: Patient who was admitted on adult critical care bed and was medically ready for transfer to the floor.

Sampling Size: The data was collected on 167 patients who were requested to be transferred out by the primary consultant from ICU. Out of 167 requests, 5 patients got no vacancy from admission department and 37 patients transfer-out was cancelled mostly due to medical reasons. Thus 125 patients were medically ready for transfer to the floor from a 43-bed ICU in a period of 15 days.

Inclusion Criteria: Patients were included if they survived their stay in the ICU.

Exclusion Criteria: Patients were excluded if they were discharged directly.

Design Technique: The technique used to collect data was non-participant observation.

Design Tool: The tool used for data-collection was self-administered tabulated format for each day under the following domains to record:

- admission number of patient
- Transfer from- bed number requested for transfer
- Transfer to- bed number allotted to receive
- Requested time- the request to transfer the patient out of the ICU
- Allotted time- the allotment of appropriate floor bed by admission office
- Bed status at floor- whether it is vacant/ready or not. If not then it was ready at what time
- Transfer time-the actual time of transferring out patient
- Reason for delay
- Bed Returned-the time of bed returning back to ICU after transferring out patient
- Bed ready-the time taken to clean and prepare the bed to receive next patient.

Data collection: After designing the tool for data collection, the data was collected and recorded by observing and tracking all the beds planned to be transfer out for a day. Also by daily communicating with ICU charge nurses and ICU bed coordinator to determine the reason for delay in transfer and classify them as per discussion.

Transfer Process: A patient was classified as ready for transfer to the floor in the late evening by consensus among the patient's intensivist, surgeon and ICU nurse, with emphasis on hemodynamic and respiratory stability. There was no transfer-out of patients in midnight. Again in the morning at around 6'0 clock, a confirm requests to transfer-out medically ready patients was placed by EICU on a telephonic conversation with admission office, so as to locate an appropriate floor bed. When an appropriate floor bed became available, the admission office will allot the bed and informed the nursing sisters through the telephone so as to transfer out the patient from ICU.

The transfer out of allotted beds starts only after primary consultants and intensivist round on ICU floors at around 10'0 clock. Thus for a day, the actual time to start the transfer-out of allotted beds is from 10:00 AM.

Require Transfer time: The time required to transfer out patient from the intensive care unit to the allotted vacant and prepared floor bed, is maximum 45 minutes.

Definition of delay: Delay in transfer out from the intensive care unit was defined as time elapsed between the allotted time for transfer and the actual transfer time, beyond 45 minutes.

Reasons for Delay: Before the study, the ICU bed coordinator, ICU nurses and ICU nurse in charge were interviewed to understand the transfer process and to determine the perceived reasons for transfer delay. Based on the responses, I predefined the following clinical and non-clinical reasons for delay.

CLINICAL REASONS OF DELAY	NON-CLINICAL REASONS OF DELAY
Post mobilization	Delay because of nurses or attendants- (i) Being busy with other work or with other patients. (ii) Being unavailable due to lunch timings or staff shift changing timings. (iii) due to communication gap with floor nurses or admission office.
Post mobilization and drain removal	Waiting for primary consultant conformation
Post observation	Floor bed to get vacant and ready
Others-Post dialysis, Post PRBC transfusion, Post ionotropes etc	Others-Waiting for private nurse, waiting for reports.

Statistics: All data analysis was performed by using Microsoft Office Excel 2007. Completed forms were entered into an Excel Spreadsheet for quantitative analyses. Continuous data are presented as mean and median. Categorical data are presented as proportions

RESULTS: During the study period, 125 patients were transferred from the adult ICU to the medical floor. The allotment of appropriate floor bed by admission office to the patients requested for transfer from adult critical care unit ranged from 0 to 20 hours (mean, 4 hours 34 minutes; median, 3 hours 30 minutes; table 1)

Table 1: Average Time calculated for 125 patients transfer process occurred in hospital, during the study-

The delay in transfer of patients from ICU to respective floor bed, beyond 45 minutes, ranged from 1 to 11 hours (mean, 2 hours 38 minutes; median, 2 hours 10 minutes; table 1).

