**Summer Training at**
**Global Health Private Ltd. (GHPL) Medanta—The Medicity**

# Leveraging Technology to Improve Efficiency in Bed Management

**By**
**Diksha Sharma**

**Under the guidance of**
**Dr. Suresh Joshi**

**MBA Hospital and Health Management**
**2015-2017**


**The IIHMR University, Jaipur**
**2016**

INSTITUTE OF HEALTH
MANAGEMENT RESEARCH
(WHO Collaborating Centre for District Health System Based on Primary Health Care)

IIHMR UNIVERSITY

# CERTIFICATE

## TO WHOM SO EVER IT MAY CONCERN

This is to certify that **Dr. Diksha Sharma** student of **MBA Hospital and Health Management** from the IIHMR University, Jaipur has undergone summer training at **Medanta Hospital , Gurgaon ( Delhi , NCR )** from 1st April to 31st May, 2016.

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

The Internship is in fulfilment of the course requirements.

I wish her all success in all her future endeavours.

**Col. (Dr.) Ashok Kaushik**
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Global Health
Private Ltd.

Date: 09th April 2016

TO WHOMSOEVER IT MAY CONCERN

This is to certify that **Dr. Diksha Sharma** has completed her 2 months internship in the **Department of Medical Administration** from **01st April' 2016** to **31st May' 2016** with **Global Health Private Ltd. (GHPL) Medanta – The Medicity.**

- Project Title 1 - Leveraging technology to improve efficiency in bed management.
- Project Title 2 - To conduct the FMS Audit in the hospital.

We wish her all the best for her future endeavors.

For **GLOBAL HEALTH PVT LTD**

Monica

**MONICA MUDGAL**

**SENIOR VICE PRESIDENT & HEAD - HR**

**Acknowledgement**

I, Dr.Diksha Sharma , a student of PGDHM 20 at IIHMR Jaipur, would like to sincerely express my heartfelt gratitude to:

- Mr. Pankaj Sahni, Chief Operating Officer, Medanta the Medicity, for granting me the opportunity for summer training.
- Dr. Shaveta Dewan, Head Quality Department, Medanta the Medicity, for granting me the opportunity for summer training and assigning me my projects in the Quality Department.
- Mr.Ritesh Mittal, Senior Manager, Corporate, Medanta the Medicity, for being my mentor and project guide for the entire period of my training, for helping me improve the quality of my work and for helping me identify areas where I lack and what characteristics I must develop in myself for a future as a hospital administrator for my project in the Admission Department.
- Mr Anmol Sharma., General Manager, Admission Department,Medanta the Medicity, for guiding me to overcome the practical challenges in my project
- Dr.Joshi , my mentor at IIHMR Jaipur, for his support and guidance, without which this training would not have been possible.
- Dr. Ashok Kaushik, Dean, Academic and Student Affairs, for his invaluable inputs and guidance .
- Mr. Hem Bhargava , Placement Officer, IIHMR Jaipur, for facilitating my training at Medanta the Medicity.

- Lastly, I would like to thank my college, IIHMR Jaipur, for providing me with an opportunity to learn from and work with the best personnel in the Hospital Industry, and for helping me gain an appreciation of where I currently stand as an administrator and how much work I would need in order to meet the quality specifications that the hospital industry seeks.

## Table of Contents

## 1.Acronyms/Abbreviations

- BP:  Blood Pressure
- CABG: Coronary Artery Bypass Graft
- Cath Lab: Catheterization Laboratory
- DSA Lab: Digital Subtraction Angiography Lab
- ERCP: Endoscopic Retrograde Cholangio Pancreatography
- EUS: Endoscopic Ultra Sound
- GHPL: Global Health Care Private Limited
- Hb : Haemoglobin
- IPD : In- Patient Department
- MLC : Medico-Legal Cases
- OPD: Out-Patient Department
- OT : Operation Theatre
- POCU: Pre Operative Cardiac Unit
- PTCA: Per Cutaneous Transluminal Coronary Angioplasty
- RH +ve : Rhesus Factor Positive
- RH -ve : Rhesus Factor Negative
- RBC : Red Blood Cell
- UG Floor: Upper Ground Floor
- WB:  Whole Blood
- RFA: Request For Admission
- TPA: Third Party Administration
- ACR: Admission Control Room

## 2.Observation Learning

### 2A.Introduction

The summer training is an integral part of the course curriculum of PGDHM at IIHMR Jaipur. As part of the course, students at the end of their first year are required to undergo training of two months to get an in-depth exposure to the various departments in the organization, as well as take up projects as per the requirements of the organization where the students get training. What is most crucial is to build a base of knowledge about the structure and functioning of the hospital, which can be used to understand and apply concepts in the subsequent study tenure at IIHMR Jaipur.

During mysummer at Medanta – The Medicity, Gurgaon, there were numerous learning experiences. These were enhanced due to the projects undertaken at the hospital, which are listed as follows:

- '*A Study of the Competencies of the Paramedical Staff*
- *A Review of the Manpower Requirements of the Medanta, The Medicity*
- *A Study of the Nursing Manpower Requirements Medanta, The Medicity*

A brief report of the training of two months is presented below with the details of tasks undertaken and lessons learnt during the training.

### 2B.Organization Profile

Medanta the Medicity, a multi-super-specialty hospital, is one of India's largest healthcare projects in multi-specialty tertiary care medical treatment, and has been envisioned as an institute that will redefine standards of excellence in healthcare delivery by bringing together the best of infrastructure, technology, training, education and medical intelligentsia. With an investment of over $350 million, Medanta the Medicity aims to create a world class education and training centre backed by remarkable infrastructure, futuristic technology and the extraordinary vision of the eminent cardiac surgeon, Dr Naresh Trehan – Chairman and Managing director of Global Health Private Limited (GHPL).

Located across 43 acres, Medanta is the new international healthcare destination in the National Capital Region of New Delhi – Gurgaon. Medicity is a 1250 bed medical institute at par with world standards. The objective of the Medicity is to bring in global healthcare delivery standards at affordable prices, while firmly placing India on the international

roadmap as a premier destination for healthcare services, medical research and high-end medical diagnostics.

**Specialties covered**

Medanta provides integrated primary, secondary and tertiary care services spanning over 29 super specialties and high-end services covering every aspect of human health, housing 10 Institutes, 8 Divisions and 11 Departments.

- Institutes
  - The Medanta Heart Institute.
  - The Medanta Institute of Neurosciences.
  - The Medanta Bone & Joint Institute.
  - The Medanta Kidney & Urology Institute.
  - The Medanta Cancer Institute.
  - The Medanta Institute of Digestive & Hepatobiliary Sciences.
  - The Medanta Institute of Minimally Invasive Surgeries.
  - The Medanta Institute of Transplant & Regenerative Medicine.
  - The Medanta Institute of Critical Care & Anaesthesiology.
  - The Vattikuti Institute of Robotic Surgery.
- Departments
  - Department of Clinical Immunology & Rheumatology.
  - Department of Pathology & Laboratory Medicine.
  - Department of General Surgery.
  - Department of Internal Medicine.
  - Department of Dental Surgery.
  - Department of Physiotherapy & Sleep Medicine.
  - Department of Transfusion Medicine (Blood Bank).
  - Department of Pediatric Gastroenterology, Hepatology & Liver Transplantation.
  - Department of ENT & Head Neck Surgery.
  - Department of Physiotherapy & Rehabilitation.
  - Department of Ophthalmology.
- Divisions
  - Division of Endocrinology & Diabetes.
  - Division of GI & Bariatric Surgery.
  - Division of ENT & Head Neck Surgery.
  - Division of Peripheral Vascular & Endovascular Sciences.
  - Division of Gynaecology & Gynaec-oncology.
  - Medanta Breast Services.
  - Division of Plastic, Aesthetic and Reconstructive Surgery.
  - Division of Radiology & Nuclear Medicine

**What is unique about Medanta the Medicity?**

- Medanta aims to functionally integrate within one campus and one management, the facilities of medical care, teaching as well as research and development.
- It also offers to explore the possibility of integrating knowledge of traditional and alternative medicine with modern medicine, through means of scientific research.
- Medanta the Medicity is led by Dr Naresh Trehan, one of the leading luminaries in the medical world. Dr Trehanis a recipient of various national and international awards for excellence, including the highest national awards, Padma Shri and Padma Bhushan, in recognition of his distinguished service to the nation.
- Dr. Trehan has also served as the personal surgeon of the President of India since 1991 and was formerly the President of the International Society for Minimally Invasive Cardiac Surgery (ISMIC)
- The Medicity team has attracted some of the most distinguished names in medical and non-medical fields from all over the world.

**Infrastructure**

Medanta-The Medicity is spread across 43 acres, has 45 operating theatres, 1250 beds and over 350 critical care beds

**Education**

An initiative is currently underway of building a full-fledged medical college, the objective of which will be to produce highly competent general physicians and specialists who would be socially sensitive and fully committed to the principles of medical ethics. This establishment would also make every attempt to erase the dividing line between clinical and non clinical areas.

**Research and Development**

The Medicity will have a state-of-the-art research and development centre integrated with the hospital and the teaching establishment.It is planned to be one of the best funded, staffed and managed medical R&D centre in the country. Its Research Advisory Committee will consist of 12 members from amongst the best known names in modern biology, including various areas of medicine.

**Traditional Medical practices**

An important objective of Medicity is to validate- and integrate with modern medical system – those medical practices in our traditional and complimentary systems of medicine such as Ayurveda, Unani, Siddha, Tibetian and Tribal Systems that are compatible with science.

**Vision and Values**

'The Institution is governed under the guiding principles of providing affordable medical services to patient with care, compassion and commitment

**Technology**

- 256 Slice CT
- Brain Suite, Intra-Operative Imaging Operating Theater
- Da Vinci Robot for Minimal Invasive Surgery
- Artis- Zeego Endovascular Surgical Cath Lab
- 4 Linear Accelerators (provision for IGRT/ IMRT) (Radiation Surgery)
- Tomotherapy
- Integrated Brachytherapy Unit with remote controlled HDR
- 3.0 Tesla MRI
- PET CT
- Gamma Camera
- Digital X-Ray, Fluoroscopy, Bone
- Densitometry
- 3D and 4D Ultra Sound
- Digital Mammography

**Affiliations**

- Medanta the Medicity has entered into a corporate alliance with 'Duke Medicine' with the objective of providing a platform for high end research practices and clinical trials.
- The Medanta Duke Research Institute (MDRI is a world class early phase clinical research facility at Medanta the Medicity. MDRI guarantees to offer an environment conducive for exploring the technologies of traditional medicines in synchronization with modern medicine aids for research and development in the areas of healthcare and health recovery.
- It is proposed to be a 60-bedded facility built in an area of 27,000 sq. ft. within the premises of Medanta. To unlock its potential, MDRI will be undertaking immediate early phase clinical studies in three countries with diverse populations.
- The results of such a research will be paramount for all subsequent studies that can play a decisive role in changing the face of healthcare across the world.

## 2C.Data Collection

- With permission from the Senior Vice President of Medanta the Medicity, Mr. Arun Datta, and the Medical Superintendent, Dr. Awadhesh Kumar Dubey, we created a schedule, which we have followed in order to observe and learn the functioning of all the departments of the hospital. This task was made difficult due to the scale of operations being conducted at Medanta the Medicity, as we realized that a significant amount of time would have to be invested in each department in order to glean as much information as possible.

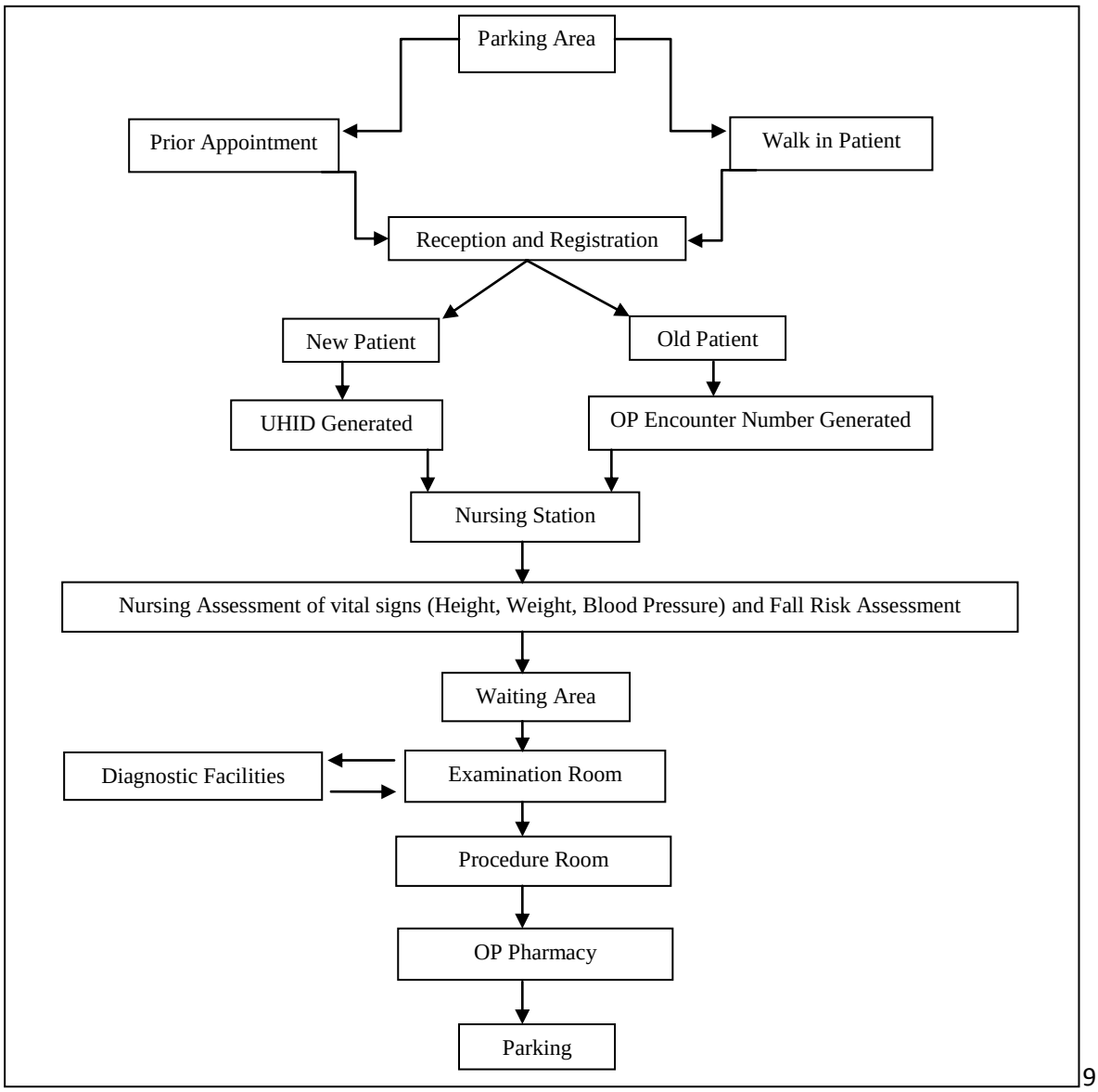
- After permission was secured and a schedule was made to observe the various departments of the hospital, we went and sought appointments from the concerned personnel in the various departments.
- Once these permissions were obtained, we got the details of personnel who would guide us in these departments.

