Summer Training at
Medanta the Medicity

Optimizing Efficiency at Endoscopy Unit of Medanta Institute of Digestive and Hepatobiliary Sciences

By
Richa Bagga

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

TO WHOMSOEVER IT MAY CONCERN

This is to certify that **Dr Richa Bagga** student of MBA hospital and health management(MBA-HM) from The IIHMR University, Jaipur has undergone summer training at **Medanta-The Medicity, Gurgaon. from 1st April 2016** 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 and analytical.
The summer training is in fulfillment of the course requirements.

I wish him all success in all her future endeavors.

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Global Health
Private Ltd.

Date: 06th April 2016

TO WHOMSOEVER IT MAY CONCERN

This is to certify that **Dr. Richa Bagga** 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 - Interventional study :
  - Optimizing efficiency in endoscopy department.
- Project Title 2 - Observational study:
  - Active file audit of inpatient in Medanta institute of digestive and hepatobiliary sciences.

We wish her all the best for her future endeavors.

For **GLOBAL HEALTH PVT LTD**

Monica

MONICA MUDGAL

SENIOR VICE PRESIDENT & HEAD - HR

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Acknowledgement

Acknowledgement

I, Dr Richa Bagga a student of MBA-HM20 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 training.
- Dr Rohini Adlakha, Institute Manager at Medanta Institute of Digestive and Hepatobiliary sciences. For her trust and giving me a project close to her heart.
- Dr Pooja Dixit, senior medical officer, Medanta Institute of Digestive and Hepatobiliary sciences. For her support and guidance throughout the internship.
- Mr Rajesh Gupta, General Manager-Information Technology, Medanta-the medicity for his time and help.
- Doctors, Nurses, and other staff of endoscopy unit for being adaptive to interventions implemented and their honest feedbacks, without which the project would not have been successful.
- Dr Suresh Joshi, my mentor at IIHMR Jaipur, for his support and guidance, without which this training would not have been possible.
- Mr.Hem K Bhargav, DY. General Manager, Corporate, IIHMR Jaipur, for facilitating my training at Medanta the Medicity.

Lastly, I would like to thank my college, IIHMR UNIVERSITY 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

- ERCP:Endoscopic retrograde cholangiopancreatography
- EUS: endoscopic ultra sound
- IPD: in patient department
- EHIS: electronic hospital information system
- SOP: standard operating protocols
- 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 MBA-HM 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:

- *Optimizing efficiency in endoscopy department of Medanta Institute of digestive and hepatobiliary sciences*
- *Active file audit in Medanta Institute of Digestive and Hepatobiliary Sciences..*

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

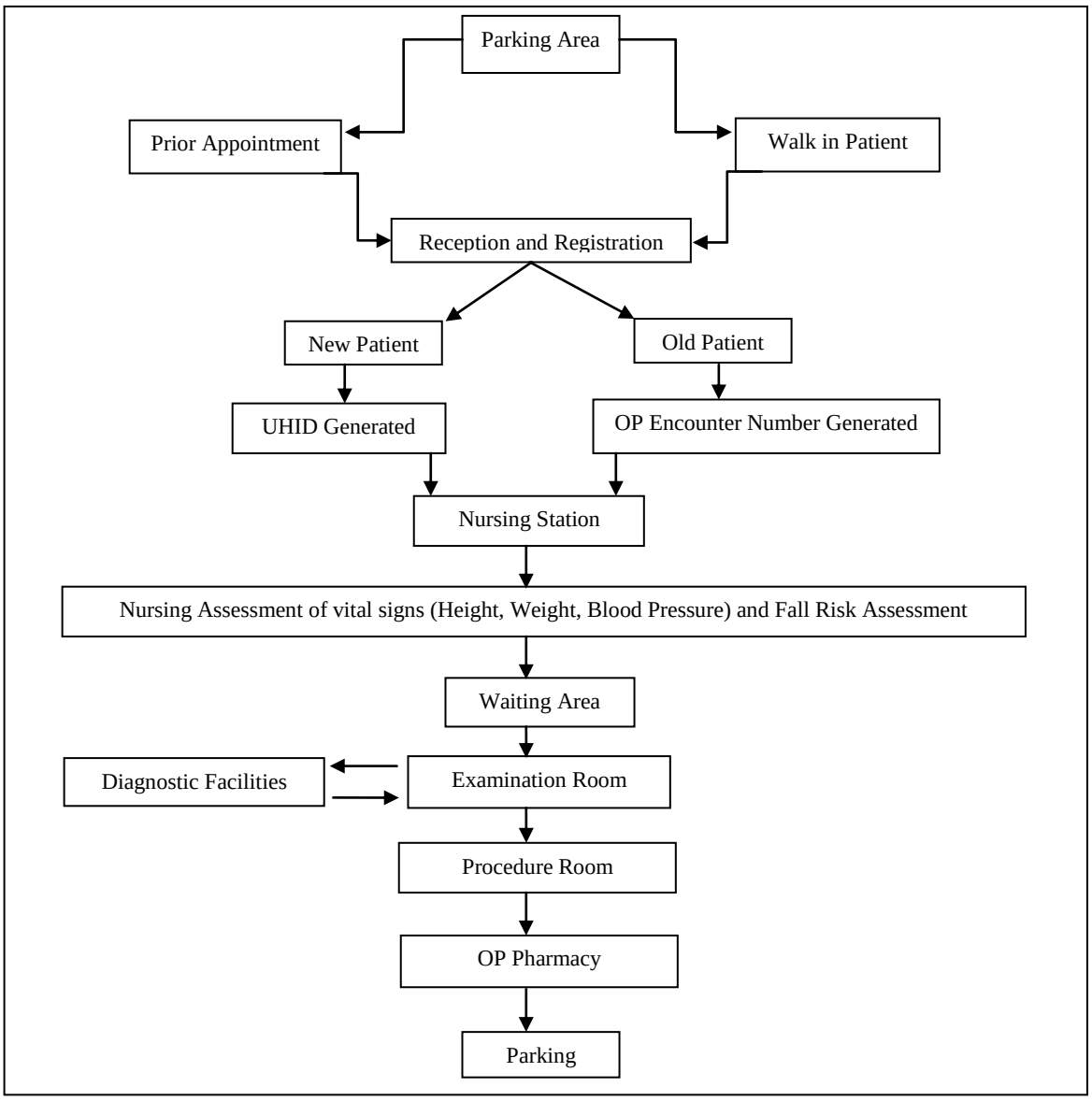
- With permission from the Senior Vice President of Medanta the Medicity, Mr. Arun Datta, and the Medical Superintendent, Dr. Awadhesh Kumar Dubey, we created a schedule, which we have followed in order to observe and learn the functioning of all the departments of the hospital. This task was made difficult 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.

