

**Summer Training at  
Medanta-The Medicity, Gurgaon  
(April - June, 2013)**

- 1. A STUDY OF THE COMPETENCIES OF THE PARAMEDICAL  
STAFF**
- 2. A REVIEW OF THE MANPOWER REQUIREMENTS OF THE  
MEDANTA, THE MEDICITY**
- 3. A STUDY OF THE NURSING MANPOWER REQUIREMENTS  
MEDANTA, THE MEDICITY**

**By  
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**Under the guidance of  
Dr. Vinod Kumar S.V.**

**Post Graduate Diploma in Hospital and Health Management  
2012-2014**



**Institute of Health Management Research,  
Jaipur  
2013**

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**CERTIFICATE**

This is to certify that Dr. Arpita Aggarwal student of Post Graduate Diploma in Hospital and Health Management (PGDHM) from Institute of Health Management and Research, Jaipur Batch 17th has undergone summer training in Medanta-The Medicity, Gurgaon from April 8th to June 8th 2013.

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

I wish her success in all her future endeavors.



**Dr. Vinod Kumar SV**

Associate Professor and Mentor  
IIHMR, Jaipur



**Dr. Ashok Kaushik**

Dean, Academics and Student affairs  
IIHMR, Jaipur



Date: 08<sup>th</sup> June 2013

**TO WHOMSOEVER IT MAY CONCERN**

This is to certify that **Dr. Arpita Aggarwal** has completed her 2 months summer training from **08<sup>th</sup> April 2013** to **08<sup>th</sup> June 2013** with **Global Health Private Limited (GHPL)**, Medanta The Medicity Hospital, Gurgaon (Haryana).

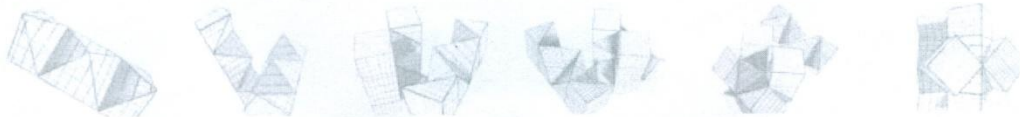
Very truly yours,

For **Global Health Private Limited**

A handwritten signature in black ink, appearing to read "Arun Datta", is written over a faint, large watermark of a building or structure.

**Mr. Arun Datta**

**Sr. Vice President - HR**



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### **Acknowledgement**

I, Arpita Aggarwal, a student of PGDHM 17 at IIHMR Jaipur, would like to sincerely express my heartfelt gratitude to:

- Mr. Pankaj Sahni, Chief Operating Officer, Mr. Arun Datta, Senior Vice President, Mrs. Arvinder Bagga, Vice President, Dr. Awadhesh Kumar Dubey, Medical Superintendent, Dr. Monisha Chaudhry, Senior Manager, Human Resources Department, Dr. Preet Verma, Assistant Manager, Human Resources Department, Dr. Chhavi Arora, Management Trainee, Human Resources Department, Medanta, The Medicity, for helping and guiding me throughout my summer interenship.
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- 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.

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## **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

## **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 my summer 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 Trehan is 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, Tibetan 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.

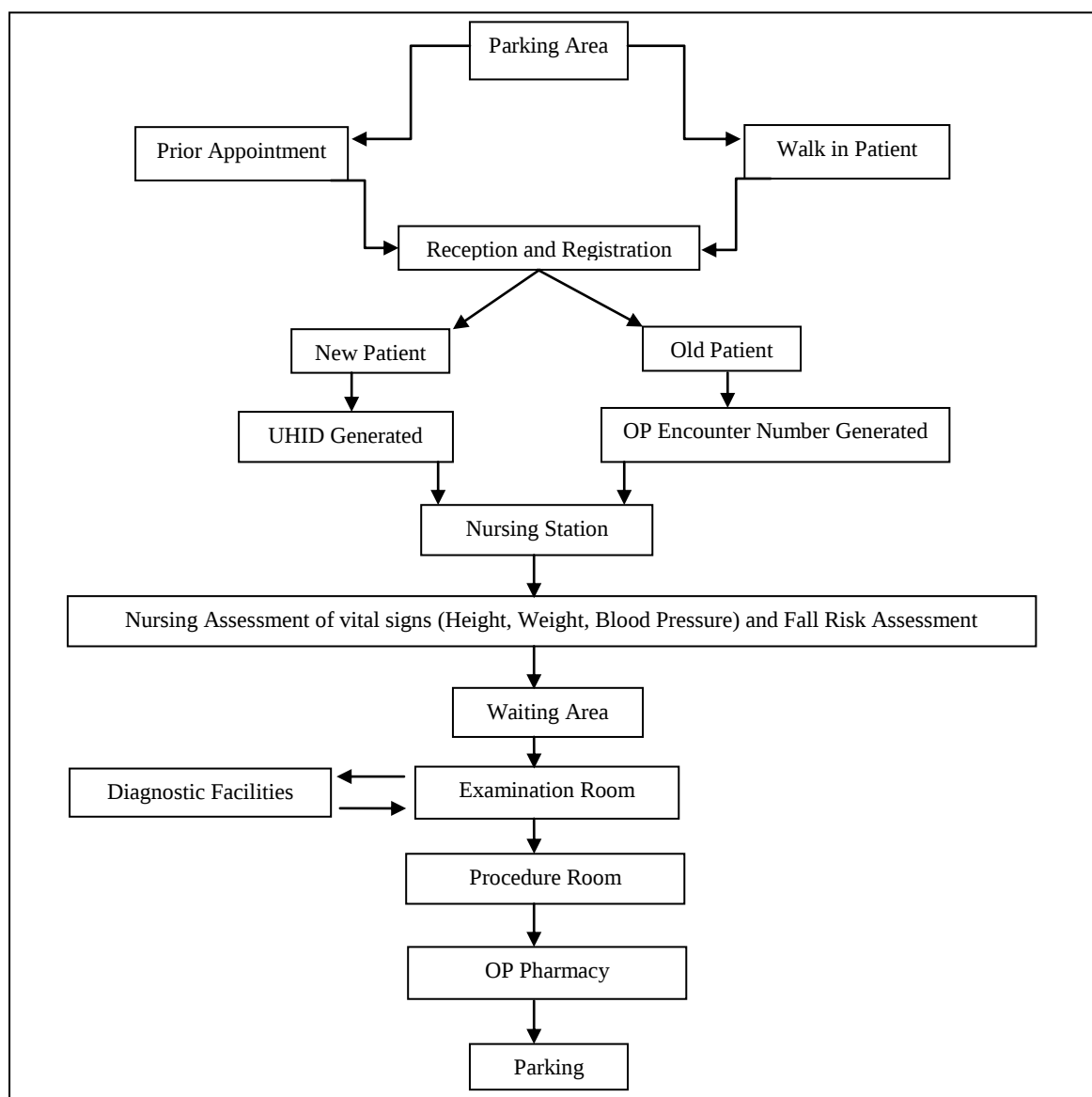
- After permission was secured and a schedule was made to observe the various departments of the hospital, we went and sought appointments from the concerned personnel in the various departments.
- Once these permissions were obtained, we got the details of personnel who would guide us in these departments.
- The schedule of our rotation is attached as Annexure 1.

## **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.

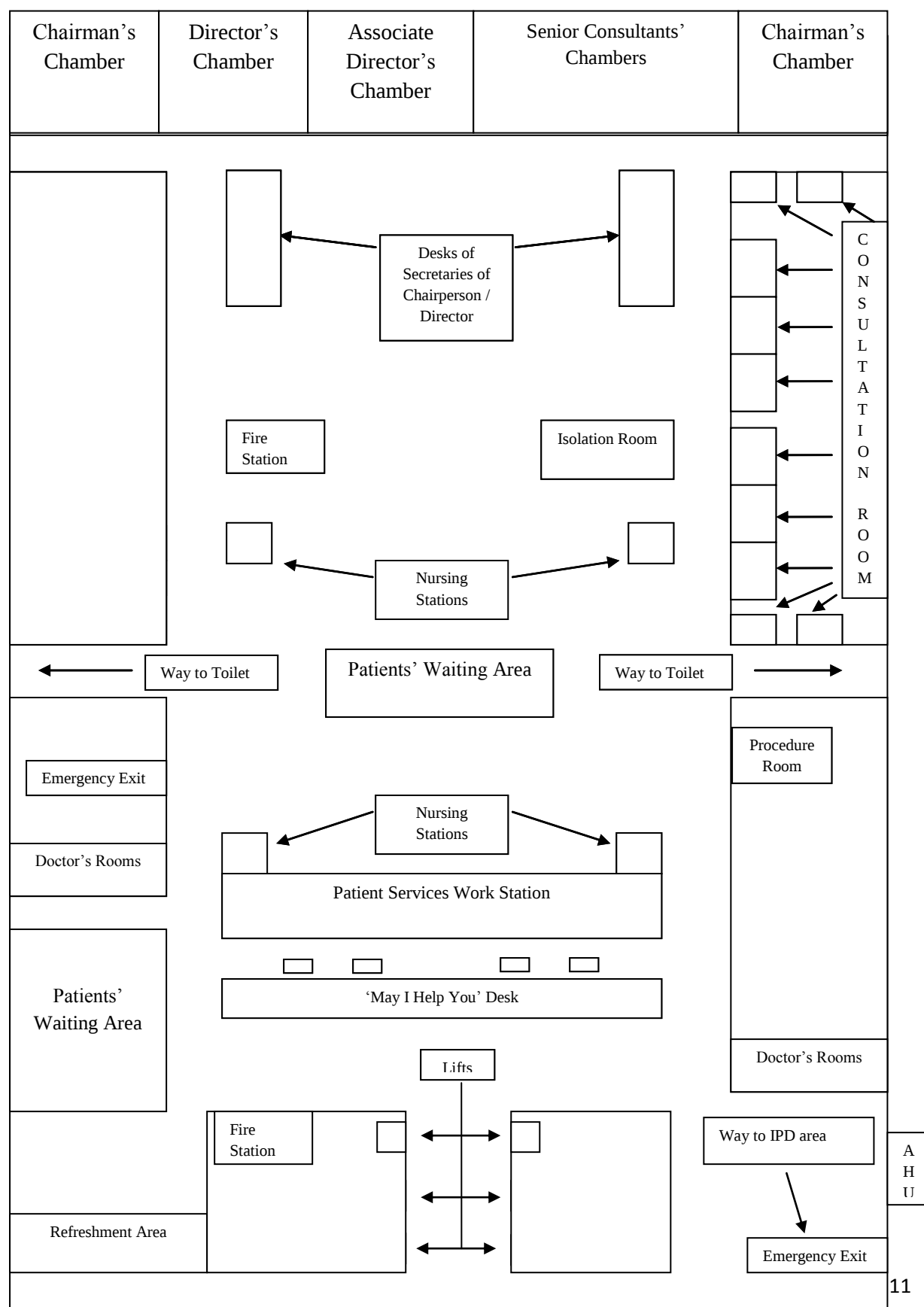
**a) OPD:**As has been mentioned earlier in this report, it can be said that each floor of Medanta houses a separate institute of clinical excellence. Each institute has its own OPD area as well as IPD area / day-care area wherever applicable. The general process flow that is followed in all the OPDs 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 10<sup>th</sup> floor and the 12<sup>th</sup> 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.