## 2D.General Findings

I will attempt to present my general findings in the form of process flow sheets, in the order of my visit to the departments.

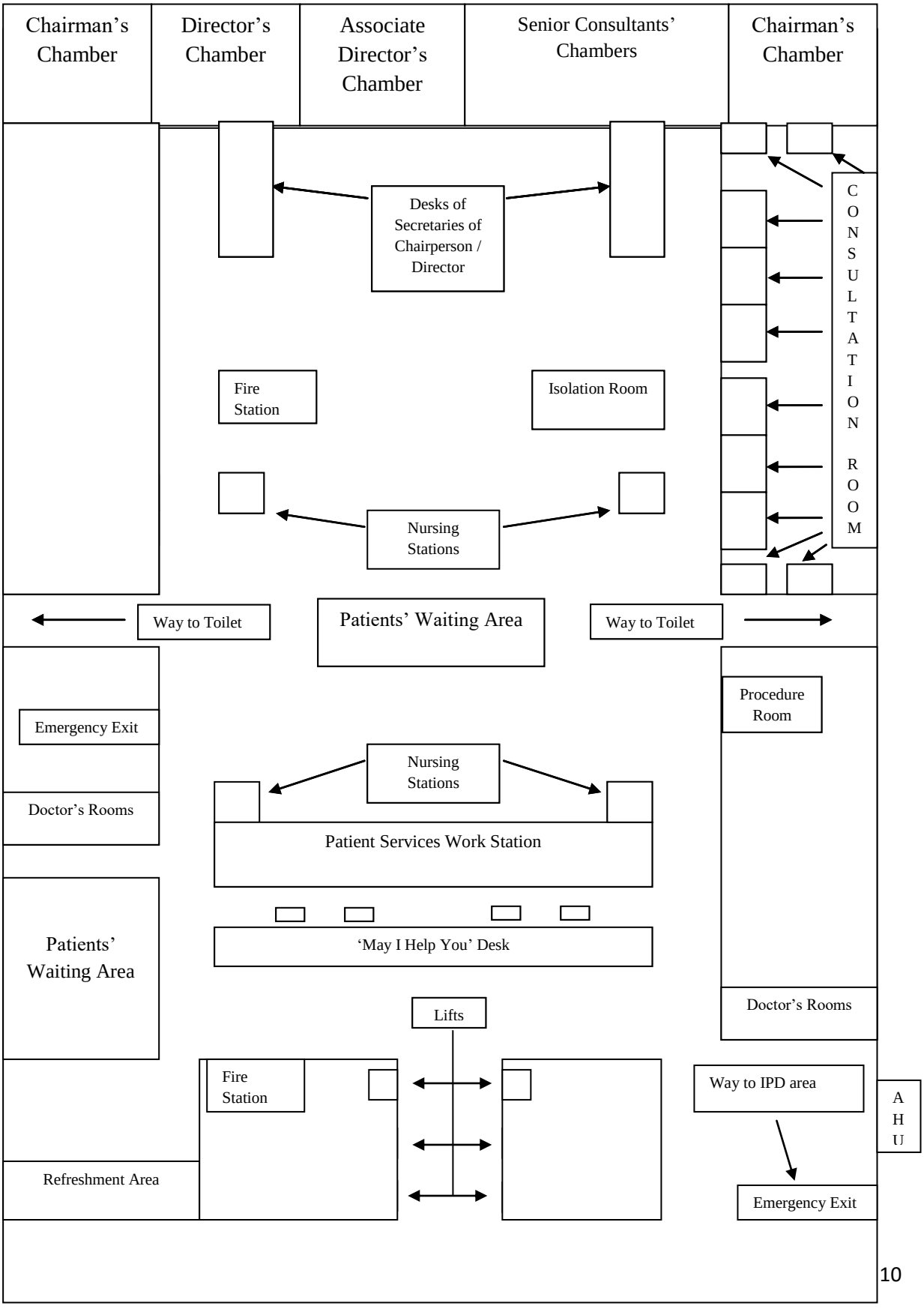
**a) OPD**:As has been mentioned earlier in this report, it can be said that each floor of Medanta houses a separate institute of clinical excellence. Each institute has its own OPD area as well as IPD area / day-care area wherever applicable. The general pro m cess flow that is followed in all the OPDs is as follows:

**Figure 1: OPD Process Flow**



The number of OPDs varies from institute to institute, but each OPD has approximately been planned in the same way. A sample layout of an OPD is as follows.

**Figure 2: OPD Layout**



As mentioned earlier, each floor has its own OPD. However, the 10th floor and the 12th Floor have Day care facilities as well. Every floor has a procedure room and its own Front Desk. Appointments are centralized and are recorded on the Hospital Information Management System. As soon as appointments are fixed, a text message is sent to the patient confirming the appointment, and a reminder message is sent on the day before the appointment. No walk-in patient is turned away, and the staffs try to accommodate these patients between the appointments already scheduled for the day. The daily volume is of approximately 2000-2500 patients across all the OPDs. Each floor has the capacity to handle 70-100 patients waiting. For Chairpersons and senior doctors, a junior doctor does the initial assessment of the patient, which not only reduces the workload of the senior doctors (whose slots are always overbooked), but it also gives the junior doctors an opportunity to learn from the best brains in the industry.

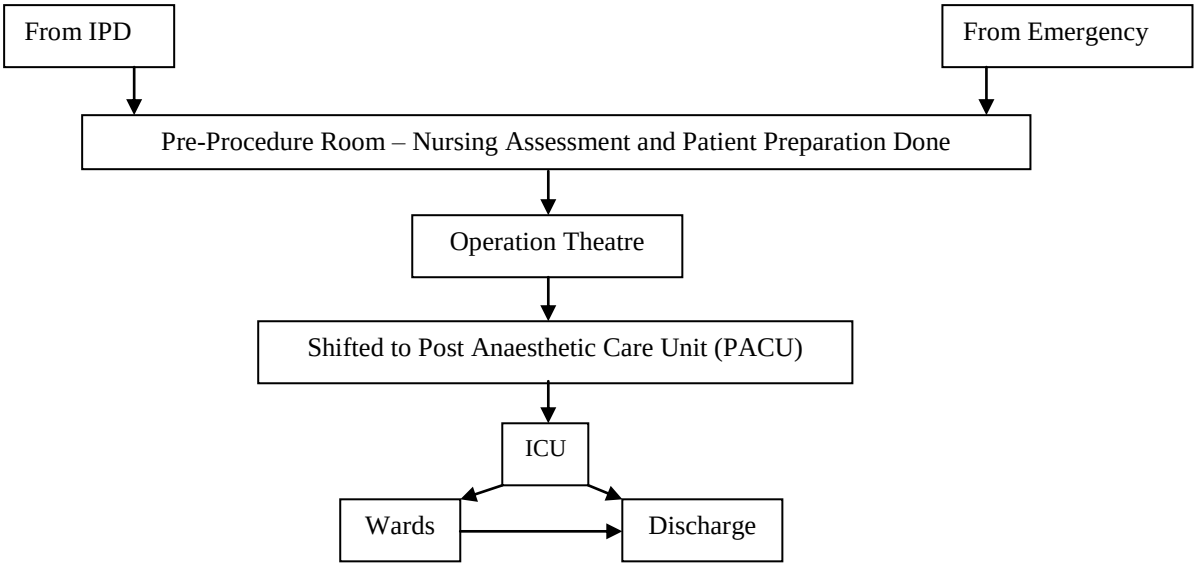
**b) <u>Operation Theatre</u>**

The OTs of Medanta the Medicity are situated on the 1st floor. There are currently 40 OTs functional. Their break up is as follows:

| Sr. No | OT Number | Specialty |
|---|---|---|
| 1. | 1-7 | Cardiac OTs |
| 2. | 9A, 9B | Ortho OTs |
| 3. | 10, 11 | Neuro OTs |
| 4. | 12 A, 12B | Liver Transplant OTs |
| 5. | 14, 15, 16 | GI and General OTs |
| 6. | 17, 18, 19 | Uro OTs |
| 7. | 20, 21, 22 | ENT, Head and Neck, and Plastic Surgery |
| 8. | Upper Ground Floor OT | Mixed, but majorly for Gynae and Emergency cases |

Around 70-80 surgeries are performed daily. The general flow of the patient in the OT is as follows.

**Figure 3: Process Flow in OT**



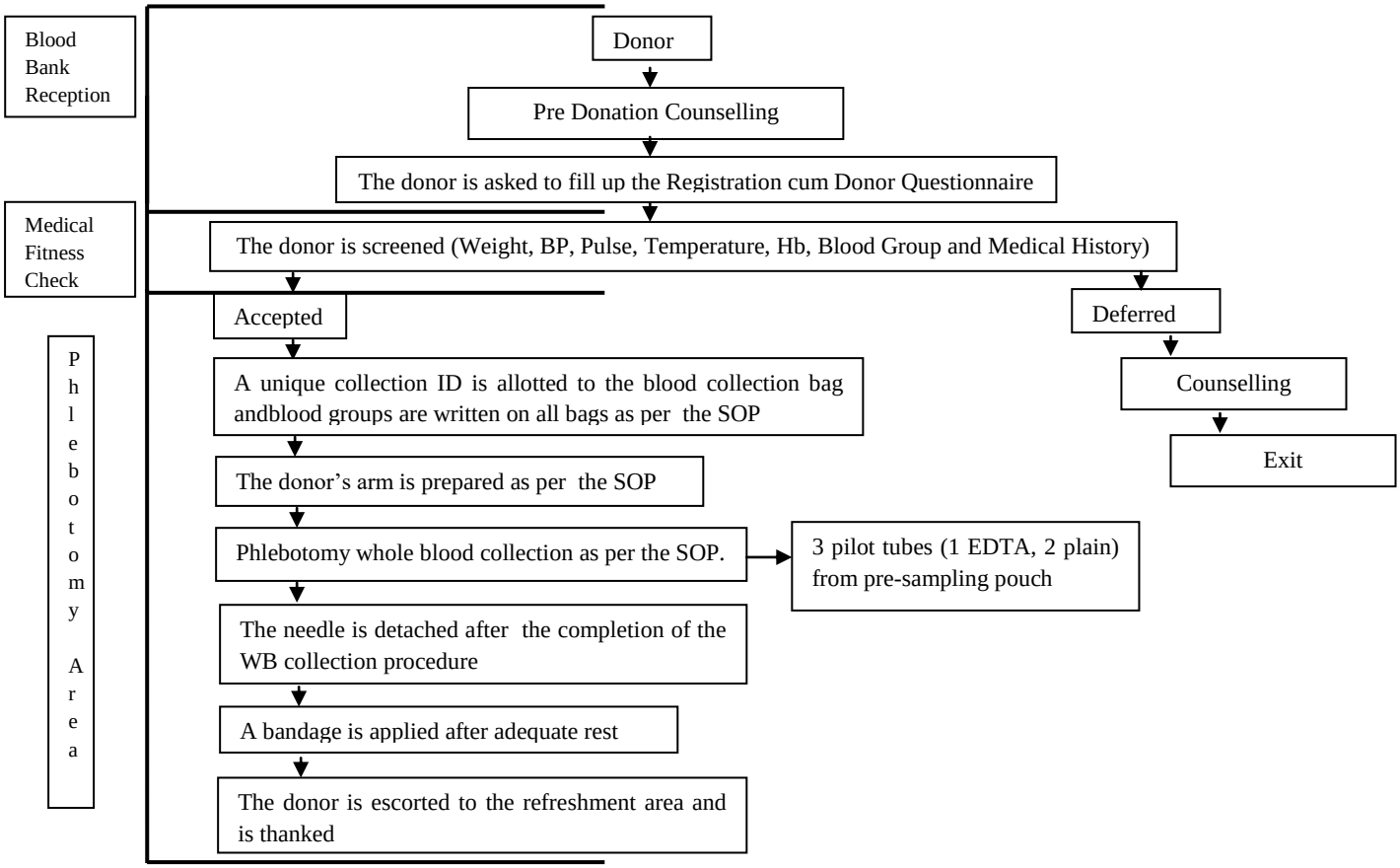

**c) <u>Blood Bank</u>**

The licensing details of the Blood Bank at Medanta the Medicity are as follows.

| Sr. No | Parameter | Details |
|---|---|---|
| 1. | License Number | 67-B (H) |
| | | |
| | | |
| 2. | Validity | 5 years |
| 3. | Name of the items on License | • Whole human blood. IP<br>• Concentrate Human RBC ( Packed RBC) IP<br>• Platelets concentrates,USP<br>• FFP,BP<br>• Plateletpheresis / Leukapheresis using cell separator<br>• Cryoprecipitate |
| 4. | Name of the competent technical staff | • Blood bank officer<br>• Technical supervisor<br>• Technicians<br>• Registered Nurse |
| 5. | Licensing authority | Haryana State Drugs Controller<br>Under section 1940, Form 28C- Rule 122-G |

The Blood Bank of Medanta the Medicity is situated on the Upper Ground floor. Medanta has a policy of asking patients to arrange for a specific amount of blood before their procedures, so that there is no possibility of a situation arising where there is a shortage of blood during a procedure. The general process flow of whole blood donation in this department has been enumerated below

**Figure 4: Process Flow of Blood Donation**




Instead of beds, the blood donation area had couches where patients are asked to sit and the incline of reclining can be changed as per need. Blood donation consists of WB donation and Platelet Apheresis donation. After the whole blood is collected, the blood is split into separate components, and is stored in walk-in fridges after proper labelling. The blood bags are labelled according to the following legend:

| Sr. No | Blood Group | Label Colour |
|---|---|---|
| 1. | B | Red/ Pink |
| 2. | A | Yellow |
| 3. | O | Blue |
| 4. | AB | White |
| 5. | RH +ve | Black |
| 6. | RH –ve | White |

After splitting, the individual components can be stored for differing periods of time. Whole blood can be stored for 35-42 days, platelets can be stored for 5 days in agitators at temperature of 22 degrees Celsius, Fresh Frozen Plasma can be stored for up to 1year at a temperature below -50degrees Celsius and RBC can be stored for 4-6 days.