The returning back of critical care unit bed to ICU after transferring the patient to respective floor bed

ranged from 15 to 35 minutes (mean, 20 minutes; median, 20 minutes; table 1). Cleaning and preparation of bed in ICU to receive next patient ranged from 30 minutes to 3 hours (mean, 1 hour 10 minutes; median, 55 minutes; table 1).

Required time calculated	Mean	Median
For allotment of floor bed (by admission office)	4 hours 34 minutes	3 hours 30 minutes
To transfer-out patient (from intensive care unit)	2 hours 38 minutes	2 hours 10 minutes
For bed to returned back (to intensive care unit)	20 minutes	20 minutes
For bed to get ready (to receive next patient)	1 hour 10 minutes	55 minutes

Of these 125 patients, 98(78%) experienced a delay in transfer of at least more than 45 minutes (figure 1).

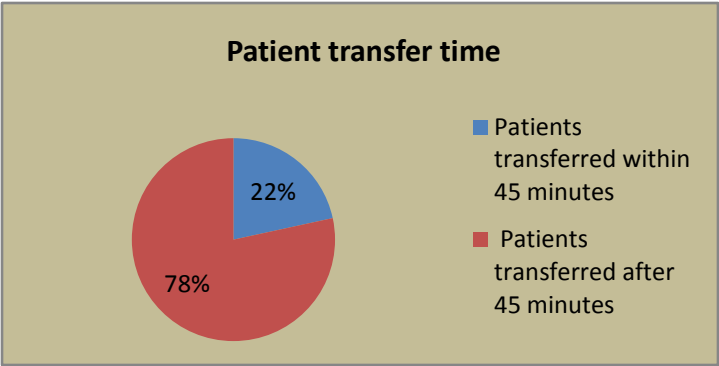


Figure 1: Percentage distribution of patients transferred within and after required transfer time.

The most common contributing causes for delay in transfer were primarily non-clinical reasons (62% (61 of 98) and secondarily were clinical reasons (38% (37 of 98) as shown in figure 2.

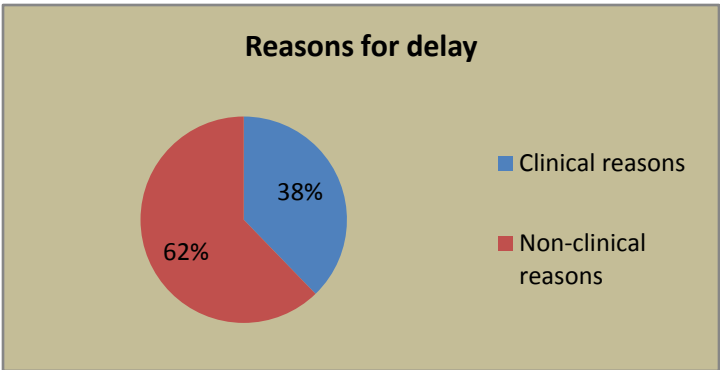


Figure 2: Percentage distribution of clinical and non-clinical reasons for delay in patient transfer

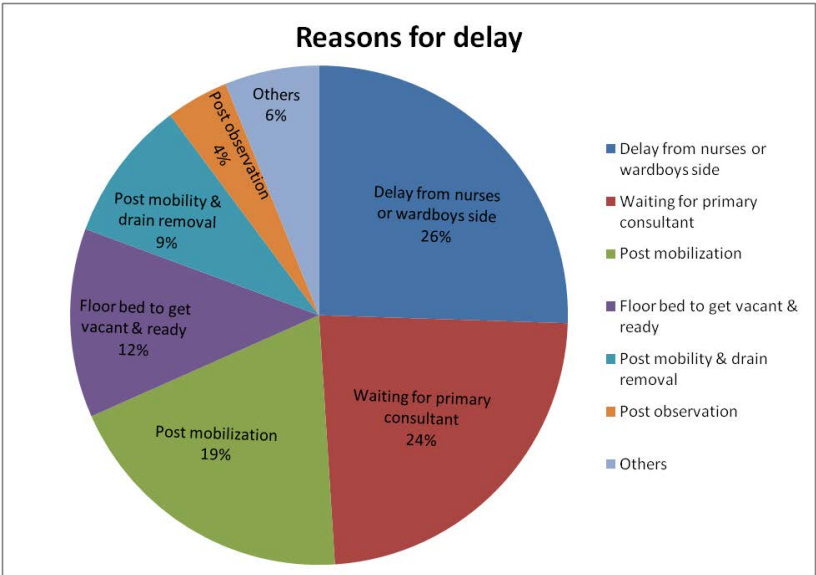


Figure 3: Percentage distribution of various reasons for delay in transfer

Table 2: Reasons for delay in transfer:

Reasons	Number	Mean	Median	Percentage
Delay due to nurses or patient attendants	25	0:49	0:45	25.51%
Waiting for primary consultant conformation	23	3:18	3:00	23.46%
Post mobilization	19	2:07	1:35	19.38%
Floor bed to get vacant & ready	12	0:31	0:32	12.24%
Post mobility & drain removal	09	2:13	2:15	9.18%
Post observation	04	6:28	5:52	4.08%
Others	06	5:33	5:52	6.12%

Findings for delay in transfer:

- Delay because of nurses or patient attendants was 25% (25 of 98; figure 3) ranged from 20 minutes to 1.30 hours (mean, 49 minutes; median, 45 minutes; table 2).
- Waiting for primary consultant conformation was 23% (23 of 98; figure 3) ranged from 2 to 5 hours (mean, 3 hours 18 minutes; median, 3 hours; table 2).
- Post mobilization accounted for 19% (19 of 98; figure 3) ranged from 1 to 4 hours (mean, 2 hours 7 minutes; median 1 hour 35 minutes; table 2).
- The floor bed to get vacant and ready accounted for 12 % (12 of 98; figure 3) ranged from 15 minutes to an hour (mean, 31 minutes; median, 32 minutes; table 2).
- Post mobility and drain removal accounted for 9% (9 of 98; figure 3) ranged from 1 to 3 hours (mean, 2 hours 13 minutes; median, 2 hours 15 minutes; table 2).
- Post observation accounted for 4% (4 of 98; figure 3) ranged from 3 to 10 hours (mean, 6 hours 28 minutes; median, 5 hours 52 minutes; table 2).
- Other reasons accounted for 6% (6 of 98; figure 3) ranged from 2 to 8 hours (mean, 5 hours 33 minutes; median, 5 hours 52 minutes; table 2)

DISCUSSIONS/ANALYSIS:

In this study, we found that, the mean time for allotment of appropriate floor bed by admission office was 4.34 hours. A possible explanation for the observation is lack of availability of appropriate floor bed as per the requirement of patient. Limited availability of beds leads to transfer occurring later than desired.

The maximum time required to transfer out patient from intensive care unit on a vacant and prepared floor bed must be 45 minutes. On calculating, delay in transfer (beyond 45 minutes) from adult ICU occurred in 78% of cases, with non-clinical causes as the predominant reason accounting for 62% of delayed transfers. The delay in being transferred out of ICU was 2.38 hours on an average.

We found that from the 62% of non-clinical reasons for delay, 25% of ICU transfers were delayed by at least 49 minutes on an average because of nurses and patient attendant being busy with other work/ patients or being unavailable due to lunch timings/ staff shift changing or because of communication gaps between ICU nurses and floor nurses/admission office. 23% of ICU transfers were delayed by at least 3 hours for primary consultant conformation. This data suggest that primary consultant conformation is delaying the transfer out of patients beyond 3 hours. The main primary consultants responsible for delay in transfer were Dr. Tangaukar, Dr.B.K.Mishra, Dr. Sudeep. Shah and Dr. Ponde.

As there are no transfer of patients in midnight and waiting for primary consultant visit till 10:00 am in morning led to compilation of transfer of many patients after 10'0 clock creating burden on ICU nurses and attendants. So waiting for primary consultant, not only creates burden on house keeping staff but also delay the mobilization of patient.

On the basis of proportion, lack of nurses or patient attendant (25%) may be the main reason for delay in comparison to waiting time for primary consultant conformation (23%). But on the basis of mean, waiting for the primary consultant conformation (from 10:00 am) is the most common reason for delay accounting for approximately delay of 3 hours whereas lack of nurses or patient attendant accounted for 49 minutes only.