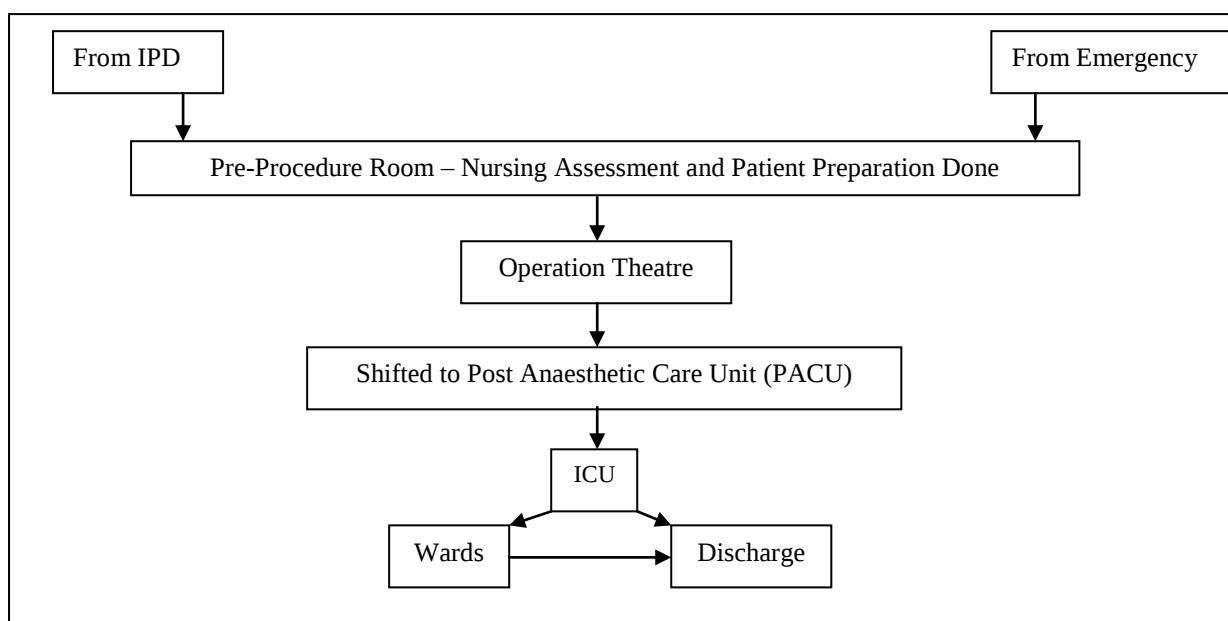
#### **b) Operation Theatre**

The OTs of Medanta the Medicity are situated on the 1<sup>st</sup> floor. There are currently 23 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**



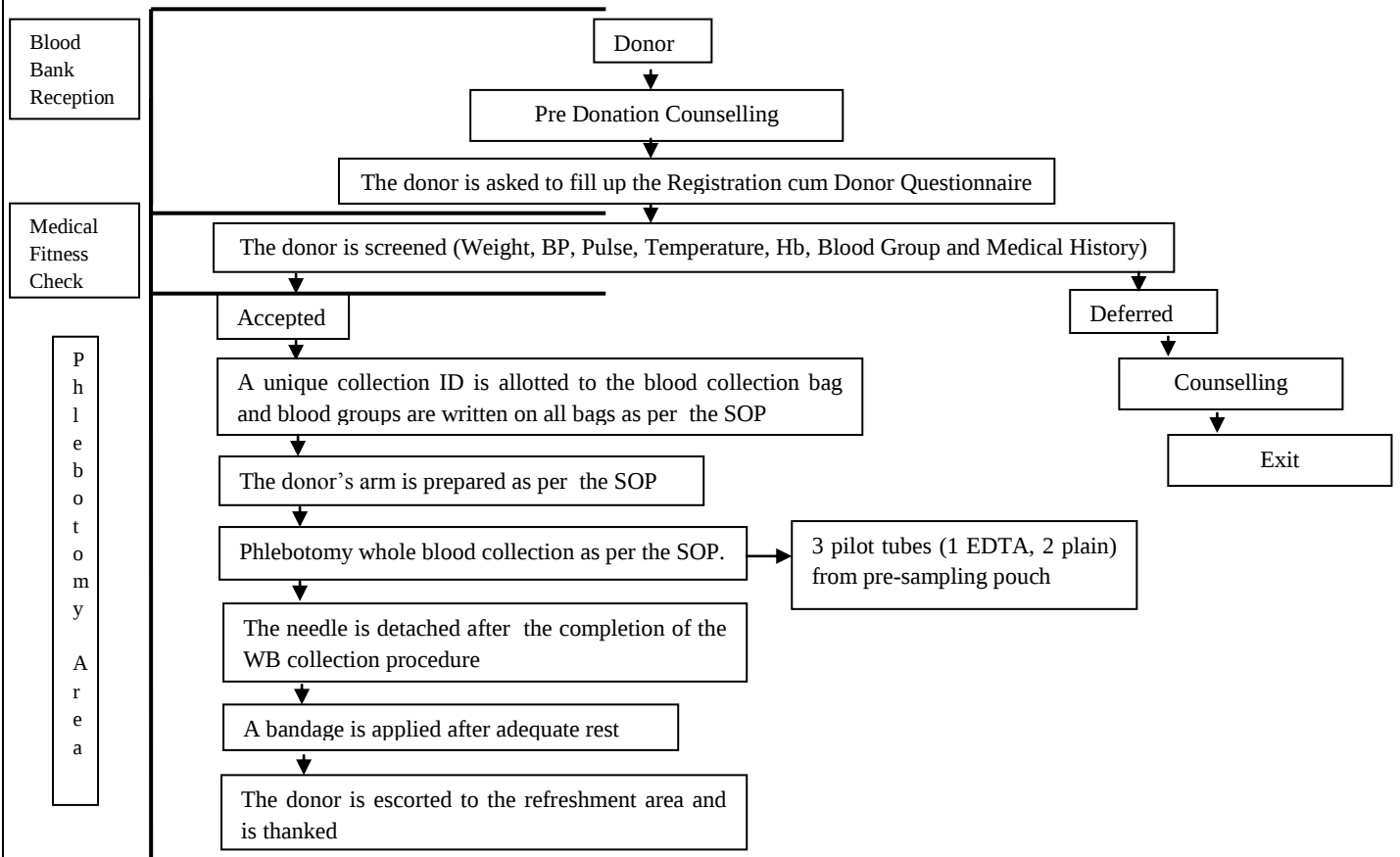
### c) Blood Bank

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.     | Date                                  | 30/11/2009                                                                                                                                                                                                                                                                       |
| 3.     | Validity                              | 5 years                                                                                                                                                                                                                                                                          |
| 4.     | Name of the items on License          | <ul style="list-style-type: none"> <li>• Whole human blood. IP</li> <li>• Concentrate Human RBC ( Packed RBC) IP</li> <li>• Platelets concentrates, USP</li> <li>• FFP,BP</li> <li>• Plateletpheresis / Leukapheresis using cell separator</li> <li>• Cryoprecipitate</li> </ul> |
| 5.     | Name of the competent technical staff | <ul style="list-style-type: none"> <li>• Blood bank officer</li> <li>• Technical supervisor</li> <li>• Technicians</li> <li>• Registered Nurse</li> </ul>                                                                                                                        |
| 6.     | 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:

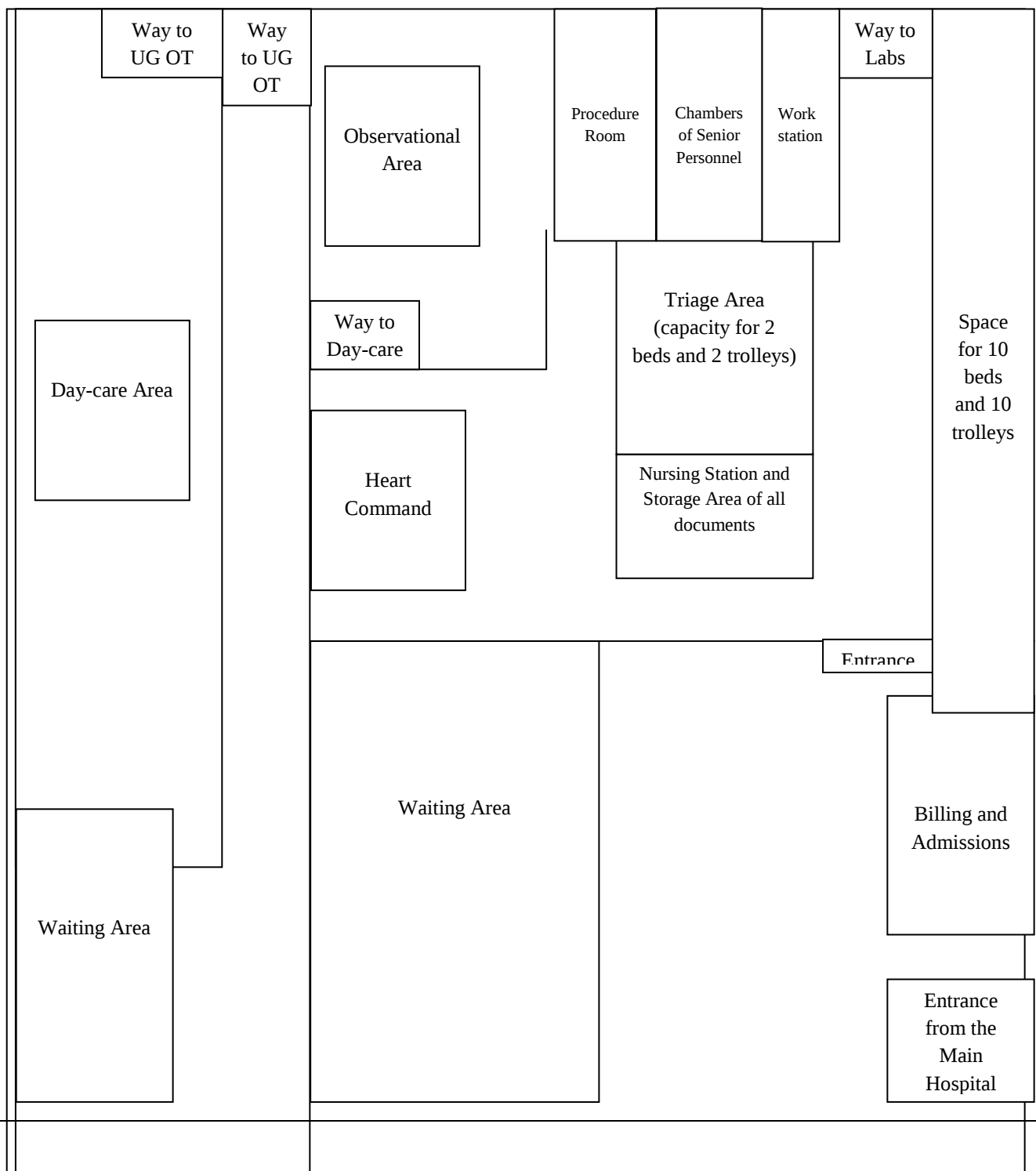
| Sr. No | Blood Group | Label Colour |
|--------|-------------|--------------|
| 1.     | B           | Red/ Pink    |
| 2.     | A           | Yellow       |
| 3.     | O           | Blue         |
| 4.     | AB          | White        |
| 5.     | RH +ve      | Black        |
| 6.     | RH –ve   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

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**

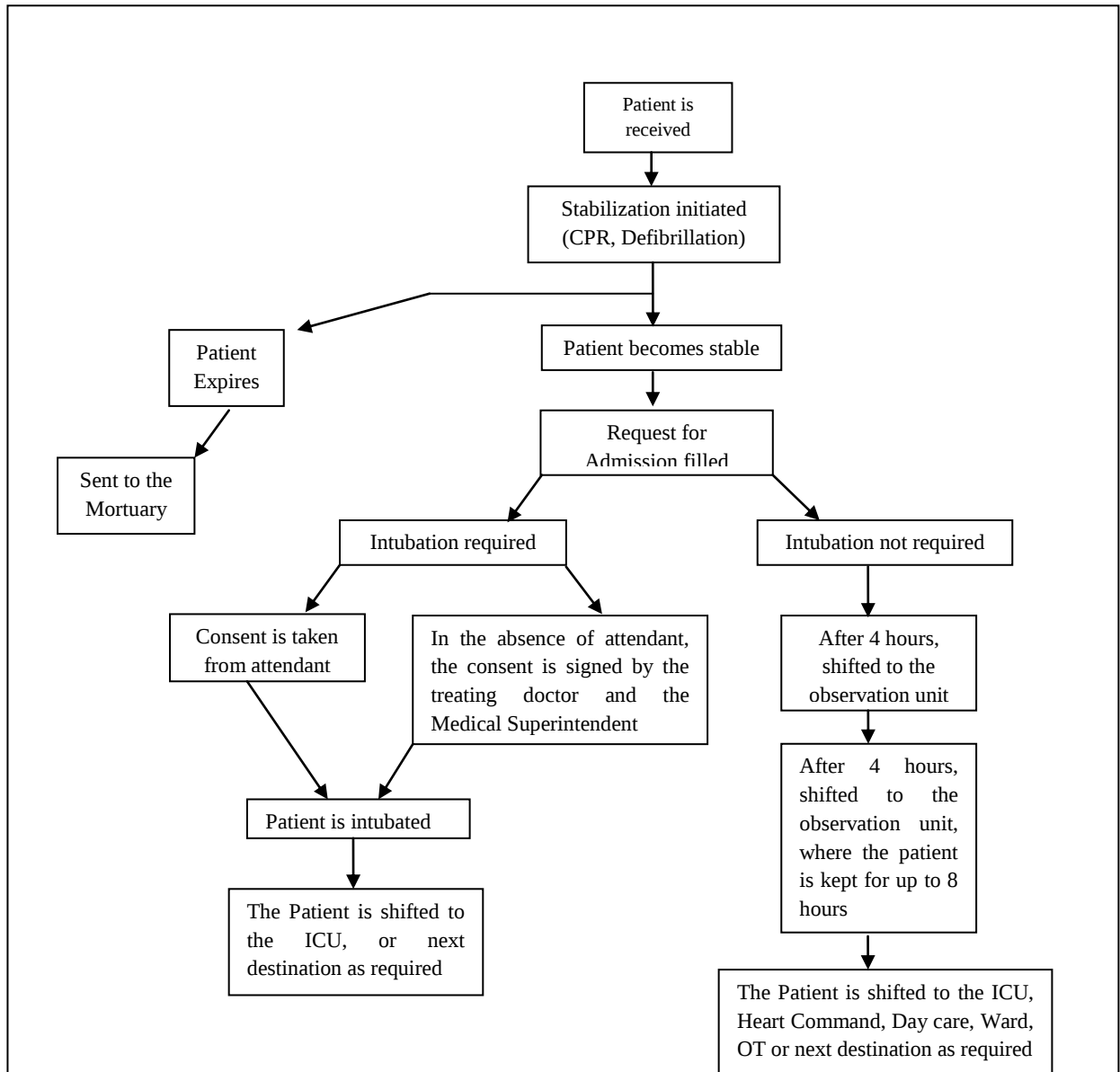


Emergency  
Entrance

Emergency Entrance

The flow of information in the Emergency Department is as has been enumerated below

**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             | 10              | 10+10                  | 3-9                | -         |
| 2     | Observational area | 08              | 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  | <ul style="list-style-type: none"> <li>• Basic life support</li> <li>• Advanced life support</li> <li>• Air Ambulances</li> </ul>                                     |
| 3.     | Air Ambulance        | <ul style="list-style-type: none"> <li>• Non Scheduled passenger air ambulance</li> <li>• 40-50 patients are brought in by through this method every month</li> </ul> |
| 4.     | Air Ambulance Staff  | <ul style="list-style-type: none"> <li>• Anesthetist</li> <li>• Cardiologist</li> <li>• Emergency medical officer</li> <li>• Nurse</li> </ul>                         |

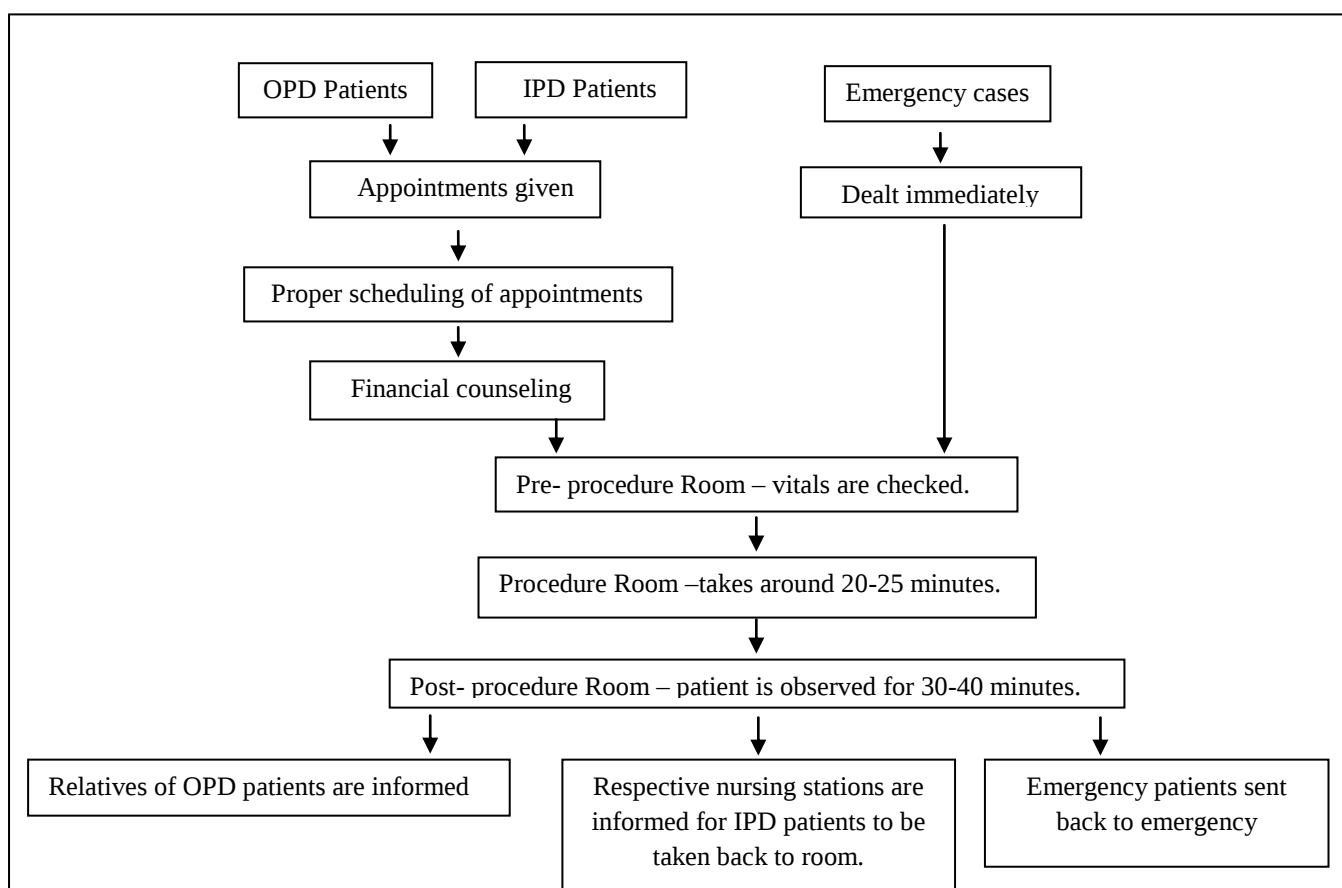
#### e) Endoscopy

This department is situated on the 11<sup>th</sup> 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 doors in 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 thrium 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 the hospital 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.