**d) <u>Emergency Department</u>**

The Emergency Department of Medanta the Medicity is situated on the Upper Ground floor, and the entrance is from a route different than the main entrance to the hospital. The rough layout of the Emergency Department is shown below

**Figure5: Layout of Emergency Department**

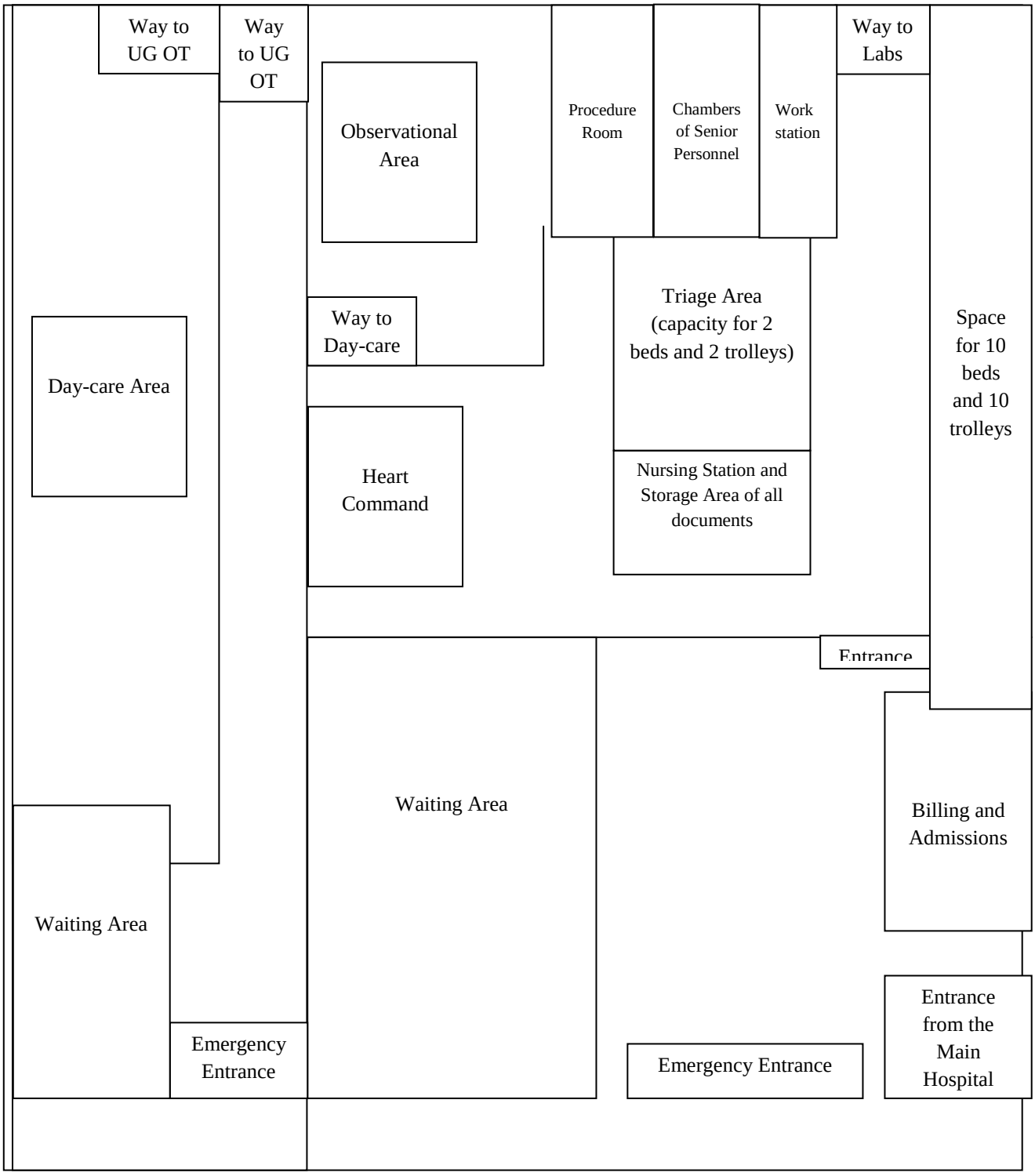
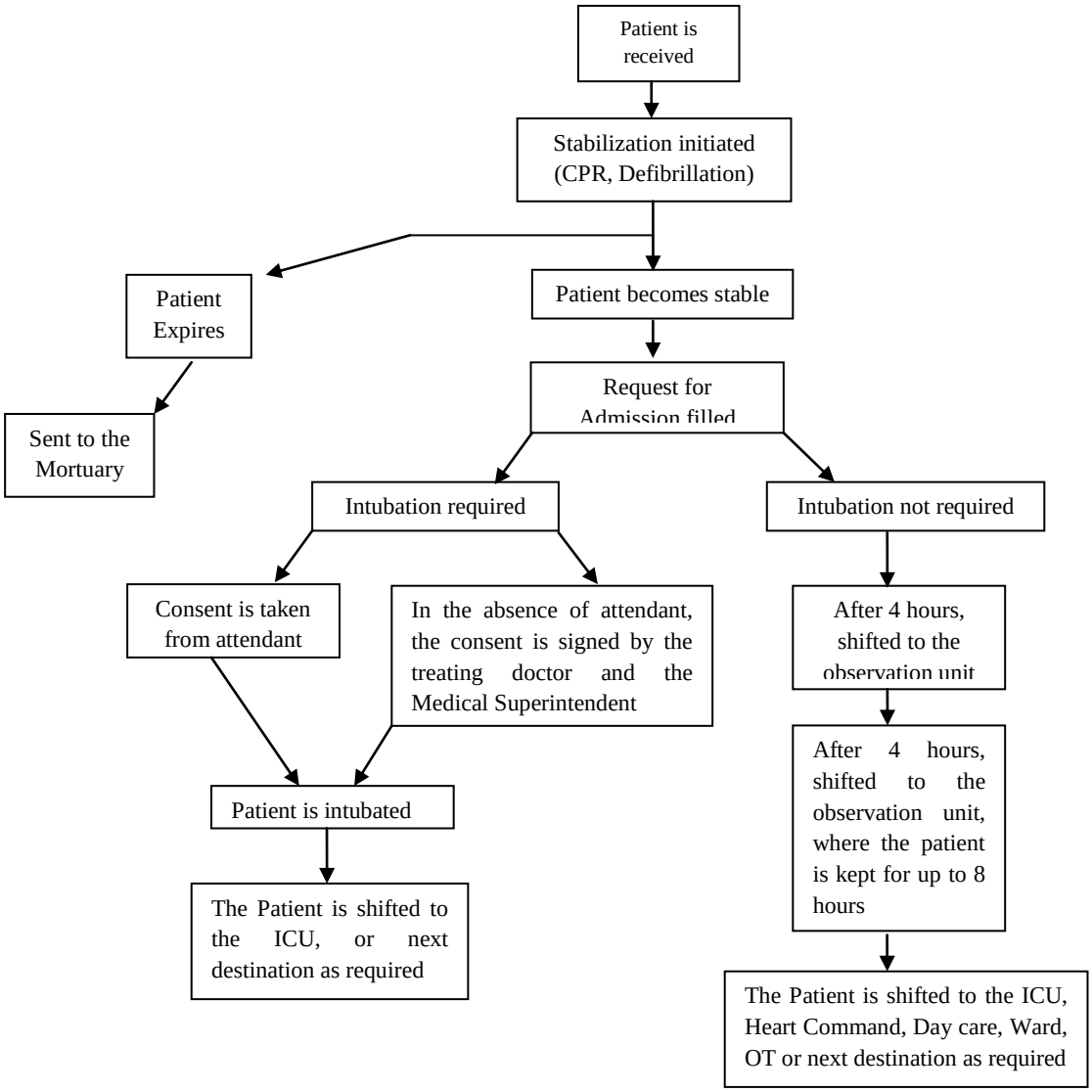


**Figure6: Process Flow of Emergency Department**




The Emergency Department at Medanta the Medicity receives about 100 cases per day. It is divided into areas as has been enumerated below.

| S.No. | Area | Specifications | | | |
|---|---|---|---|---|---|
| | | No. of cubicles | No. of beds + trolleys | Mortalities /month | Others |
| 1 | Triage | 20 | 10+10 | 3-9 | - |
| 2 | Observational area | 15 | 08+08 | 10-12 | - |
| 3 | Day care | 06 | 06+02 | NIL | Recliners - 04 |
| 4 | Heart command | 19 | 19+00 | 15-16 | - |
| 5 | Procedure room | - | 01+01 | - | - |
| 6 | Emergency OT | - | - | Variable | OT's- 2 |

The patients coming in to the emergency department are triaged according to the Australasian Triage Scale. These patients are then allotted wrist bands for colour identification according to the parameters that have been enumerated below.

| COLOR | INDICATION |
|---|---|
| White Band | Inpatient |
| Red Band | Allergy |
| Yellow Band | Diabetes/Kidney disease<br>No I/V prick<br>No measurement of BP |
| Blue Band | Vulnerable/ High Risk patients |

The Emergency Department of Medanta the Medicity offers ambulatory services, the details of which have been enumerated below.

| Sr. No | Parameters | Details |
|---|---|---|
| 1. | Number of Ambulances | 8 |
| 2. | Types of Ambulances | • Basic life support<br>• Advanced life support<br>• Air Ambulances |
| 3. | Air Ambulance | • Non Scheduled passenger air ambulance<br>• 40-50 patients are brought in by through this method every month |
| 4. | Air Ambulance Staff | • Anesthetist<br>• Cardiologist<br>• Emergency medical officer<br>• Nurse |

**e) Endoscopy**

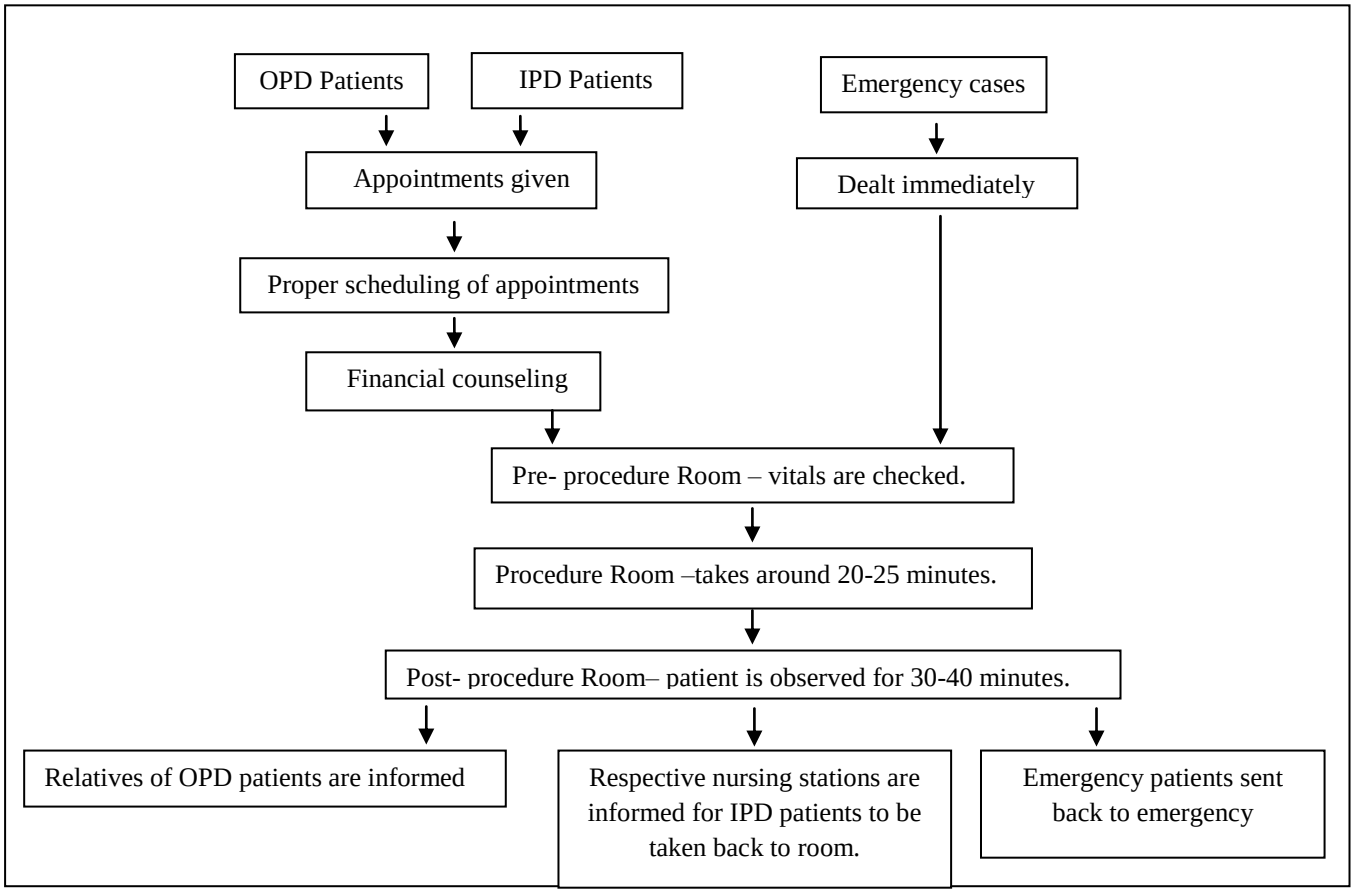
This department is situated on the 11$^{th}$ floor of Medanta the Medicity. On an average, 40-50 procedures are carried out per day, the details of which are as follows:

- 20-25 are endoscopy

- 10-12 are colonoscopy,
- 5-8 are EUS
- 5-8 are ERCP's.

Total time taken for endoscopy inclusive of the patient preparation time is around 45 minutes in which the procedure time of endoscopy is actually just 5 minutes.For EUS, the procedure time is 30-40 minutes and for ERCP the procedure time is 20-30 minutes. The process flow for this department is as follows:

**Figure 7: Process Flow of Endoscopy Department**




**f)Radiology**

The Radiology department is situated on the upper ground floor of Medanta the Medicity.
The general process flow of the Radiology Department is as has been enumerated below.

**g) CSSD**

The Central Sterile Supply Department of Medanta the Medicity is situated on the lower ground floor. It is spread over an area of 1250 sq ft and is the biggest CSSD in the Asia Pacific region. This CSSD is capable of catering to all the requirements of the hospital.

The various areas of the CSSD, along with a list of the activities that take place in each department are as have been enumerated below.

| Sr. No | Area | Functions |
|---|---|---|
| 1. | Receiving Area | All the infected instruments are received and their quantity is verified. |
| | | They are washed under water and in ultrasonic cleaners. |
| | | These instruments are then dried with an air gun and subsequently put in a Yorco oven for complete drying. |
| | | All instruments are then put into a washer-disinfection machine. This machine is equipped with double doorsin order to facilitate collection directly from the processing area. |
| 2. | Processing Area | This area receives cleaned instruments and in this area, the instruments are separated by the personnel according to the checklists. |
| | | The instruments thus separated are put into trays which are wrapped with a double layer for infection control. |
| | | These trays are then labelled and thrillium indicators are put on these trays as a measure of the quality of sterilization. |
| | | The sterilization method is selected according to the instruments in question. The methods of sterilization that may be used are LTSF (low temperature steam formaldehyde) or Plasma Sterilization. |
| 3. | Sterile Area | All the sterilized instruments are collected in the sterile zone through the doors of the sterilization equipment opening in that area. |
| | | These equipments are separated according as per the quantities received from each department and are put on separate racks. |
| | | Low temperature and positive pressure is maintained in this area for infection control. |
| 4. | Issue Area | Instruments are sent to the OT directly from the sterile area through a lift in the issue area to prevent any kind of cross contamination. |
| | | All the other instruments are loaded on to covered trolleys and are then sent to the issue areas of specific departments, to be issued as and when required. |

**h) Dietetics, and Food and Beverages**

These offices are situated in the lower ground floor of Medanta the Medicity. These departments are tasked with managing the dietary needs of the patients coming into the hospital. This task is made all the more difficult by the fact that the hospital caters to the needs of over 1200 patients (beds) per day. The enormity of this task can be appreciated by the fact that most five star hotels are able to handle only up to 600 clients per day, and the Food and Beverages Department of this hospital has to be able to serve close to 7000 meals per day.