Other non-clinical reasons include floor bed to get vacant and ready at 12% with mean time of 30 minutes. Possible contributions to the problem include the occupation of floor beds by patients ready to be discharged from the hospital. When a surgical floor is at capacity and discharge- ready patients remain in the floor's beds, transfers to the floor from the ICU are potentially delayed.

A large number of delays were also related to clinical reasons (38%). 19% of ICU transfers were delayed by at least 2 hours due to post mobilization. 9% of ICU transfers were delayed by at least 2.15 hours due to post mobilization and drain removal.

The remaining causes were post observation at 4 % with mean time of 6.28 hours, and others at 6% with mean time of 5.33 hours including post-dialysis, post PRBC transfusion etc . Patients may alternatively be delayed in leaving the ICU because their medical condition worsened after requesting for transfer. One would expect delays due to worsening illness.

The mean time for critical care unit bed to return back to ICU after transferring the patient to respective floor was 20 minutes. A possible explanation for the observation is a combination of waiting time for lift and the transporting time to the medical floor. The mean time for cleaning & preparation of critical care bed to receive next patient was 1.10 hours.

The major limitation of our results is that they derive from a single, medical ICU. We use days as the time variable. It might be beneficial to use hours in future studies, more precisely to quantify the problem.

RECOMMENDATION:

Start the transfer out of medically ready patients from ICU for whom consultant confirmation is not required in midnight or early morning from 6:00 am rather than waiting till 10:00 am of next day.

An organised computerized information system mentioning separate details about patients requested for discharge from floor, time at which patient physically left the bed from floor and time at which bed is ready on the floor.

Primary consultants must start visiting the ICU floors sharply at 10:00 am on each day.

Start maintaining the record containing the signature and timings of primary consultants and intensivist reporting on ICU floors to confirm the transfer of patients

CORRECTIVE ACTION PLAN:

Solution 1: Transferring patient in midnight or early morning

The data showed that starting the transfer of patients for each day, after primary consultant visit on ICU floors led to the unnecessary occupancy of ICU bed till 10:00 am and compilation of transfer out of many patients which further create stress on ICU nurses and patient attendant.

With the step of transferring medically ready patients in midnight or early morning, who had been allotted with appropriate floor bed will reduce the occupancy of ICU bed and simultaneously will also reduce stress on ICU nurses and patient attendant especially ones of day shift.

ICU intensivist, consultant and nurse after identifying the medically ready patients for transfer should transfer out patients who are haemodynamically and respiratory stable soon after the allotment of bed rather than waiting for next day till 10:00 am.

At midnight, ICU intensivist should confirm the ICU sister with transfer of medically ready patient in night only. Sister monitor of night shift should inform the admission office and asked for allotment of bed. Admission office must do the allotment of an appropriate floor bed as per patient requirement.

Solution 2: Up gradation of hospital information system

There are communication gaps between ICU nurses and floor nurses regarding floor bed is physically vacant or not, since it may happen that floor bed has been allotted to ICU but floor bed is occupied by discharge ready patient.

Hospital information system must be updated with separate details about patients requested for discharge from floor, time at which patient physically left the bed from floor and time at which bed is ready on the floor.

All these details have to be entered by both ICU nurses and floor nurses. This will help in maintaining a daily log of all transfers and discharges, will reduce the communication gaps and will also reduce the telephonic conversations. ICU nurses will be able to monitor the bed status of floors and this will help in deciding the planning of transferring of patient.

Solution 3: Primary consultant must visit ICU floors at 10:00 am

The data showed that delay in transferring of patients from ICU is 23% because of waiting for primary consultant conformation with mean time of 3 hours. This waiting led to delay in post mobilization of patient and accumulation of transfers of many patients which again create stress on ICU nurses and patient attendant.

Head of Department (HOD) of ICU should ensure that ICU consultants confirm transfer out from ICU to floors by 10:00 am .

Director of Professional Services (DPS) should direct all consultants of ICU and primary to confirm decision of transfer out by 10' o clock.

Names of defaulters to be informed to DPS to stream line the process.

Solution 4: Recording of signatures and timings of reporting of consultants and intensivists on ICU floors

ICU nurses should maintain the daily log containing the signature and timings of primary consultants and intensivists visits to ICU floors. The collected data should be compiled into reports at the month end by ICU bed coordinator.

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