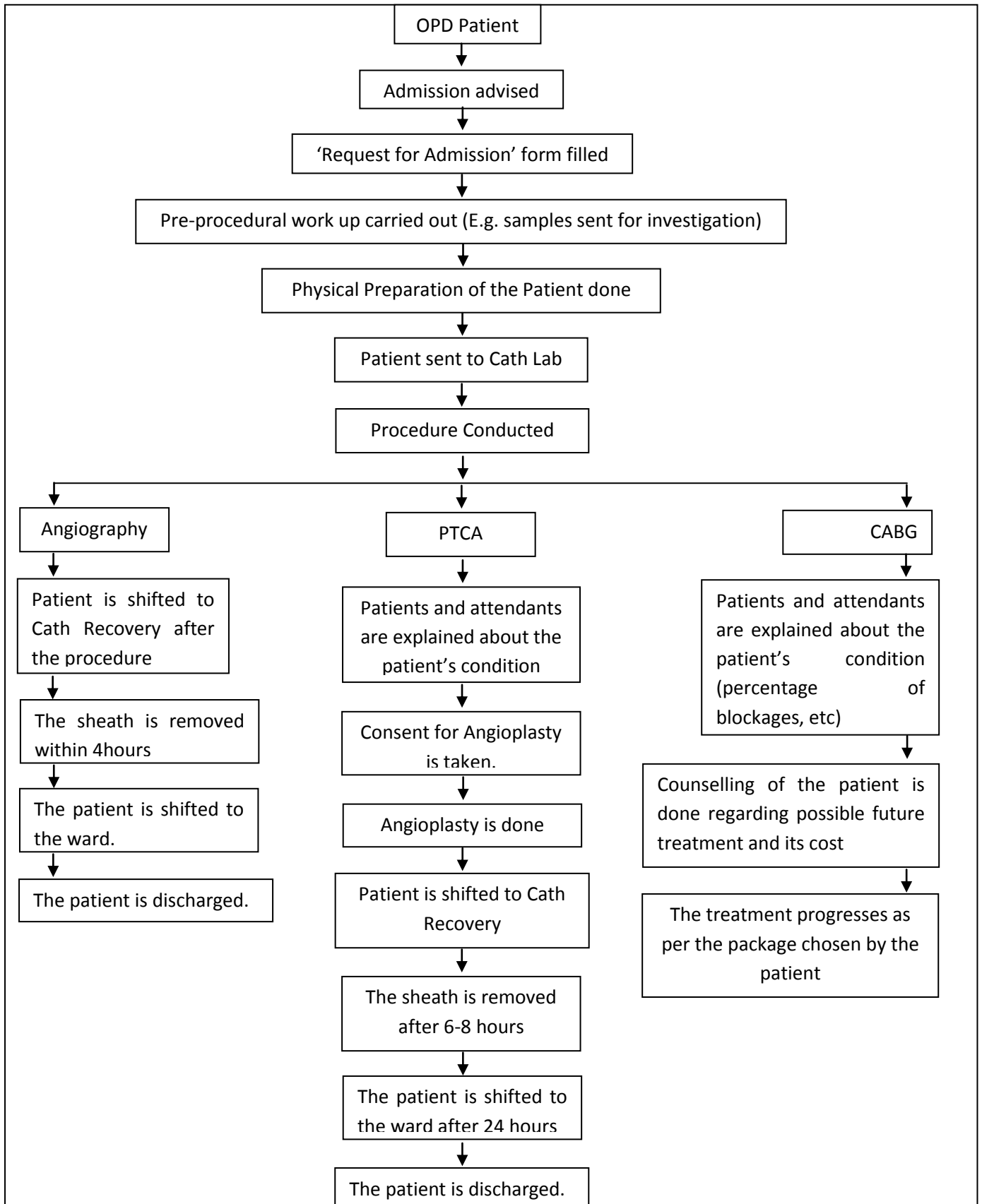
### **j) Engineering**

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**



l) Radiation Oncology

This department is situated on the lower ground floor. It has an Integrated Brachytherapy Unit (IBU) for intra operative and post operative treatments for cancer related to the cervix and soft tissue sarcomas along with prostate seed implants. The procedure rooms have been made keeping in mind the AERB (Atomic energy regulatory board) standards.

Innovative techniques such as Robotic Radio Surgery with the world's first Cyberknife VSI system; Image Guided Radiotherapy (IGRT) with X-Ray Volume Imaging are some of the super-specialty treatments offered by this department of Medanta the Medicity.

m) Intensive Care Unit

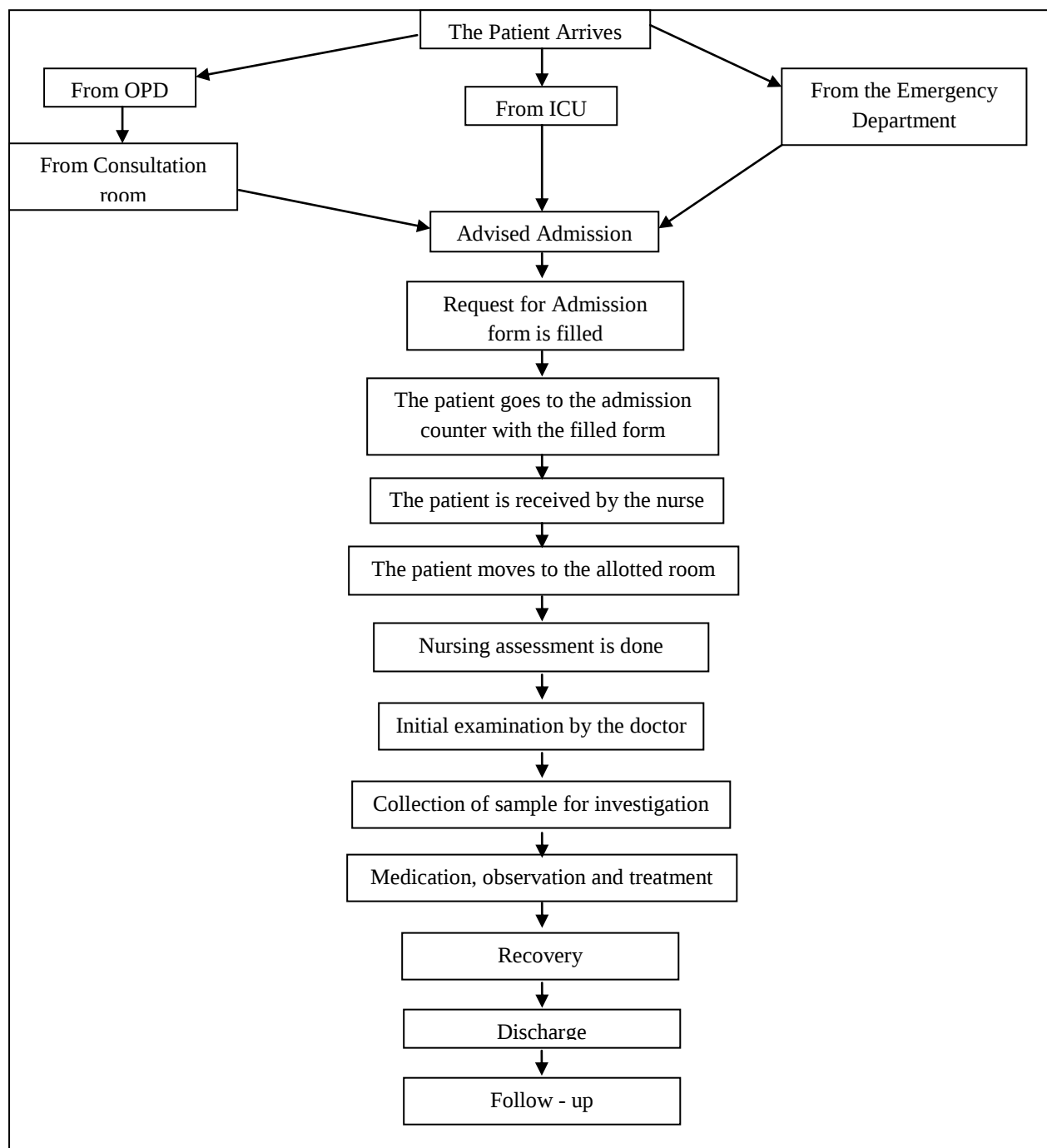
The distribution of the Intensive Care Units of Medanta the Medicity is as has been enumerated below.

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

#### n) In-Patient Department

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) In-Patient Pharmacy**

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 12<sup>th</sup> 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) Medical Gases**

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 Mr. Arun Datta, the Senior Vice President of Medanta as a part of the HR department's requirements for the upcoming audit by The Joint Commission.