In order to be able to cater to the delicate yet crucial needs of all the patients coming in to the hospital, most of the Food and Beverage functions are outsourced (the company to which the functions are outsourced shall hence be referred to as the 'Partnering Company'). All heavy equipments in the kitchen are property of GHPL Pvt. Ltd, and the Partnering Company has the responsibility of bringing in only light equipment like cutting knives, etc. All such light equipment are colour coded in order to prevent cross-contamination, so, for example, the equipment used for cutting poultry (coded yellow) will not be used for cutting fish (coded blue).

With respect to ensuring quality of services, GHPL Pvt. Ltd maintains service level agreements with the Partnering Company, and both strive jointly towards maintaining the quality standards. Both GHPL Pvt. Ltd. and the Partnering Company have representatives present on each floor, and these representatives jointly keep a check on any issue that may crop up on a floor.

The Dietetics department is tasked with the specialized function of ensuring that a patient is not presented with a meal that may not be in compliance with the treatment that the patient has come to Medanta for. To be able to deliver on this front, the dietician's role includes checking the diet of all the patients periodically, going on rounds of the patients with the chairpersons, solving patient queries related to diets, planning the diets of the patients and coordinating with the kitchen in order to ensure the provision of the right quality food to the patients.

Finally, these departments also maintain a chart of the amount of food wasted per day (wasted food is discarded) and thus, a strict control is maintained on the inventory of all food items.

**i) Marketing**

This department is situated on the lower ground floor of Medanta the Medicity. The chief function of this department, as the name suggests, is to market the services of Medanta the Medicity.

Medanta is now at such a stage of its life cycle that it need not indulge in extensive marketing activities. Medanta the Medicity is a brand name recognized internationally, which is evident from its large international patient base. In fact, this brand is so well known that Medanta the Medicity has not even invested in large billboards (to be erected on top of the building) and does not spend too much on Out-Of-Home advertising. This hospital does have a strong presence on Facebook, and is followed on Facebook by many.

This uniqueness of thehospital lies in the services that it offers, and the quality of services offered. This is why most of the marketing that this hospital enjoys is through 'word of mouth'. The clinical team employed at Medanta the Medicity is among the finest in the Asia Pacific region, and the technology used here is among the finest in the world. All these factors have come together to make Medanta the Medicity the strong brand it is.

A majority of the activities of the marketing department comprise of CSR initiatives. Medanta the Medicity has partnered with a number of charitable organizations and conducts periodic camps in various areas. Medanta has acquired a mobile van titled 'Sanjeevan', which is used to carry out camps in distant areas. This van is equipped with all modern diagnostic facilities, and includes equipment for Mammography, X-Ray and other facilities.

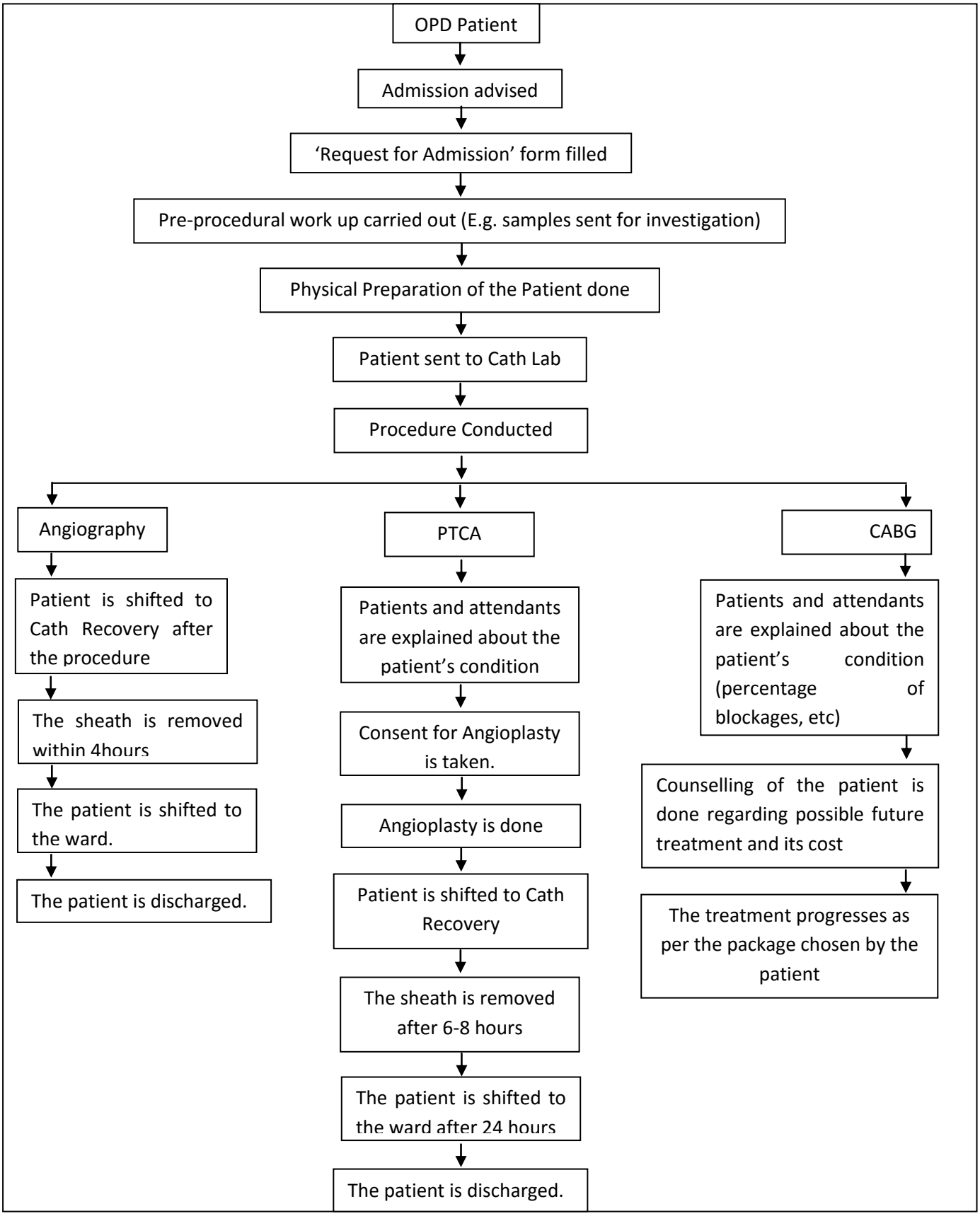
**j) Engineering**

The Engineering department is situated on the first basement of Medanta the Medicity. This department is responsible for catering to all the electrical needs of the entire hospital. The Engineering department is responsible for centrally providing water, electricity and air to the entire hospital. Eighty percent of the Engineering Department is outsourced, and the staff employed by Medanta the Medicity is tasked with supervising the functions of the outsourced staff and ensuring that quality work is delivered, as these requirements of water, electricity and air are crucial to any enterprise, and especially in hospitals.

The engineering department of Medanta the Medicity has employed 6 generators of 2000kva, to provide electricity back-up to the entire hospital.

**k) Cath Lab:** The Cardiac Cath Lab is situated on the third floor in the IPD area. There are a total of four Cath Labs and one DSA Lab. The flow of the Cath Lab takes place through the POCU, the Cath Lab and the Cath Lab recovery area as has been enumerated below.

**Figure8: Process Flow**

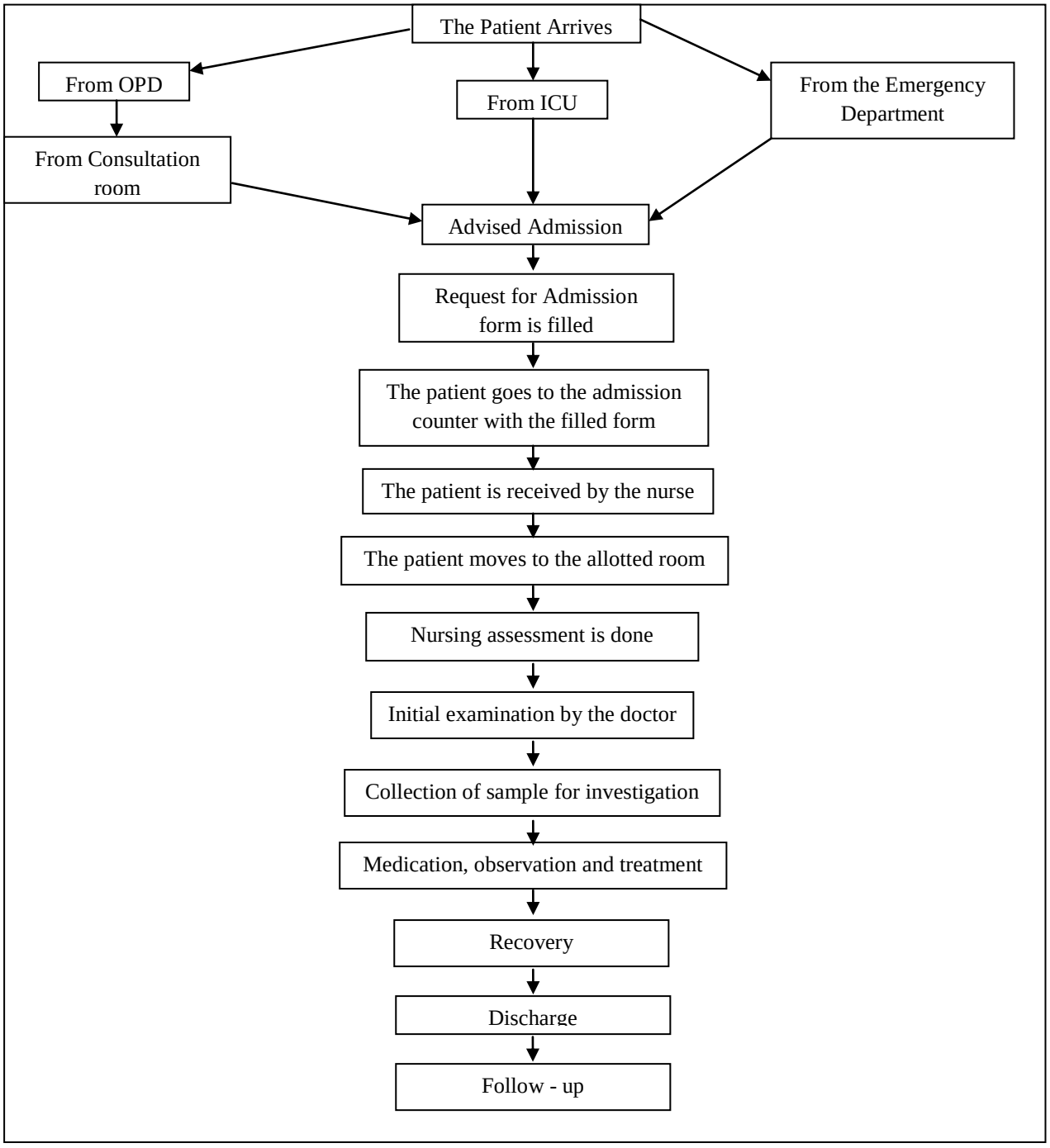


| ICU Number | Details |
|---|---|
| **ICU 1** | 22 beds, (16 for Cardiac and 6 for Pediatric) |
| **ICU 2** | 22 beds, (CTVS) |
| **ICU 3** | 22 beds, (General 10, Neuro Surgery10, Dialysis 2) |
| **ICU 4** | 22 beds, (liver Transplant 8, Gastro+GI 14) |
| **ICU 5** | 24 beds, (Medical ICU 18, General Paediatrics 6) |
| **Ortho ICU** | 12 beds |
| **HCC** | 18 beds |
| **ICCU** | 22 beds, (CTVS 12, Cardiac 4, Kidney Transplant 6) |
| **Pre and Post Cath Lab** | 26 |
| **HDU** | 10th floor (10 beds) |
| | **Total Beds = 200 beds** |

**n) <u>In-Patient Department</u>**

Each clinical institute of Medanta the Medicity has its own In-Patient Department. Thus, there is an In-Patient Department in each floor of Medanta the Medicity. The general process flow is as has been enumerated below.

**Figure 9: Process Flow of IPD**




**o) Medical Records Department**

The Medical Records Department of Medanta the Medicity is situated on the lower ground floor of the hospital. This department is tasked with storing all the physical medical records generated in the hospital. Once a medical record is received by the department, a unique

reference number is generated through Microsoft Excel, and the medical record is stored according to this number. MLC records are stored in a yellow file, and the records of expired patients are stored in a red file.

The Medical Records Department maintains the records of each patient file it receives for a period of 5 years. During this period, if a certain file is requested for reference/research purposes by any department of the hospital, the clock of storage is restarted. Apart from these functions, the personnel of the Medical Records Department may also be required to attend to calls from the courts of law, with the files of any patient as and when required.

**p) <u>In-Patient Pharmacy</u>**

The In-Patient Pharmacy of Medanta the Medicity is situated on the lower ground floor. This department is tasked with handling the responsibility of helping ensure that the correct medication is available with the IPDs of all clinical departments at all times. The medicines procured by the In-Patient Pharmacy are decided by the Pharmacy and Therapeutic Committee of this hospital.

The IPDs of all departments use a system of indenting to procure medication. These indents are sent to the In-Patient Pharmacy as and when required by the IPD. The indents are then ranked according to urgency by the dispensing pharmacist and these medicines are taken out from the stores and the change in quantity of the inventory these medicines is recorded by the pharmacist.

There are 4 types of licenses maintained by this department, obtained from the Excise Office, Gurgaon, with regard to the retail and wholesale of the following:

- Narcotics
- Denatured Spirit
- Morphine
- Fenetanyl (2ml and 10ml)

The In-Patient Pharmacy department maintains 16 days worth inventory of medicines with it for emergencies, and ensures that medicines are returned to vendors 3 months prior to their expiry.

**q) Dialysis**

The Dialysis unit is situated on the 12th floor. There are 12 dialysis machines and the number of cases done per day is around 55 cases (45 OPD + 10 IPD)

**r) Housekeeping**

This office of this department is situated on the lower ground floor of Medanta the Medicity, and is tasked with managing the sanitation needs of the patients coming into the hospital. This task is made all the more difficult by the fact that the hospital caters to the needs of over 1200 patients (beds) per day. The enormity of this task can be appreciated by the fact that most five star hotels are able to handle only up to 600 clients per day.

In order to be able to cater to the delicate yet crucial needs of all the patients coming in to the hospital, most of the Housekeeping functions are outsourced (the company to which the functions are outsourced shall hence be referred to as the 'Partnering Company'). All the cleaning material is the property of GHPL Pvt. Ltd. The Stores of Medanta the Medicity issue cleaning material to the personnel on the different floors as per levels decided through an exercise that was conducted, to ensure that such material is not wasted. Any extra requirement requires permission and explanation. This exercise had been conducted to determine the room-wise and floor-wise requirement of cleaning inventory.

With respect to ensuring quality of services, GHPL Pvt. Ltd maintains service level agreements with the Partnering Company, and both strive jointly towards maintaining the quality standards. Both GHPL Pvt. Ltd. and the Partnering Company have representatives present on each floor, and these representatives jointly keep a check on any issue that may crop up on a floor.

**s) <u>Medical Gases</u>**

This department is situated on the first basement of Medanta the Medicity. This department's chief responsibility is to ensure the timely provision of all the medical gases wherever they may be required. This department is responsible for the inventory control of the following gases:

- Oxygen
- Carbon Dioxide
- Nitrous Oxide

- Vacuum (for suction purposes)
- Medical Air

This department is also responsible for maintaining inventories of the cylinders that may be used during patient transport. The colour coding of these cylinders is as has been enumerated below.

| Sr. No | Item | Colour Code Used |
|---|---|---|
| 1. | Oxygen | White |
| 2. | Nitrous Oxide | Blue |
| 3. | Vacuum | Yellow |
| 4. | Medical Air | Black |
| 5. | Carbon Dioxide | Grey |

The cylinders have a black body, but the top of the cylinder of the cylinder is painted according to the above legend. The pipes used for transporting these gases within the hospital also follow the above colour coding.

## 3.Specific Project Learning

These projects were assigned to me by Dr. Shaveta Dewan , the Head Of Quality Department of Medanta as a part of the Admission department's requirements for the improvement of patient's experience using technology. My second project involved Audits of Facility Management of hospital (FMS Audit)

# PROJECT : Leveraging Technology to improve efficiency in Bed Management

**INTRODUCTION:**Admission process includes the initial registration of the patient for the inpatient and outpatient services. Admission desk represents the mini picture of the hospital's working culture and act as an important interface of interaction between patient and hospital., thus plays a very crucial role in shaping patient's experience .

Patient's experience is one of the key determinants of the patient flow in the private healthcare setups. Deteriorated experience leads to dual loss for the hospitals in terms of decrease in patient flow and negative mouth to mouth publicity. Rapidly changing healthcare market conditions and patient's awareness lead emphasis on the improvement of non treatment components of hospital services to enhance the overall patient satisfaction .The significance of study lies in the fact that enhanced patient's experience will provide hospital the competitors advantage in the neck to neck competition conditions in private health sector

## OBJECTIVES :

- To understand the current admission and discharge process of Medanta – The Medicity
- To identify the potential problems resulting in deteriorated patient's experience
- To provide the solutions for the problems identified.

## METHODOLOGY :

***Study type-***

- Descriptive

***Study area-***

- Admissions Department ,Medanta –The Medicity , Gurgaon
- Discharge Processes at IPD floors.

***Study duration*-**Two months

***Data Collection*-**

- Primary Data collection is done through follow ups of night billing discharge cases with floor managers and secondary data through hospital information system

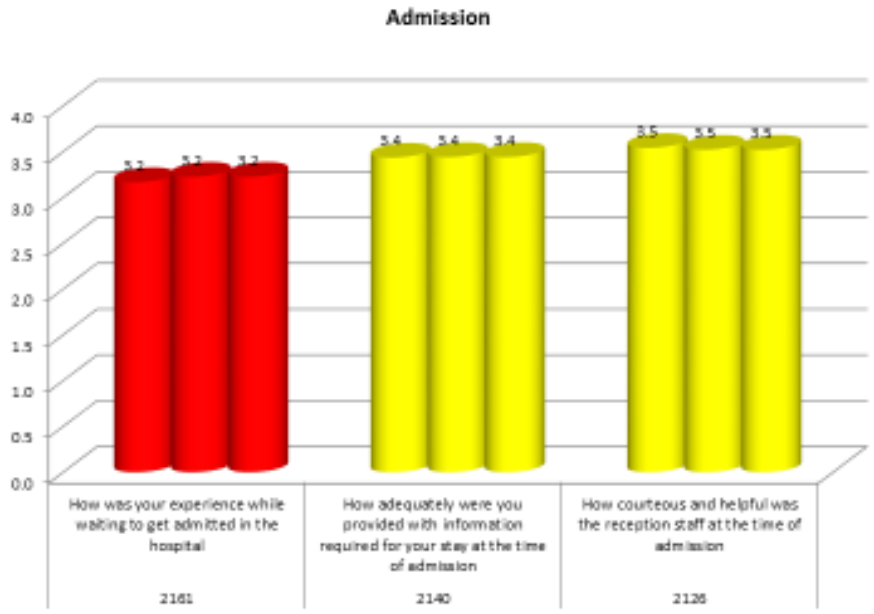
The procedure followed is enumerated below:

- **UNDERSTANDING**the current process and scenario
- **RESEARCH**and Identification of problem areas
- **ANALYZING** the relevant data
- **INTERPRETATION**of analysis outcomes
- **PROPOSING** of solutions

A. **UNDERSTANDING THE CURRENT SCENARIO**

1)Poor feedback of IPD patients indicated in Red

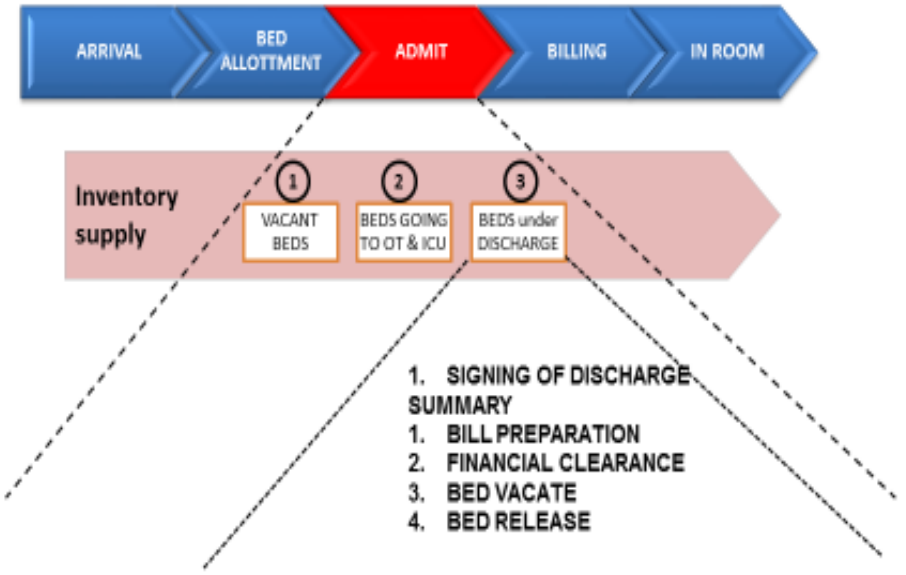
# Admission services : Patient feedback forms IPD Dec to Feb




Source: Patient feedback form, Quality department

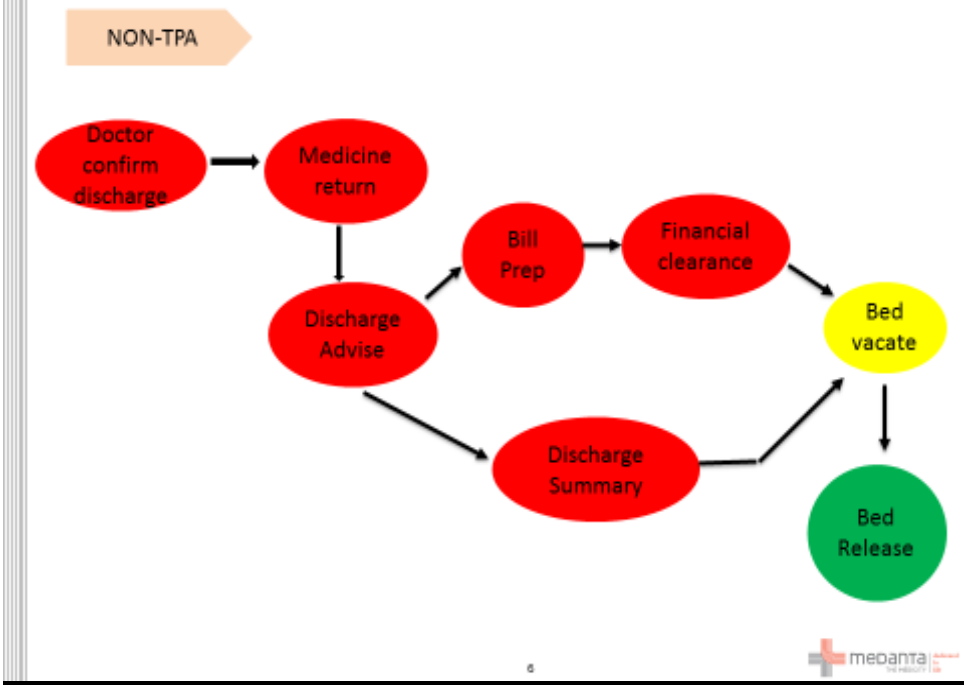
2

## Relation between ADMISSION and DISCHARGES




5

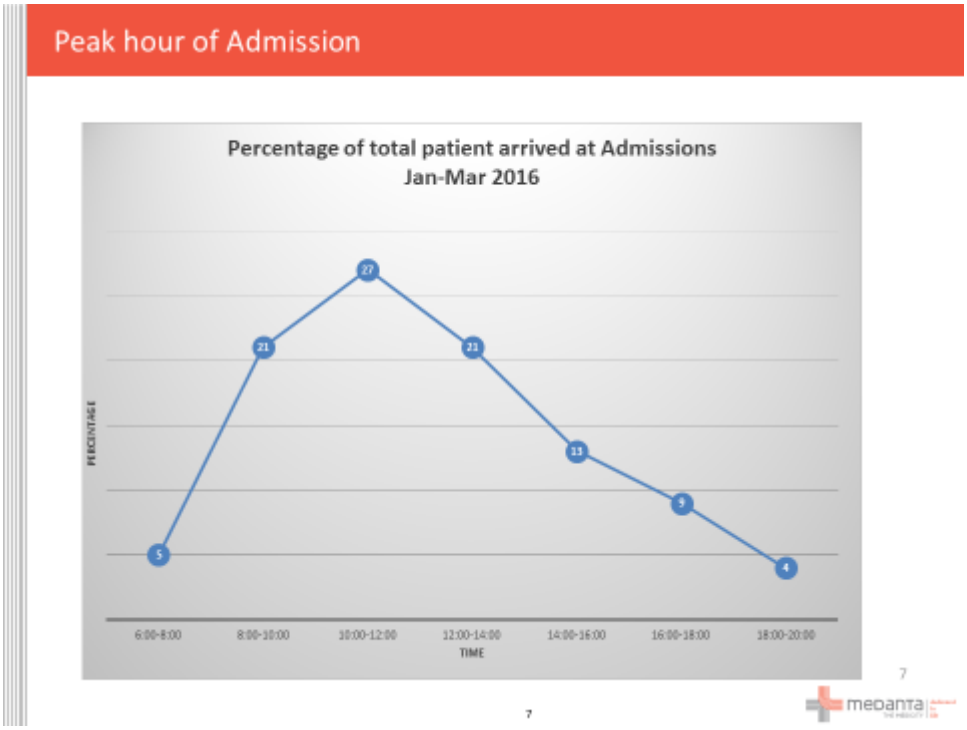
## Process flow of Discharge



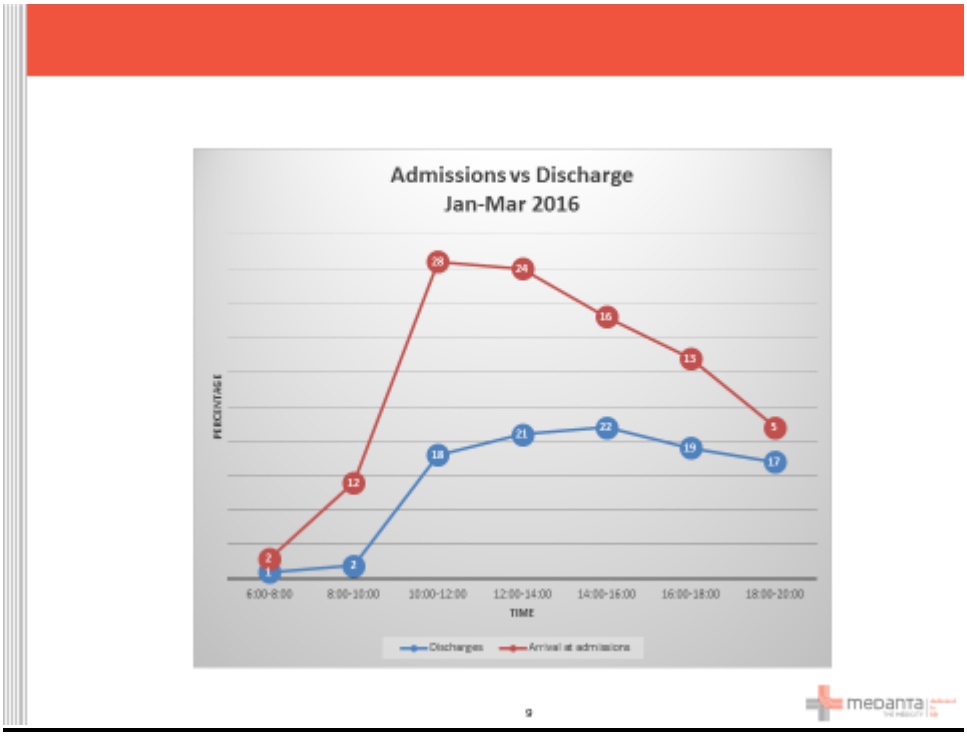

6

**Data Analysis and Interpretation:**

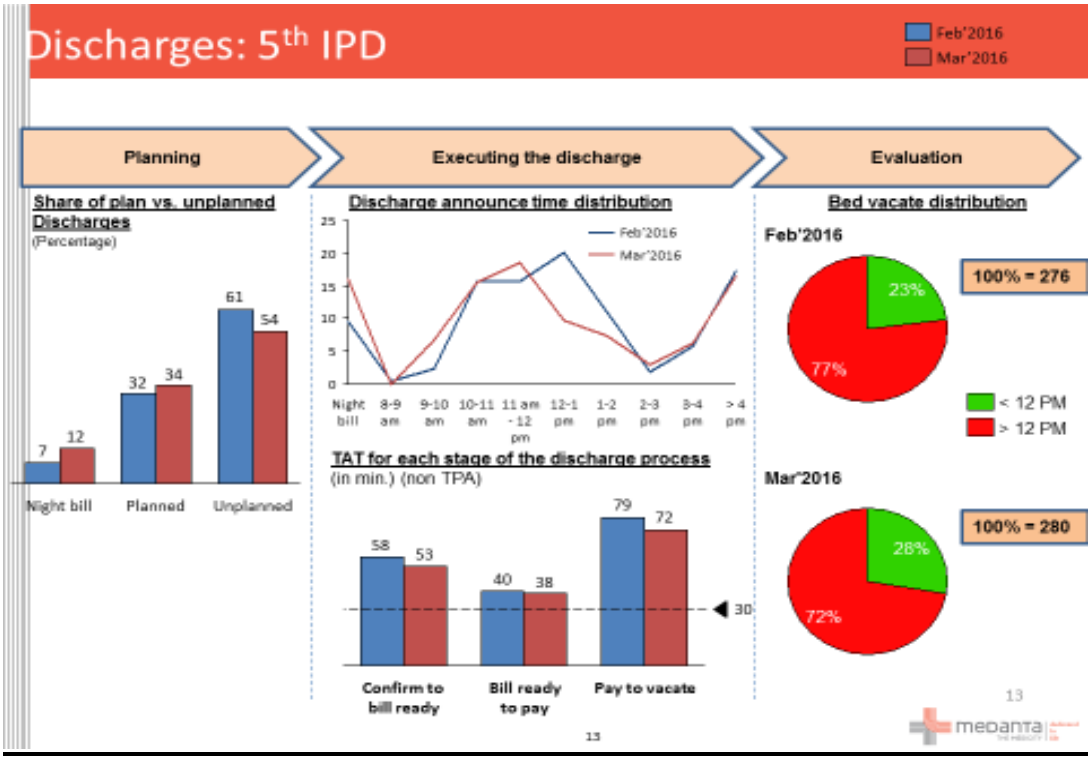
1) Peak hour of admission in IPD was calculated