### **PROJECT 1: Study of competencies of Paramedical Staff**

The departments, sub-departments and jobs covered by me for this project are as follows:

| Sr. No | Departments                          | Sub-Depatment | Job                                   |
|--------|--------------------------------------|---------------|---------------------------------------|
| 1      | Radiology                            | CT-Scan       | Technologist<br>Technician            |
|        |                                      | Mammography   | Technician                            |
| 2      | Radiation Oncology                   |               | Physicist<br>Technologist/ Technician |
| 3      | Central Sterile Supply<br>Department |               | Technologist/ Technician              |
| 4      | Dialysis                             |               | Technologist<br>Technician            |
| 5      | Cardiology Non-Invasive              |               | Technician                            |
| 6      | Ayurveda                             |               | Technician                            |
| 7      | Endocrinology                        |               | Diabetes Educator                     |

### **3. I.A Introduction**

Competency may be described as the vital behavioural skills, knowledge and personal attributes that are translations of organizational capabilities and are deemed essential for success. They distinguish exemplary performers from adequate performers. In this regard, competencies go beyond traditional job descriptions because they focus on how employees perform their jobs, not simply on what they do. While job descriptions detail specific tasks, competencies encompass the tangible and intangible abilities that the employees possess.

Competency could be said to have 4 major components:

- *Skill*: capabilities acquired through practice. It can be a financial skill such as budgeting or a verbal skill such as making a presentation.
- *Knowledge*: Understanding acquired through learning. This refers to a body of information relevant to job performance. It is what people have to know to be able to perform a job, such as knowledge of policies and procedures for a recruitment process.

- *Personal Attributes*: Inherent characteristics which are brought to the job, representing the essential foundation upon which knowledge and skill can be developed.
- *Behaviour*: The observable demonstration of some competency, skill, knowledge and personal attributes. It is essentially definitive expression of a competency in that it is a set of actions that, presumable, can be observed, taught, learned and measured.

Therefore, competency can be said to include only those behaviours that demonstrate excellent performance. Thus, they do not include knowledge per se, but do include applied knowledge or the behavioural application of knowledge that produces success. In addition, competencies do include skills, but only the manifestation of skills that produce success.

There are essentially 4 types of competency:

- *Employee Core Competency*: These are competencies that relate to organization's values, mission and strategy; these are competencies that reflect organizational core capabilities and should be possessed by all employees regardless of their function. Example – Customer satisfaction and Quality orientation
- *Managerial Competency*: These are competencies that relate to skills needed to perform managerial work and process; it deals with the interaction process either with individual or group of people. Typically generic in nature, these competencies are common skill sets required by most companies; are not necessarily industry specific and are not confined to managerial positions. In typical organizations, managerial competencies will play greater emphasis as the position progresses within the organization. In general, managerial competency could be divided into two categories:
  - *Human Competency*: These are the ability to work with, understand and motivate other people as individuals or in a group. It relates to the individual's expertise in interacting with others in a way that will enhance the successful completion of the task at hand. Example: Interpersonal skills, developing people.
  - *Conceptual Competency*: These are the ability to understand the degree of complexity in a given situation and to reduce that complexity to a level at which specific courses of action can be derived.
- *Technical/ Functional Competency*: Competencies that pertains to specific bodies of knowledge and skills required to perform the defined activities in an industry, function

or job. It includes the abilities to use the procedures. Techniques and knowledge of a specialized field. Example – Sales ability, behaviour interview technique.

- *Personal Attribute*: Competencies that relate to inherent personal characteristics (e.g. - motives, self image, self concept, etc) and potentially affect work attitude and performance. Example – tolerance for stress, achievement motivation.

### **3.1B: Objectives:**

1. To define and describe the desired skills, knowledge, of all paramedical staff.
2. To formulate a defined process to ensure that Paramedical Staff's knowledge and skills are consistent with organization's needs and the requirements of the position.
3. To assist in the updating of files of the Paramedical Staff in accordance with JCI requirements.
4. To bring uniformity in the channel operating between the Human Resource Department and the employees.

### **Difference between Job Description and Competency Model**

The main difference between Job Description and Competency Analysis lies in the unit of analysis. Job description looks at *what*, whereas competency mapping looks at *how*. In other words, traditional job description analysis looks at elements of the jobs and defines the job into sequences of tasks necessary to perform the job, while competency studies the people who do the job well and defines the job in terms of the characteristics and behaviours of these people.

### **Benefits of using Competency Model**

For the company, the benefits are:

- Reinforce Corporate Strategy and Vision
- Establish expectations for performance excellence, resulting in a systematic approach to professional development, improved job satisfaction and better employee retention.
- Increase the effectiveness of training and professional development programs by linking them to the success criteria (i.e. behavioural standards of excellence)
- Provide a common framework and language for discussing how to implement and communicate key strategies.
- Provide a common understanding of the scope and requirements of a specific role.
- Provide common organization-wide standards for career levels that enable employees to move across business boundaries.

For managers, the benefits are:

- Identify performance criteria to improve the accuracy and ease of the hiring and selection process.
- Provide more objective performance standards.
- Clarify standards of excellence for easier communication of performance expectations to direct reports.
- Provide a clear foundation for dialogue to occur between the manager and employee about performance, development and career related issues.

For Employees, the benefits are;

- Identify the success criteria (i.e. behavioural standards of performance excellence) required to be successful in their role)
- Support a more specific and objective assessment of their strengths and specify targeted areas for professional development.
- Provide development tools and methods for enhancing their skills.
- Provide the basis for a more objective dialogue with their manager or team about performance, development and career-related issues.

### **Developing Competency Catalogue**

There are four stages that should be done to develop competency catalogue and profile as mentioned below:

#### **Stage 1:** Conducting Competency Workshop

This activity is held to introduce the concept of competency. This workshop is also intended at deciding the scope of competency that will be undertaken. In addition to providing an understanding about the concept of competency and its application, the workshop will also clarify the scope of the competency project.

#### **Stage 2:** Identifying Competency Components

There are two main phases in this second stage. The first is to identify *employee core competency*, or competencies that should be possessed by all employees regardless of their functions, and the second is to identify *job relevant core competencies*, or competencies which are relevant with each of the existing functions/job/roles within the organization.

Employee Core competencies are then, essentially competencies that would help align individual employee goals with the overall vision and values that the organization believes in.

The process would be as follows:

- a. Select the job to be analyzed.
- b. Conduct desk study to review existing organizational structure and job description documents.

**Stage 3:** Developing Competency Catalogue

This catalogue documents key indicators of each identified competency. The process would be as follows:

- a. Identify behaviour indicators of each competency to be analyzed.
- b. Define competency with a description which includes the previously identified behaviour indicators. Another alternative is to create the catalogue by the list of behaviour examples in each competency, grouping the behaviour list into key behaviour indicators and finally scaling the identified behaviour list and key behaviour indicators into progression matrix level.

**Stage 4:** Developing Competency Profile

The process would be as follows:

- a. Define number of positions to be reviewed.
- b. Identify roles and responsibilities of each position
- c. Establish the competency matrix.
- d. Analyze the weight of the roles and responsibilities as a basis to decide the level of requirements/proficiencies for each competency.

**3. I.B. Methodology (Data Collection)**

The procedure followed is enumerated below:

- i. A study of the job descriptions of each job was conducted to understand the roles and responsibilities involved.
- ii. Senior personnel in each department were interviewed in detail to know about the tasks that are performed by their team members in actuality. This was done as senior personnel, by virtue of their vast experience and knowledge, could be considered to be subject matter experts of the activities involved and would be in a position to know all the competencies that distinguish star performers from average performers.
- iii. Subsequently, personnel in each department were shadowed while performing a procedure.

- iv. The observations thus collected were grouped into broad *job roles* with their accompanying *job elements*.
- v. Competencies were proposed for every job element identified.

### **3. I.C Data Analysis, Compilation and Interpretation**

- i. Out of the data collected, a competency matrix was constructed, the format of which is attached as Annex 2. This matrix was constructed according to the instructions given to us by our mentors in the Department of Human Resources.
- ii. Once this matrix was constructed, the performance appraisal parameters of the concerned departments were reframed according to the competencies proposed, in accordance with the instructions given to us by our mentors in the Department of Human Resources. The formats of the Job Descriptions and Interview Assessment sheets were also reframed in this manner.
- iii. The revised Performance Appraisal forms were then taken by us to the Heads of the concerned departments, who evaluated their team members according to these new parameters.
- iv. These new evaluations were then submitted by us to the Department of Human Resources, and were subsequently attached in the personnel files of the concerned staff.

### **3. I.D Conclusion**

Competency mapping is an extension of a performance appraisal. While a performance appraisal just gives a measure of the past performance of an employee and can be used for Training Need Analysis, competency mapping give both past performance and the shortfall in performance of an employee in comparison to the performance of a star performer.

Such a method could be implemented for all the staff in a hospital. If competencies which are congruent with the organization's vision and strategies can be proposed, then such competency based assessment tools can be used for the following:

- i. Training Need Analysis
- ii. Manpower Planning
- iii. Retention
- iv. Career and Succession planning
- v. Building up strong group cohesiveness

- vi. As an un-biased comparison and strong motivational tool.

Competency based evaluation tools could help conduct a more holistic evaluation of an employee's performance. They can be used to evaluate employees from the aspects of both technical expertise as well as soft skills, by carefully selecting only those competencies which display successful behaviour.

## **PROJECT 2: A Review of Manpower Requirements**

### **3. II.A Introduction**

Manpower planning is a crucial function for any organization. An organization may possess all the latest technologies available in the market, but if it doesn't possess the necessary manpower to utilize these technologies and convert the raw material into the finished product then all the organization's planning would have been a fruitless activity.

An organization needs to be able to employ the right staff at the right place at the right time, in order to do the right work according to the right protocols. Manpower planning is made all the more crucial by the fact that mere recruitment of employees would make the organization's human resources an unstable many-headed entity, one where the many heads would always be clashing with each other and trying to promote their own interests instead of thinking about the interest of the organization as a whole. Manpower planning requires that the organization strive towards recruiting employees who are able to conform to the ideals, vision and values of the organization, who are able to *fit* in the organization and in the job assigned to them. This helps decrease dissonance that the employee may experience.