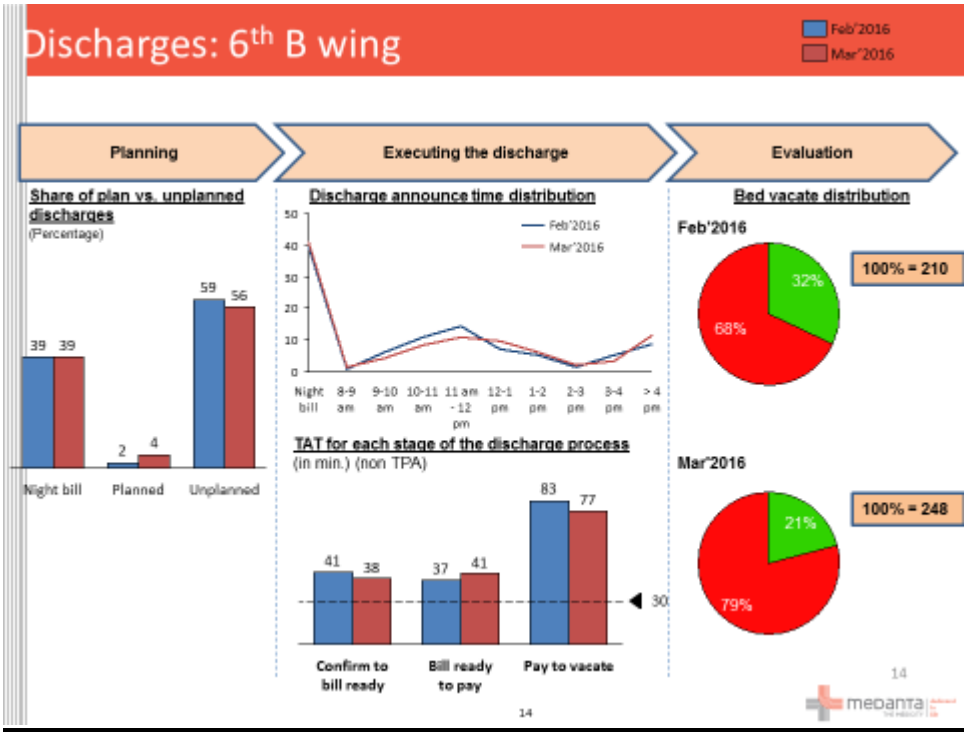



2) Admission vs Discharge analysis : to understand the gap between the percentage of patients arriving at admissions and the percentage of discharges at a particular time interval.

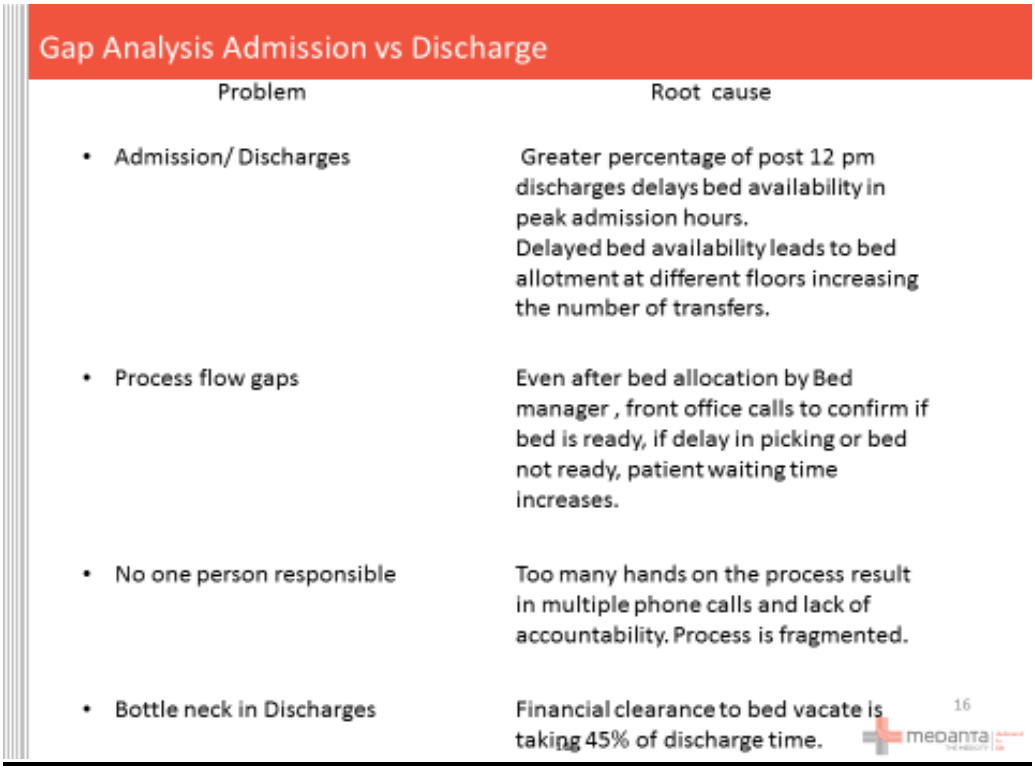



## 3) Discharge analysis for 2 IPD wings

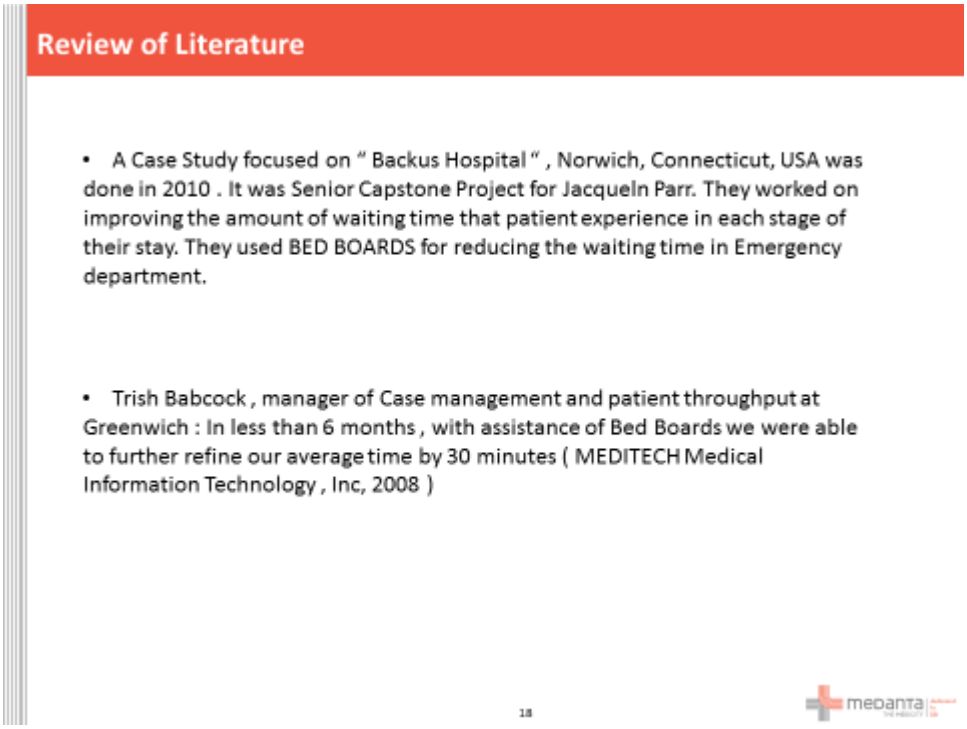




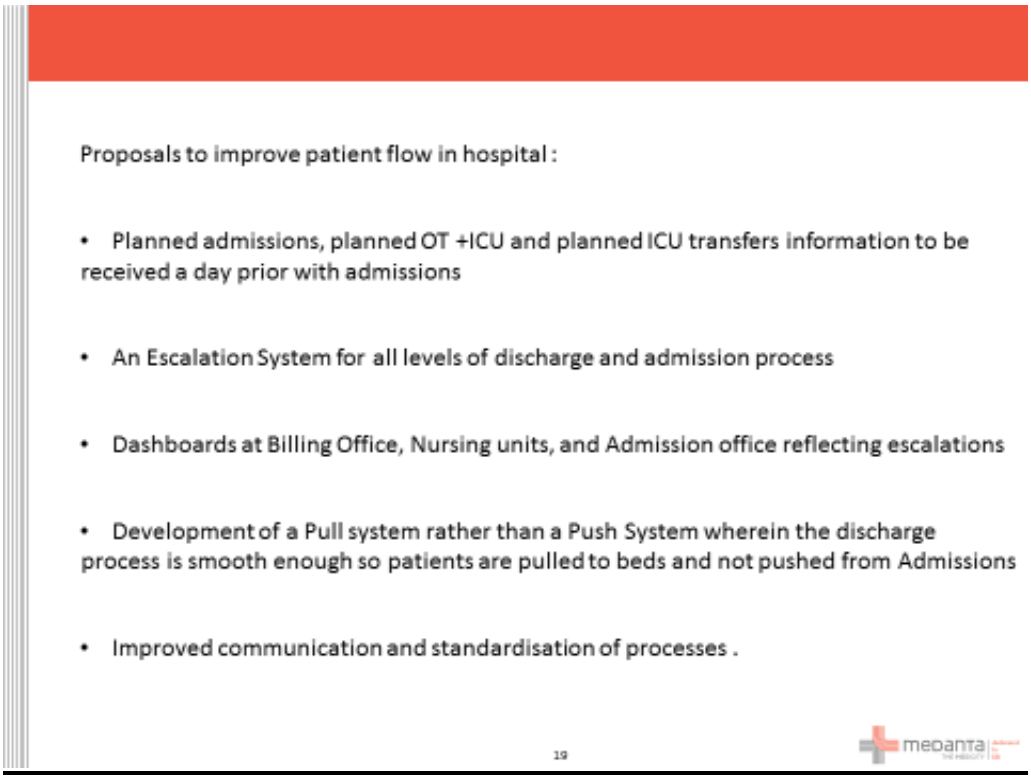

## Observations

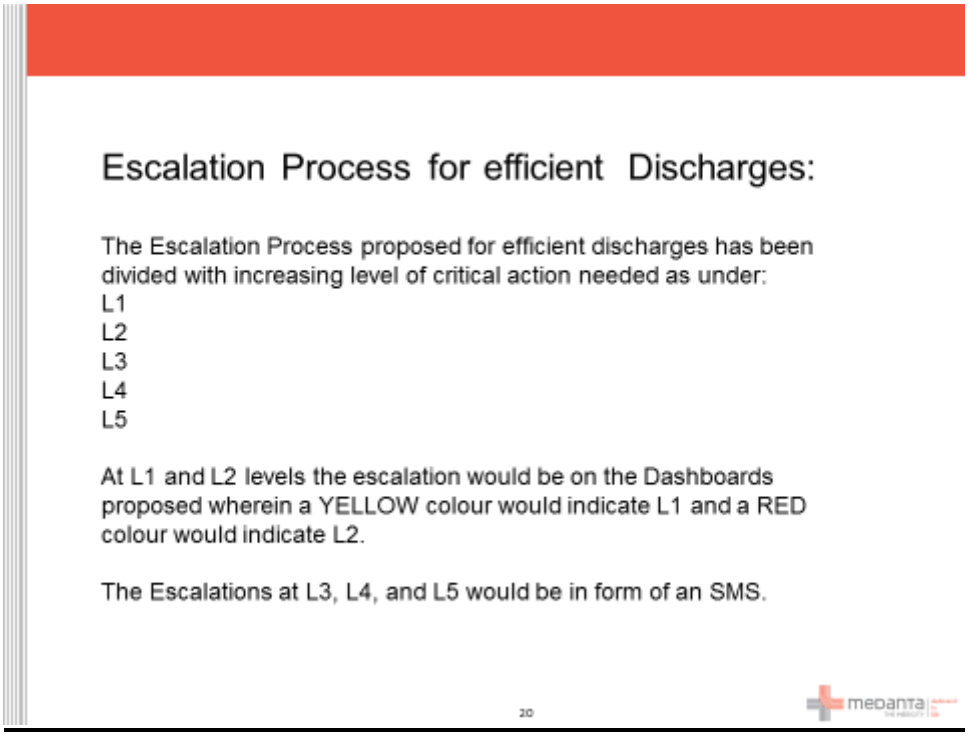



## Review of literature



**Recommendations:**



## Bill preparation
*Night Billing*

| | L1 | L2 | L3 | L4 |
|---|---|---|---|---|
| TIME | 8:30 am | 9:00 am | 9:15 am | 9:30 am |
| WHO | Billing Manager | | HOD Billing | COO |
| HOW | Dashboard Billing Office | | Message | |
| WHAT | Bed # turns | | Bed # 4156 Bill pending at L3 next escalation in 7 minutes | |

21

## Dashboard at Billing

18/5/2016
5:15 pm

Yellow : warning
Red : critical

BILLING

| Bill Preparation | | | Financial Clearance | | |
|---|---|---|---|---|---|
| Bed # | At | Time to next escalation | Bed # | At | Time to next escalation |
| 4567 | L3 | 5 mins | 4567 | L3 | 7 mins |
| 5678 | L2 | 10 mins | 5678 | L2 | 10 mins |
| 6789 | L1 | 15 mins | 6789 | L1 | 15 mins |
| 2345 | L1 | 25 mins | 2345 | L1 | 20 mins |

22

Bill preparation

*Plannned Discharges*

| | L1 | L2 | L3 | L4 |
|---|---|---|---|---|
| TIME (POST DISCHARGE ADVICE) | +30 mins | +45 mins | +60 mins | +90 mins |
| WHO | Billling Manager | | HOD Billing | COO |
| HOW | Dashboard Billing Office | | MESSAGE | |
| WHAT | Bed # turns  | | Bed # 4156 Bill pending at L3 next escalation in 12 minutes | |

23

Financial Clearance

*Night Billing ( Bill prepared )*

| | L1 | L2 | L3 | L4 | L5 |
|---|---|---|---|---|---|
| TIME | 8:30 AM | 9:00 AM | 9:15 AM | 9:30 AM | 10:00 AM |
| WHO | Nursing TL | | Institute Manager | | COO |
| HOW | Dashboard at Billing Office | | MESSAGE | | |
| WHAT | Bed # turns  | | Bed # 4156 Financial Clearance Pending at L4 , next escalation in 6 minutes. | | |

24

## Financial Clearance
*Planned Discharges*

| | L1 | L2 | L3 | L4 | L5 |
|---|---|---|---|---|---|
| Time( post billing) | +30 mins | +45 mins | +60 mins | +90 mins | + 120 mins |
| Who | Floor Manager | | Institute Manager | | COO |
| How | Dashboard at billing office | | MESSAGE | | |
| What | Bed # turns | | Bed # 4156 financial clearance pending at L3 , next escalation in 7 minutes | | |

25

## Discharge Summary
*Night Billing Cases*

| | L1 | L2 | L3 | L4 | L5 |
|---|---|---|---|---|---|
| Time | 7:00 AM | 7:30 AM | 8:00 AM | 9:00 AM | 10:30 AM |
| Who | Nursing TL | | Doctor on call | Institute Manager | COO |
| How | Dashboard at Nursing Unit | | MESSAGE | | |
| What | Bed number starts appearing : | | Bed # 4516 Discharge summary is pending at L4 next escalation in 5 minutes . | | |

26

## Dashboard at Nursing Unit

| 18/5/2016<br>5:30 pm | | | | | Yellow: Warning<br>Red : Critical | | | |
|---|---|---|---|---|---|---|---|---|
| 15 A Wing | | | | | | | | |
| Discharge Summary | | | Financial Clearance | | | Bed Vacate | | |
| Bed No. | At | Next escalation in | Bed No. | At | Next escalation in | Bed No. | At | Next Escalation in |
| 1234 | L3 | 5 mins | 1234 | L3 | 3 mins | 1234 | L3 | 4 mins |
| 5678 | L2 | 10 mins | 5678 | L2 | 5 mins | 5678 | L2 | 5 mins |
| 4567 | L1 | 15 mins | 4567 | L1 | 10 mins | 4567 | L1 | 6 mins |

27

## Discharge Summary
*Planned Discharges*

| | L1 | L2 | L3 | L4 | L5 |
|---|---|---|---|---|---|
| TIME (post discharge advice) | +30 mins | +45mins | +60 mins | +90 mins | +120 mins |
| WHO | Nursing TL/ Floor Manager | | Doctor on call | HOD | COO |
| HOW | Dashboard at Nursing unit | | MESSAGE | | |
| WHAT | Bed number turns | | Bed # 4156 Discharge Summary not ready at L3 , next escalation in 5 minutes | | |

28

## Bed Vacate

| | L1 | L2 | L3 | L4 | L5 |
|---|---|---|---|---|---|
| Time ( post Financial Clearance) | + 30 mins | +45 mins | +60 mins | + 90 mins | + 120 mins |
| Who | Floor Manager | | Head Nurse | Institute Manager | COO |
| What | Dashboard Nursing Station | | Message | | Message |
| How | Bed # turns  | | Bed # 4156 Bed vacate pending at L4 , next escalation in 10 minutes | | |



Bed Release : Escalation process already exists with House keeping

## Escalation Process for efficient Admissions:

The Escalation Process proposed for efficient discharges has been divided with increasing level of critical action needed as under:
L1
L2
L3
L4
L5

At L1 and L2 levels the escalation would be on the Dashboards proposed wherein a YELLOW colour would indicate L1 and a RED colour would indicate L2.

The Escalations at L3, L4, and L5 would be in form of an SMS.



## Dashboard at Admissions

18/5/2016
5:15 pm

Yellow : warning
Red : critical

ADMISSIONS

| Bed Allotment | | | Marked arrival in Bed | | |
|---|---|---|---|---|---|
| Patient id | At | Time to next escalation | Patient id | At | Time to next escalation |
| 4567 | L2 | 5 mins | 4567 | L2 | 7 mins |
| 5678 | L2 | 10 mins | 5678 | L2 | 10 mins |
| 6789 | L1 | 15 mins | 6789 | L1 | 15 mins |
| 2345 | L1 | 25 mins | 2345 | L1 | 20 mins |

## Bed Allottment

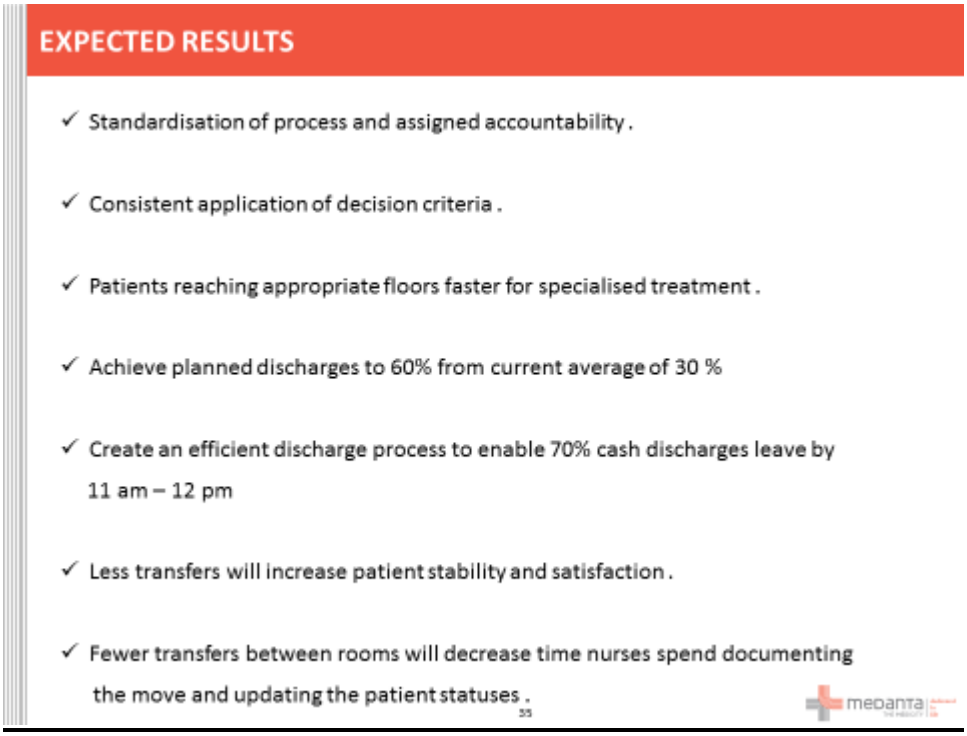
| | L1 | L2 | L3 | L4 | L5 |
|---|---|---|---|---|---|
| Time ( post RFA confirmation ) | +30 mins | +45 mins | + 60 mins | +90 mins | + 120 mins |
| Who | Manager Admission | | GM- PCS | HOD | COO |
| How | Dashboard at admissions | | Message | | Message |
| What | Bed # turns | | Bed # 4156 Bed Allotment pending at L3 , next escalation in 6 minutes | | |

53

## Marked Arrival In Bed

| | L1 | L2 | L3 | L4 | L5 |
|---|---|---|---|---|---|
| Time( post bed allotment) | + 30 mins | + 45 mins | + 60 mins | + 90 mins | + 120 mins |
| Who | Manager Admissions | | GM - PCS | Institute Manager | COO |
| How | Dashboard at admissions | | MESSAGE | | |
| What | Bed # turns | | Bed # 4156 mark arrival in bed pending at L5 | | |

54




## 4.References


- Essentials of Operation Management (book) by Nigel Slack
- Managing Business Process Flow (book) by Ravi Anupindi
- Process flow Manuals Provided by Operations department, Medanta the Medicity.
- The ecology of the patient visit: a Study by Franklin Becker : J Ambulatory care manage ,vol.31, No.2.
- www.googlescholar.com

Introduction:

- A FACILITY AUDIT is a comprehensive review of a facility's assets. They are a standard method for establishing baseline information about the components, policies, and procedures of a new or existing facility.
- An audit is a way of determining the "status" of the facility at a given time-that is, it provides a snapshot of how the various systems and components are operating.

FACILITY AUDITS are important because they:

- Help planners, managers, and staff know what they have, its condition, service history, maintenance needs, and location.
- Establish a baseline for measuring facilities maintenance progress.
- Provide facts, not guesswork, to inform plans for maintaining and improving facilities.

Objectives :

- To understand the current Facility Management of Medanta – The Medicity

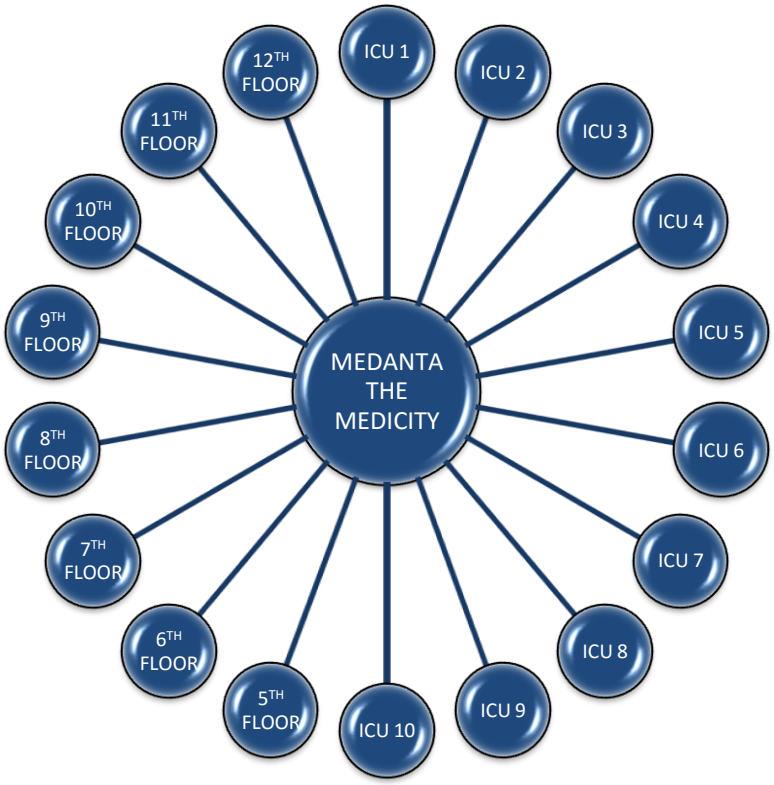
- To identify the Non compliant areas in Facility Management resulting in safety hazards.
- To provide the solutions for the problems identified.
- Methodology :

  Study type: Descriptive

  Study area : In the FMS AUDIT conducted for the month of April 2016, the IPDs, OPDs and the ICUs were assessed under the following parameters:

  - Fire safety
  - Hospital Safety
  - HAZMAT
  - Biomedical Equipment
  - Engineering

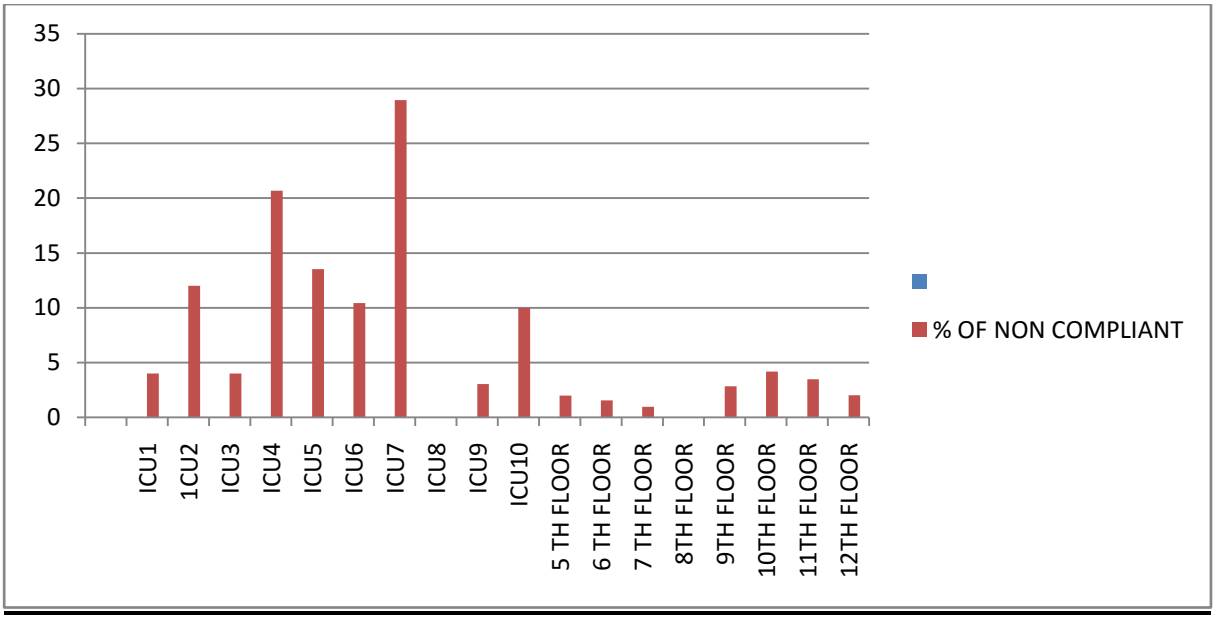
The areas covered are as under :




The observations regarding the fire safety were made under the following categories:

- Signage
- Fire hose
- Fire extinguisher
- Refuge Area
- Equipment room
- Fire Exits
- Staff knowledge