Manpower planning is also essential for ensuring that the right number of employees is present at the right place at the right time. This helps to ensure that the employees do not experience an excess of fatigue, which is of vital importance especially in healthcare organizations, as an excess of fatigue in the workflow system could increase the chances of an unfavourable outcome.

All organizations have a specific hierarchy of employees, which helps define the flow of command and information. At Medanta the Medicity, the entire manpower or workforce is led by Dr. Naresh Trehan, the eminent Cardiac Surgeon, and is divided under the following overheads:

- Clinical team
- Administrative
- Paramedical Team

➤ Nursing Team

The organizational hierarchies followed at Medanta are listed as Annexes 3, 4 and 5. Medanta the Medicity is a Multi-Superspecialty hospital offering tertiary care of the highest quality. This institution acts as a conglomeration of institutions of medical excellence, and each of its many floors houses further a mini hospital of sorts. The floor-wise clinical layout of Medanta may be described according to the format attached in the Annex 6.

The workforce present at Medanta the Medicity is one of the finest in the entire Asia Pacific region, and this helps drive the quality work that Medanta the Medicity delivers. The high level of quality standards that prevail at Medanta make it necessary to plan the manpower in such a way that these quality standards are maintained.

### **3. II.B. Methodology (Data Collection)**

The Manpower Planning exercise is conducted every financial year and is reviewed twice a year, in the months of March and October. The data collection procedure was as is listed below:

- i. My mentor here at Medanta the Medicity gave me the database of all the employees currently employed at Medanta.
- ii. This list was then sorted as per the instructions given, according to the format attached as Annex 7.
- iii. This list was then taken to the Directors and Chairpersons of the various institutes and departments, and they were asked to fill in their manpower requirements for the coming year.

### **3. II.C Data Analysis, Compilation and Interpretation**

In the planning of the manpower of hospitals, three factors must be taken into consideration.

- The number of leaves/holidays available to the staff (which helps us calculate the *Loading Factor*)
- The average time that would be taken by a well motivated and trained staff member to complete the tasks allotted.
- The number of shifts applicable

### *The Loading Factor*

- In 1 year, the number of days when a staff member may be unavailable for work, as per the policies of Medanta the Medicity is as follows -
  - 52 weekly offs ( the staff is permitted 1 weekly off per week)
  - 30 days of earned leave
  - 14 days for Sick Leave and Casual Leave
  - 8-10 days of festival related holidays
  - 1-2 days for work related training
- In a whole, it is assumed that a staff member is unavailable for discharging of duties for 100 days. Therefore, a staff member would have a total of 265 working days in a non-leap year.
- The 100 days of absence of 1 staff member has to be treated as an additional workload for another staff member. Therefore, the Loading Factor for 1 staff member could be defined as *the total workload that the staff member is required to discharge to cover for the absence of another staff member* . This is calculated as a *percentage*, the formula for which is enumerated below.
- Additional Workload= (Number of days of unavailability of a staff member) / (Number of days of availability of a staff member)  
=100/265  
= approximately .37 or 37%
- This happens in an ideal situation. In reality, the number of leaves of absence that are actually taken by a staff member of Medanta the Medicity is less, which gives an additional workload of 35%. Therefore, the Loading Factor that a staff member would have to discharge would be:  
(100% of the present workload) + (35% workload due to the absence of another staff member)  
=**135%**

Once this factor has been calculated, the average time taken to discharge a task is calculated.

Thus, if we can project the number of tasks expected to be accomplished in a day, calculate the time equivalent of one task and then find out the time required by a well motivated and trained staff member to accomplish each task, we would be in a position to calculate the number of staff required in each area.

The number of tasks expected to be accomplished in a day varies. Historical data may be used to gain an estimate of the patterns of patient flow, but such an estimate may not be accurate.

Variance in the current and proposed manpower was calculated and a summary sheet was submitted to the Department of Human Resources at Medanta. This variance can be defined as *the difference between the proposed and current manpower strength of the hospital*, and can be calculated as follows.

- $\text{Variance} = (\text{Proposed Manpower Strength}) - (\text{Current Manpower Strength})$
- $\text{Variance Percentage} = [(\text{Variance}) / (\text{Current Manpower Strength})] * 100$

The format of the same is attached as Annex 8. This exercise was aimed at identifying the areas where there was a deficiency in manpower, which would be followed by the subsequent recruitment process.

### **3. II.D Conclusion**

More manpower may be required if Medanta the Medicity expands its scale of operations in the future. Especially in hospitals, there exist parameters for minimum staffing but there is no fixed upper limit for the number of staff that a hospital could employ. Therefore, in order to increase the chances of favourable health outcomes, a hospital would want to employ the right number of staff as per the policies laid down.

The exercise of manpower planning is not merely limited to the review that I conducted, and manpower planning in itself is a huge activity that needs a considerable amount of investment of time. Various methods are available which attempt to estimate the manpower required for the functions carried out by the staff of a hospital. All these methods mostly involve a calculation of the workload that motivated and well trained staff members are able to carry out without committing errors. The operational cost of hospitals depend on the number and type of staffs that it employs, as the burden of this cost must be borne by someone, this being the hospital if not the patient.

The Department of Human Resources of the hospital therefore strives, through the exercise of manpower planning, to optimize the cost of the manpower employed by the hospital, by recruiting only if absolutely necessary. Shortcomings in service are tried to be filled by regularly training staff members.

It becomes difficult to plan or map the life-cycle of an employee of a hospital. This is due to the fact that staff may want to leave at any time in order to pursue further education or for family related issues. Thus, forecasting the amount of work that could be accomplished with the manpower currently employed by staff members becomes difficult, as the availability of skilled manpower varies at any given point of time, and even if skilled manpower is replaced with proportionately skilled manpower, it may take the new recruits some time to get acquainted with the work culture of an organization. All manpower may possess skill and knowledge, but it is the ability to utilize skill and knowledge, to get jobs done, that adds value to the employee from the perspective of skill requirement of the hospital.

Thus, the Department of Human Resources of a hospital performs one of the most crucial functions in a hospital. Without human resources, any organization would just be a collection of useless equipment with no possible way available of converting inventory into throughput. The Department of Human Resources is responsible for:

- ensuring that all the employees of an organization are able to stay in a position to be able to discharge quality work in the required work setting for as long as is possible
- retaining valuable employees
- correcting inappropriate behaviour to help align employee goals and values with those of the organization and finally,
- trying to ensure a smooth process flow, by attempting to reduce work related stress of employees.

### **PROJECT 3: Study of the Nursing Manpower Requirements**

#### **3. III.A Introduction**

Nursing Manpower is one of the more crucial workforces of a hospital. This is because it is the Nursing manpower that performs the majority of supplementary healthcare activities in a hospital. Once the clinical treatment of a patient is over, it is the nursing manpower which 'nurses' the patient back to life. Therefore, the post-procedure care of a patient in a hospital is predominantly done by the nursing staff. Hence it becomes imperative to choose the correct nursing manpower in a hospital.

Another factor which makes the planning of the Nursing Manpower crucial is the fact that the turnover of nurses is generally high in an organization. This may be due to the fact that nurses try and get as much experience in the best hospitals in India before going abroad in search of

more lucrative pay and greener avenues of working. India is said to be one of the largest producers of healthcare staff in the world, but it still continues to face shortages of these staff, as the health workforce being produced end up going abroad in search of greener pastures. At Medanta the Medicity, there is a well defined hierarchy for the nursing team, which has been attached in the Annex 9.

### **3. III.B. Methodology (Data Collection)**

The procedure of data collection is enumerated below:

- i. Appointments were taken for each area.
- ii. The number of beds was noted down for each area.
- iii. The Bed to Nurse Ratio per shift was noted down as per the policies of Medanta the Medicity.
- iv. The Bed to Nurse Ratio was calculated for three shifts.
- v. The Loading Factor and Multiplication Factors were calculated.
- vi. The required nurse strength was calculated.
- vii. This number was compared to the existing nurse strength and the variance was calculated.
- viii. The final conclusion was submitted to the Department of Human Resources.

### **3. III.C Data Analysis, Compilation and Interpretation**

- *The Loading Factor*

This is calculated in the same way as has been enumerated above.

- *The Multiplication Factor*

Let us attempt to understand this with the help of the following example.

- Let us assume a hypothetical floor/area of the hospital where there are 20 beds.
- Let us assume that the Bed to Nurse Ratio stipulated for this area is 2:1.
- Since nurses are working in 3 shifts throughout the day, the required bed-to-nurse ratio becomes 2:3 [2beds: (1 Nurse x 3) in order to cover the three shifts].
- Therefore, if for 2 beds, we need 3 nurses (in 3 shifts), then for 20 beds, we would need 30 nurses (using unitary method).
- Accounting for the additional workload that we have calculated with the Loading Factor, the actual requirement of nurses for this floor to cover for the absences of any nurse would be:

= 135% of 30

=  $30 \times 1.35$

= 40.5

which is approximately equal to 41 nurses.

- Now if 20 beds require 40.5 nurses, then 1 bed would require

=  $40.5 / 20$

= 2.025

which is approximately equal to 2.03.

- This Multiplication Factor of 2.03 makes it easier to calculate the number of nurses required in that area, and also helps to know the final bed-to-nurse ratio required in that area.

The turnover of nurses may be high in such a reputable hospital offering tertiary care, so there is periodic hiring of new nurses to replace nurses who might have left, which may result in higher training cost.

### **3. III.D Conclusion**

Nursing Manpower is another important part of the total team that a hospital may employ. Nurses may possess some special insight about patient care which is born out of prolonged interaction with the patient during the discharge of the nursing activities. Nurses are also responsible for supporting the patient in the absence of the clinical staff, so even a minor incorrect decision on the part of the nurses could affect healthcare outcomes severely. Thus, it is essential to select the correct mix of nursing staff, after having done a thorough analysis and forecast of the nursing need of the hospital.