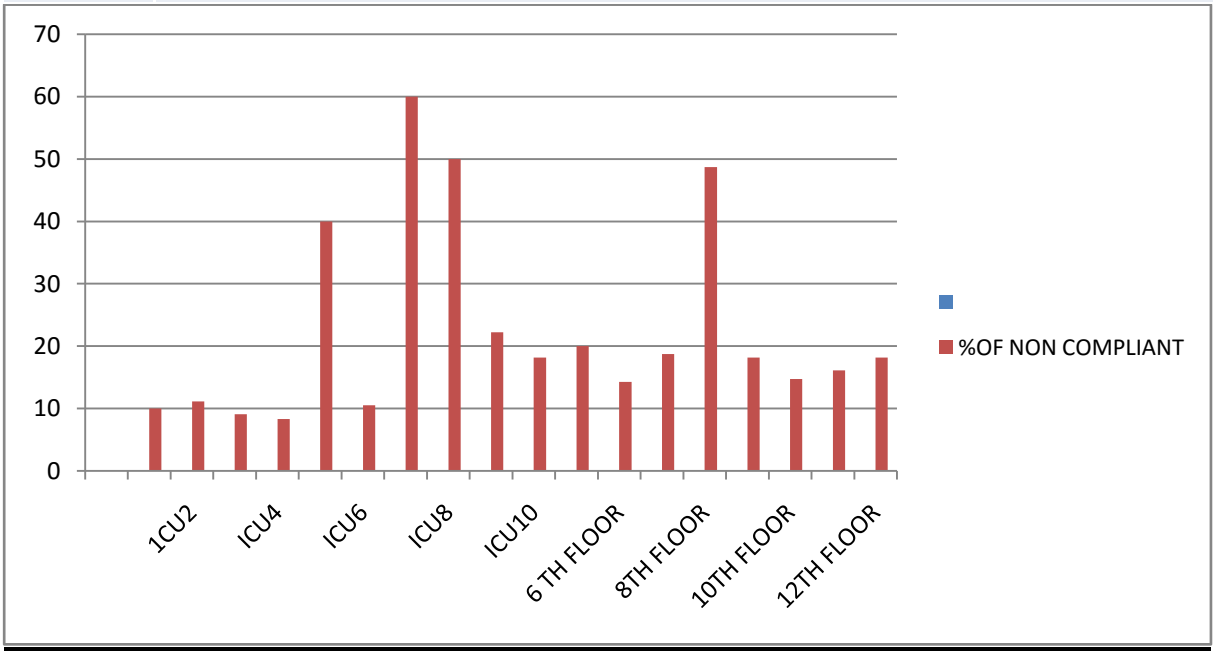
**AREA-WISE PERCENTAGE OF NON COMPLIANCE IN FIRE SAFETY**




**The HAZMAT was assessed under the following categories**

| Category | Parameters |
|---|---|
| Storage | HAZMAT Chemical are stored have a label "For HAZMAT only) |

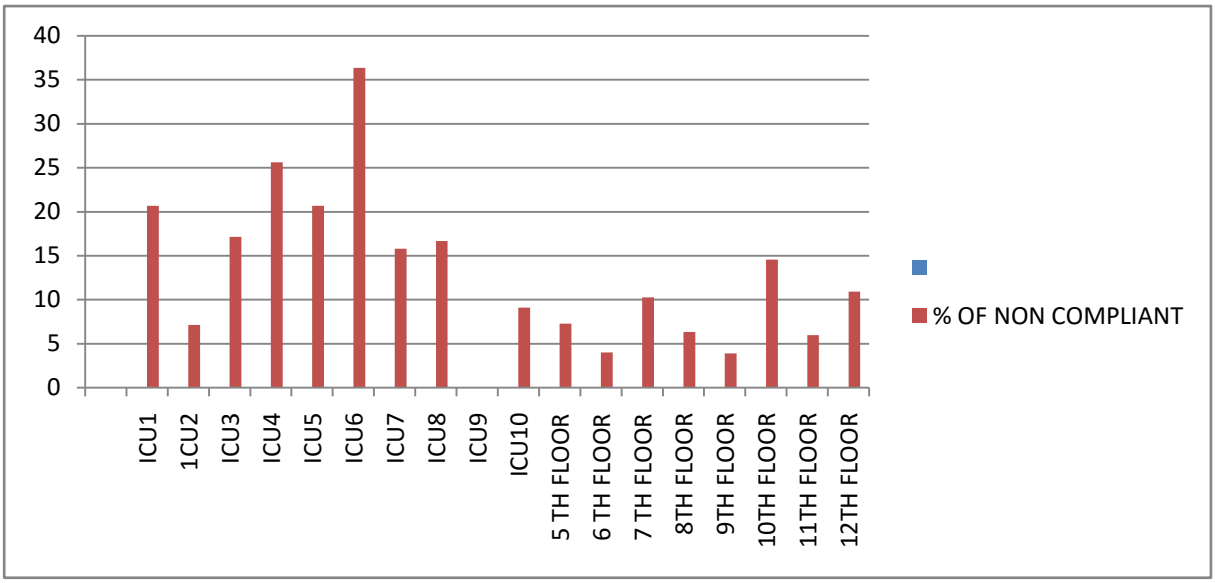
| | |
|---|---|
| | Opened primary containers have a label containing date of opening and date of expiry |
| | Secondary container is labelled with 'For HAZMAT use only' with a yellow colored hazmat label |
| | MSDS is available with the department for all chemicals present there |
| | HAZMAT spill kit is available on the location and content list is pasted |
| | Contents in the kit match the list |
| Staff Knowledge | How to manage a major spill? |




**The HOSPITAL SAFETY was assessed under the following categories:**

| CATEGORY | PARAMETERS |
|---|---|
| | |
| Access safety | Security guard deployed at the entry of all patient care area |
| Room safety | Patient medication drawers are locked and locks are functional (Check any 3) |
| Employee ID | Each person in the IP area is identifiable by an ID card/ attendant pass/ visitor pass/ other |
| Nursing station | Patient file are secured |
| Staff knowledge (Security Guard) | All Keys are available with guard and are in working condition. |
| Corridors | No food trays in corridors |

**AREA-WISE PERCENTAGE OF NON COMPLIANCE IN HOSPITAL SAFETY**

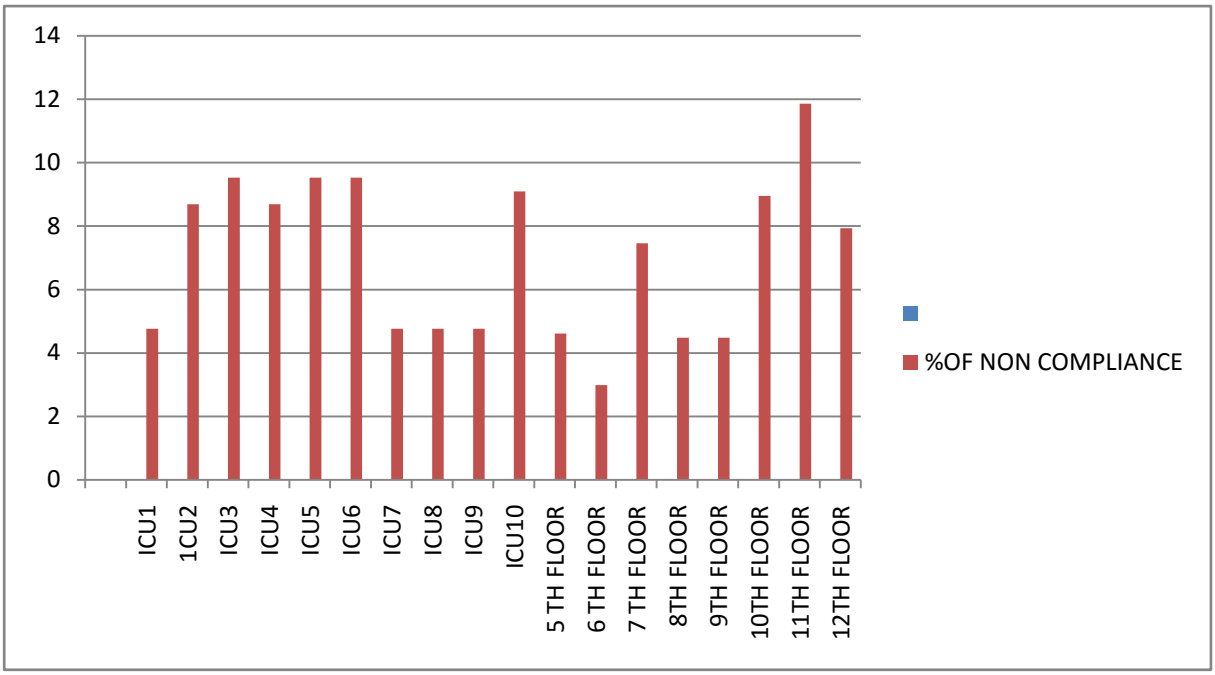



**The ENGINEERING facility was assessed under the following categories:**

- Wall
- Floor
- Doors
- Electrical Connection
- Stairs
- Room safety
- Corridors
- Medication Rooms
- Dirty Utility

**AREA-WISE PERCENTAGE OF NON COMPLIANCE IN ENGINEERING**

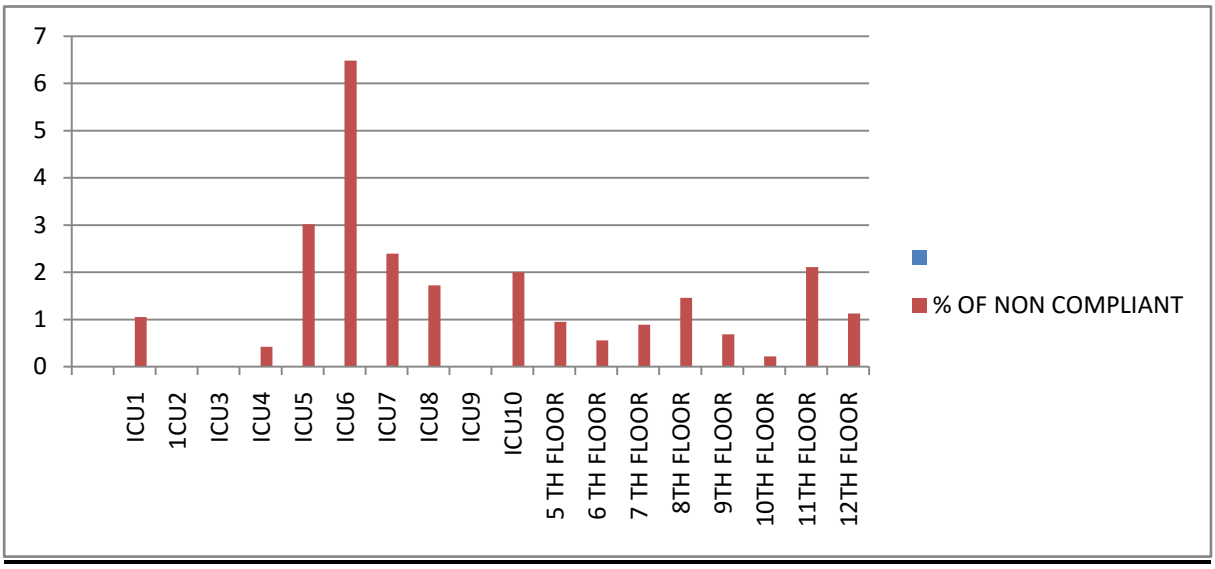
**The BIOMEDICAL EQUIPMENT was assessed under the following parameters:**


14
12
10
8
6
4
2
0
ICU1
1CU2
ICU3
ICU4
ICU5
ICU6
ICU7
ICU8
ICU9
ICU10
5 TH FLOOR
6 TH FLOOR
7 TH FLOOR
8TH FLOOR
9TH FLOOR
10TH FLOOR
11TH FLOOR
12TH FLOOR
%OF NON COMPLIANCE

**The BIOMEDICAL EQUIPMENT was assessed under the following parameters:**

| S. NO. | PARAMETERS |
|---|---|
| 1 | Equipment has a preventive maintenance (PM) sticker which is up to date and contains all the 4 items |
| 2 | A complaint has been raised for non functional equipment (if applicablel) and a complaint # is available |
| 3 | Equipment is clean and stain free |
| 4 | Equipment is not damaged/ worn & torn/ rusted |
| 5 | Bed Wheels are functional (check any 2) |
| 6 | Bed locks are functional (check any 2) |
| 7 | Bed side rails are functional (check any 2) |
| 8 | Every bed has a PM sticker which is up to date (check any 2) |
| 9 | Every wheel chair has a PM sticker which is upto date (check any 2) |
| 10 | Direction of flow of gases is marked in the gas panel/AVSU |
| 11 | Gases in the pipes are identified by name in AVSU |
| 12 | Direction of opening and closure of gas valves is marked in AVSU |
| 13 | Staff are aware as to where the gas panel key is located |
| Room safety | Call bell is provided at the bed side and is working properly |
| | Call bell is provided in the washroom and is working properly |
| | Call bells have hanging cords in washrooms |
| Nursing station | Point of care testing equipment quality check is done daily |

**AREA-WISE PERCENTAGE OF NON COMPLIANCE IN BIOMEDICAL EQUIPMENT**




**MAJOR NON COMPLIANT AREAS :**

- Patient Medication Drawers: Not locked
- Management of major HAZMAT spill
- Staff knowledge regarding fire
- Electrical distribution boards: not locked

Interventions Post FMS Audit

1) Patient medication drawers not locked:

- The observations during FMS Audit in April 2016 reflected that the medication drawers were

not locked in 99% of the patient's bed side. When the nursing staff was questioned for the

same it was observed that they were unaware regarding the importance of locking the

bedside medication drawers and the non compliance associated with the same.

- This comes as a non compliance under Medication Management and Patient Safety. The major hazard with this non compliance is of Self Medication by the patient. This also violates the JCI policy of Safe Drug Storage.

INTERVENTION:

- Understanding the importance of this non compliance an intervention has been planned where in an email will be circulated to all the concerned floor managers and the nursing TL. In the email the audit findings will be shared with them.
- They would also be educated and reinforced regarding the importance of locking the patient bedside medication drawers and the hazards of not locking the same.
- Re- auditing to be scheduled 2 days post the email.

2. How to manage HAZMAT major spill:

- HAZMAT major spill is a major safety hazard ,thus managing it is of utmost importance in relation to patient and staff safety.
- The observations in the FMS audit conducted in April 2016, reflected that there was < 50% compliance in the knowledge regarding how to manage a major hazmat spill.

INTERVENTION:

- Mock drills to be conducted and live management of hazmat major spill to be done .
- The posters educating the staff on how to manage HAZMAT major spill to be pasted on all the nursing units.
- Scheduling of audit in form of a questionnaire exam mandatory for all employees 15 days post the interventions.

## 3. Staff knowledge regarding fire

During the FMS AUDIT for fire safety in April 2016, the observations reflected less than compliance in the knowledge regarding fire safety.

Though, the induction training of the staff included fire safety, majority of the staff could bot answer major questions related to fire safety.

INTERVENTION:

A training session in fire safety needs to be scheduled where the staff would be retrained. Such trainings should be carried out at regular intervals.

## 4. Electrical Distribution Boards were not locked

Electricity is invisible, silent, dangerous and not obvious to most of the people. Opened electrical boards pose a serious threat to the people as well as the surroundings. Electrical shock and fire are the major hazards caused due to exposed electrical wires.

- INTERVENTION:
  Realising the importance of locked electrical distribution boards, we plan to ensure a daily check regarding the same for initial one week, followed by a regular weekly check keeping the engineering department and the on duty security guards in loop.