### **4. References**

- Competency Development Guidebook, [www.exploreHR.org](http://www.exploreHR.org)
- [www.onetonline.org](http://www.onetonline.org)
- Job descriptions kept as records with the Department of Human Resources, Medanta the Medicity.
- The Manual of Human Resources as maintained by the Department of Human Resources, for manpower planning procedures and policies.

- The database of all the employees who were part of the GHPL Pvt. Ltd. team as of 31<sup>st</sup> March 2013.
- Approaches and Techniques – Hospital Manpower Planning by use of Queuing Theory by Ishwar Gupta, Juan Zoreda and Nathan Kramer
- Determining Hospital Workforce Requirements: a Case Study by Serpil Ozcan (World Bank Health Project, Ministry of Health, Ankara Turkey and Centre for Health Planning and Management, Keele University, England), and Peter Hornby (Centre for Health Planning and Management, Keele University, England).
- Nursing Manpower Allocation in Hospitals: Staff Assignment Vs. Quality of Care by Issachar Gilad, Ohad Khabia (Industrial Engineering and Management, Technion), and Andris Freivalds (Hal and Inge Marcus Department of Industrial and Manufacturing Engineering, Penn State University)

## **5. Annexure**

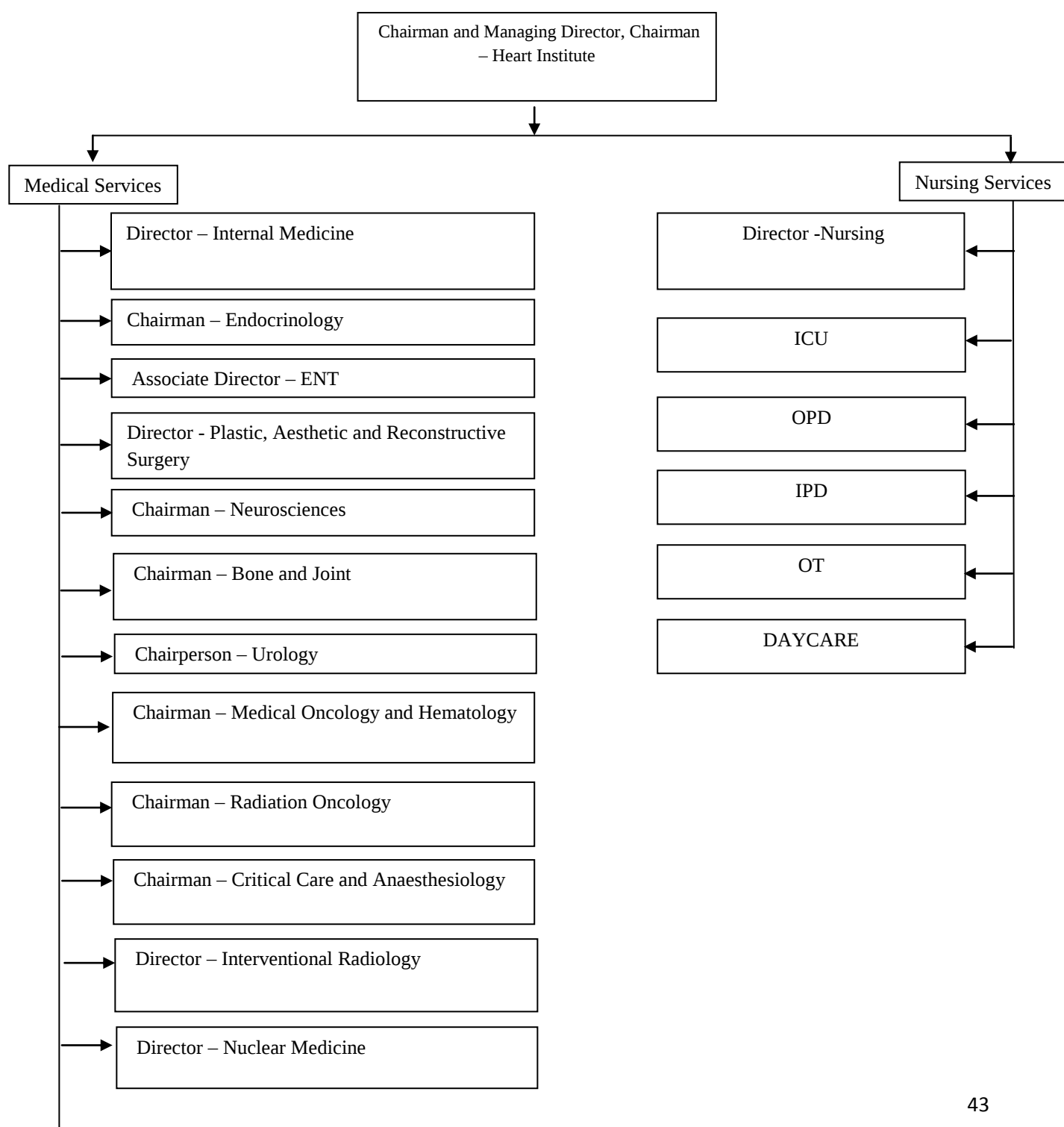
### **Annexure 1 – Schedule of our Rotation**

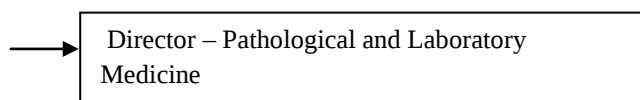
| <b>Name of the Department / Area</b> | <b>Date(s) of visit</b>   | <b>People Met</b>                               |
|--------------------------------------|---------------------------|-------------------------------------------------|
| OPD                                  | 27 <sup>th</sup> May 2013 | Manager - Medical Administration                |
| OT                                   | 27 <sup>th</sup> May 2013 | Assistant Manager - Medical Administration      |
| Blood Bank                           | 28 <sup>th</sup> May 2013 | Senior Technologist                             |
| Emergency                            | 28 <sup>th</sup> May 2013 | Management Trainee – Medical Administration     |
| Endoscopy                            | 29 <sup>th</sup> May 2013 | Senior Technician                               |
| Radiology                            | 29 <sup>th</sup> May 2013 | Assistant Manager – Operations                  |
| CSSD                                 | 30 <sup>th</sup> May 2013 | Executive                                       |
| Dietetics Food & Beverages           | 30 <sup>th</sup> May 2013 | Senior Manager<br>General Manager               |
| Marketing                            | 31 <sup>st</sup> May 2013 | Associate Vice President                        |
| Engineering                          | 31 <sup>st</sup> May 2013 | Associate Vice President – Engineering Services |
| Cath Lab                             | 1 <sup>st</sup> June 2013 | Management Trainee – Medical Administration     |
| Radiation Oncology                   | 3 <sup>rd</sup> June 2013 | Chairperson                                     |
| ICU                                  | 3 <sup>rd</sup> June 2013 | Assistant Manager - Medical Administration      |
| IPD                                  | 4 <sup>th</sup> June 2013 | Assistant Manager - Medical Administration      |
| MRD                                  | 4 <sup>th</sup> June 2013 | Deputy General Manager                          |
| IP Pharmacy                          | 5 <sup>th</sup> June 2013 | Deputy Manager                                  |
| Dialysis                             | 6 <sup>th</sup> June 2013 | Technologist                                    |
| House Keeping                        | 6 <sup>th</sup> June 2013 | General Manager                                 |
| Medical Gases                        | 7 <sup>th</sup> June 2013 | Manager                                         |

## Annexure 2 – Competency Matrix Used

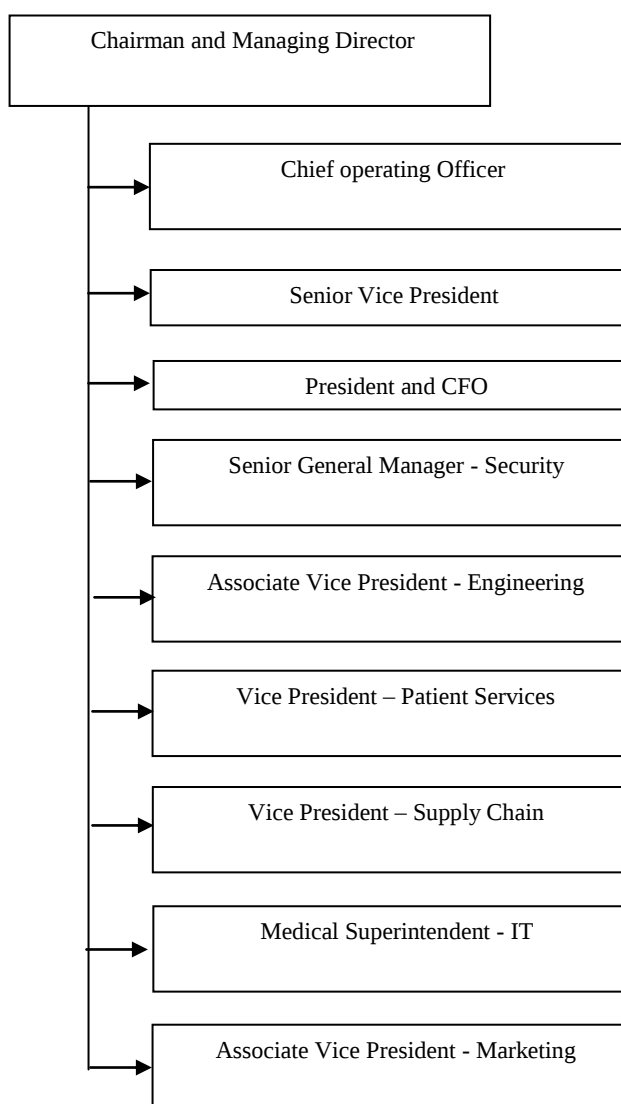
| Competency | Skills and Knowledge | Basic level | Intermediate level | Advanced Level | Expert Level | Training Requirement (Yes/No) |
|------------|----------------------|-------------|--------------------|----------------|--------------|-------------------------------|
|            |                      |             |                    |                |              |                               |

## Annexure 3 – Clinical Organogram

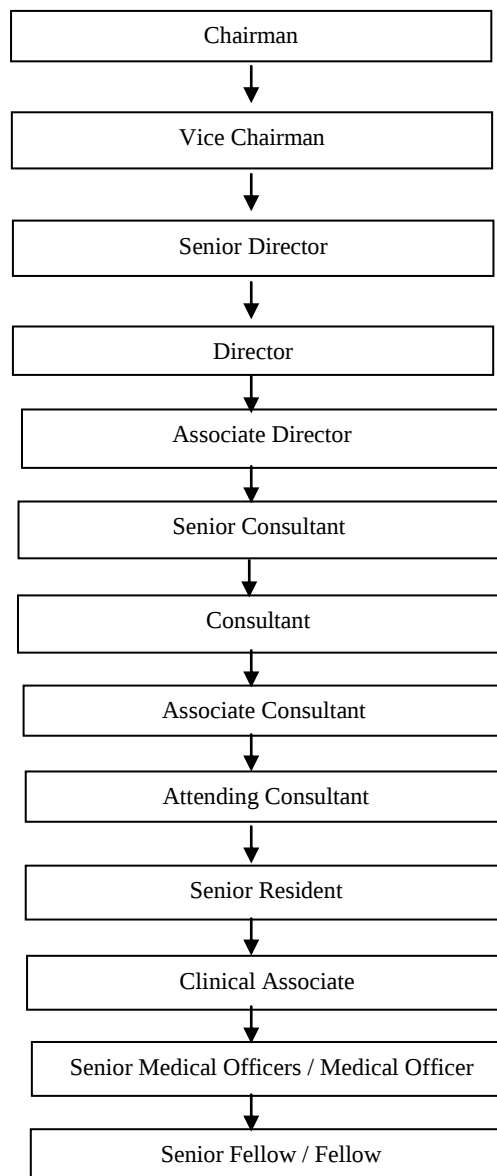




#### Annexure 4 – Non-Clinical Organogram



## Annexure 5 – Organizational Hierarchy followed by Clinical Team



## Annexure 6 – Floor-wise Clinical Layout

| Floor        | Specialties Available/ Institute                                                                                                                                                                                       |
|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Lower Ground | Radiation Oncology                                                                                                                                                                                                     |
| Upper Ground | Blood Bank, OPD Pharmacy, Emergency, Sample Collection, International Patient Services, Admissions, Radiology, Nuclear Medicine                                                                                        |
| 1            | Operation Theatres and Intensive Care Units                                                                                                                                                                            |
| 2            | Preventive Health Check-up                                                                                                                                                                                             |
| 3            | Heart Institute                                                                                                                                                                                                        |
| 4            | ENT and Head and Neck Surgery, Institute of Plastic and Reconstructive Surgery, Institute of Mental Health and Quality, Gynaecology and Gynaecology, Minimally Invasive Surgery and Department of Integrative Medicine |
| 5            | Department of Endocrinology and Diabetes, Dermatology, Rheumatology and Clinical Immunology, Respiratory and Sleep Medicine, Peripheral, Vascular and Endovascular Sciences                                            |
| 6            | Institute of Neurosciences                                                                                                                                                                                             |
| 7            | Bone and Joint Institute                                                                                                                                                                                               |
| 10           | Cancer Institute                                                                                                                                                                                                       |
| 11           | Institute of Digestive and Hepatobiliary Sciences                                                                                                                                                                      |
| 12           | Institute of Nephrology and Urology                                                                                                                                                                                    |
| 14           | Liver Transplant                                                                                                                                                                                                       |

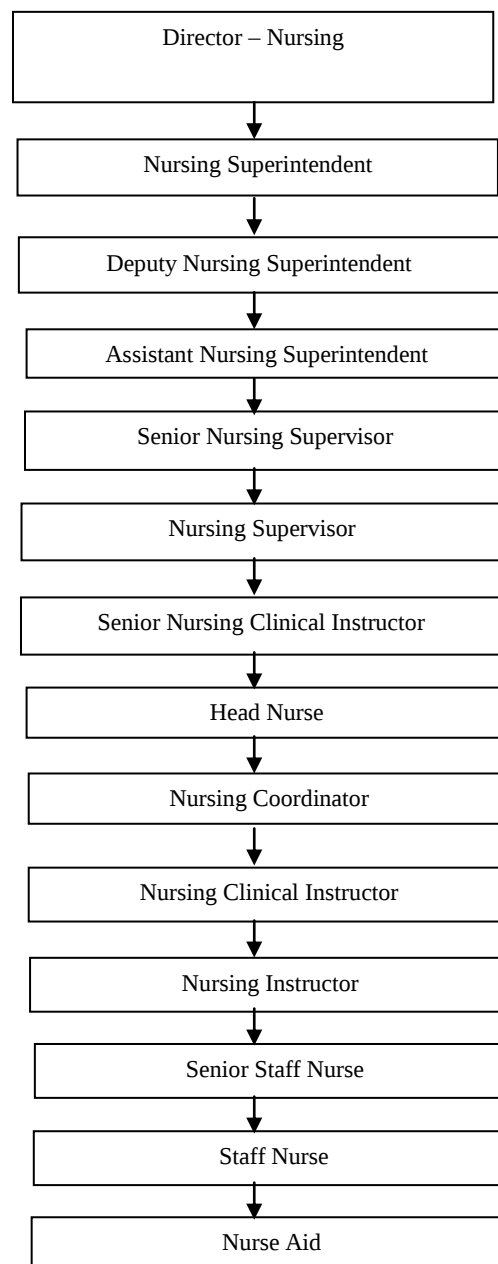
## Annex 7 – Manpower Form

| MANPOWER PLANNING     |                  |                 |                                          |            |          |              |           |       |             |                 |           |             |               |                    |       |
|-----------------------|------------------|-----------------|------------------------------------------|------------|----------|--------------|-----------|-------|-------------|-----------------|-----------|-------------|---------------|--------------------|-------|
| LAST UPDATED :        |                  |                 |                                          |            |          |              |           |       |             | NEXT UPDATION : |           |             |               |                    |       |
| <b>CLINICAL</b>       |                  |                 |                                          |            |          |              |           |       |             |                 |           |             |               |                    |       |
| INSTITUTE             | SUB-SPECIALITY   | Chairman        | Vice Chairman                            | Sr. Direc. | Director | Asso. Direc. | Sr. Cons. | Cons. | Asso. Cons. | Att'g Cons      | Sr. Resi. | Clin. Asso. | Sr. M.O./M.O. | Sr. Fellow/ Fellow | Total |
|                       |                  |                 |                                          |            |          |              |           |       |             |                 |           |             |               |                    |       |
|                       |                  |                 |                                          |            |          |              |           |       |             |                 |           |             |               |                    |       |
|                       |                  |                 |                                          |            |          |              |           |       |             |                 |           |             |               |                    |       |
| <b>PARAMEDICAL</b>    |                  |                 |                                          |            |          |              |           |       |             |                 |           |             |               |                    |       |
| INSTITUTE             | SUB-SPECIALITY   |                 |                                          |            |          |              |           |       |             |                 |           |             |               |                    | Total |
|                       |                  |                 |                                          |            |          |              |           |       |             |                 |           |             |               |                    |       |
|                       |                  |                 |                                          |            |          |              |           |       |             |                 |           |             |               |                    |       |
|                       |                  |                 |                                          |            |          |              |           |       |             |                 |           |             |               |                    |       |
| <b>ADMINISTRATIVE</b> |                  |                 |                                          |            |          |              |           |       |             |                 |           |             |               |                    |       |
| INSTITUTE             | SUB-SPECIALITY   |                 |                                          |            |          |              |           |       |             |                 |           |             |               |                    | Total |
|                       |                  |                 |                                          |            |          |              |           |       |             |                 |           |             |               |                    |       |
|                       |                  |                 |                                          |            |          |              |           |       |             |                 |           |             |               |                    |       |
|                       |                  |                 |                                          |            |          |              |           |       |             |                 |           |             |               |                    |       |
| Category              | Current Strength | Proposed Streng | Justification for additional requirement |            |          |              |           |       |             |                 |           |             |               |                    |       |
| Clinical              |                  |                 |                                          |            |          |              |           |       |             |                 |           |             |               |                    |       |
| Paramedical           |                  |                 |                                          |            |          |              |           |       |             |                 |           |             |               |                    |       |
| Administrative        |                  |                 |                                          |            |          |              |           |       |             |                 |           |             |               |                    |       |
| <b>TOTALS</b>         |                  |                 |                                          |            |          |              |           |       |             |                 |           |             |               |                    |       |

## Annex 8 – Manpower Summary Sheet

|                              |                        |  |
|------------------------------|------------------------|--|
| Sr. No                       |                        |  |
| Department                   |                        |  |
| Clinical Team                | Current Team Strength  |  |
|                              | Proposed Team Strength |  |
|                              | Variance               |  |
| Administrative Team          | Current Team Strength  |  |
|                              | Proposed Team Strength |  |
|                              | Variance               |  |
| Paramedical Team             | Current Team Strength  |  |
|                              | Proposed Team Strength |  |
|                              | Variance               |  |
| Total Current Team Strength  |                        |  |
| Total Proposed Team Strength |                        |  |
| Variance                     |                        |  |
| Variance Percentage          |                        |  |

## Annex 9 – Nursing Manpower Hierarchy



## **Annexure 10 - The Australasian Triage Scale**

### **DESCRIPTION OF SCALE**

| <b>ATS CATEGORY</b> | <b>TREATMENT ACUITY<br/>(Maximum waiting time)</b> | <b>PERFORMANCE<br/>INDICATOR<br/>THRESHOLD</b> |
|---------------------|----------------------------------------------------|------------------------------------------------|
| <b>ATS 1</b>        | Immediate                                          | 100%                                           |
| <b>ATS 2</b>        | 10 minutes                                         | 80%                                            |
| <b>ATS 3</b>        | 30 minutes                                         | 75%                                            |
| <b>ATS 4</b>        | 60 minutes                                         | 70%                                            |
| <b>ATS 5</b>        | 120 minutes                                        | 70%                                            |