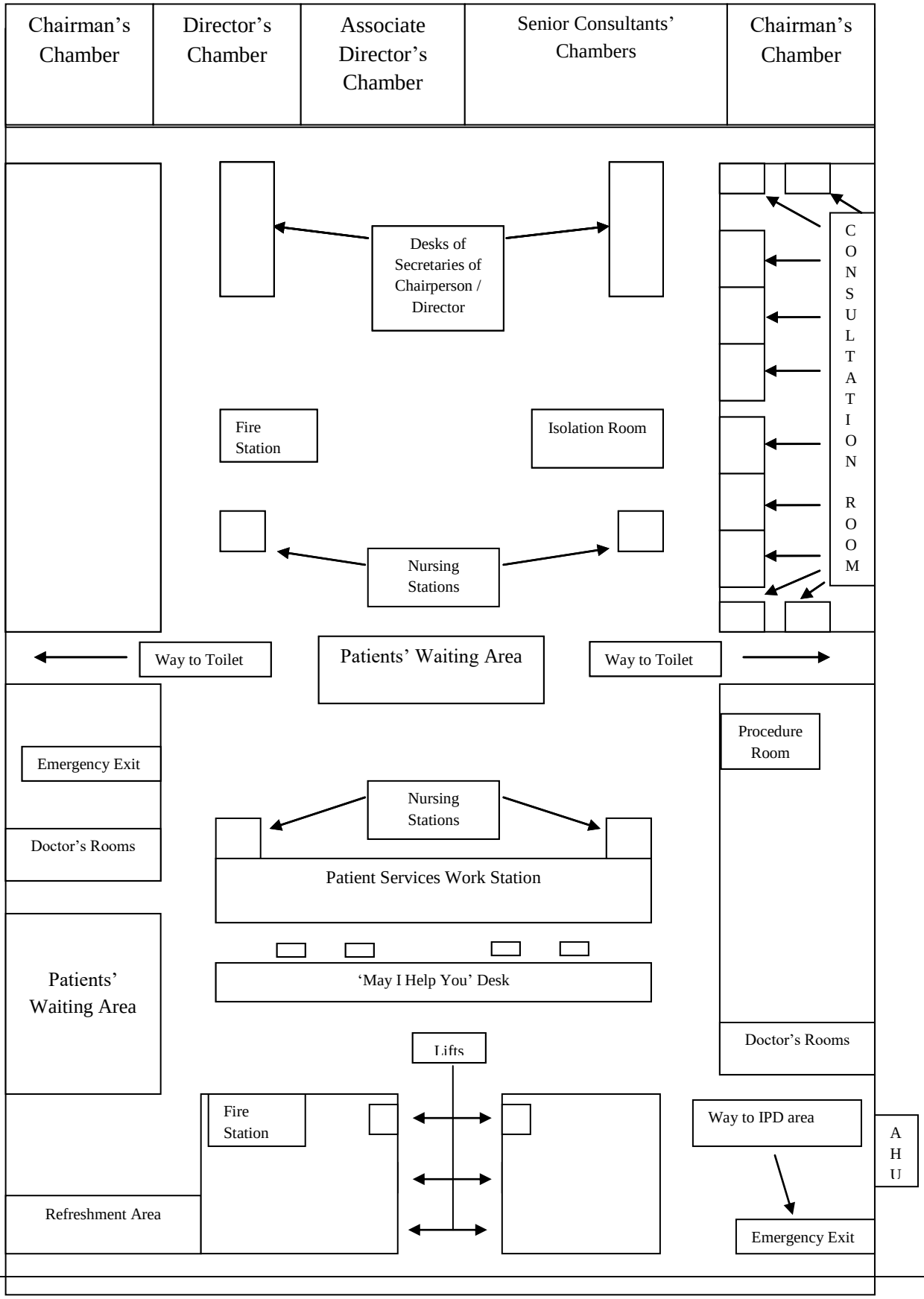
a) <u>OPD</u>:As has been mentioned earlier in this report, it can be said that each floor of Medanta houses a separate institute of clinical excellence. Each institute has its own OPD area as well as IPD area / day-care area wherever applicable. The general process flow that is followed in all the OPDs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

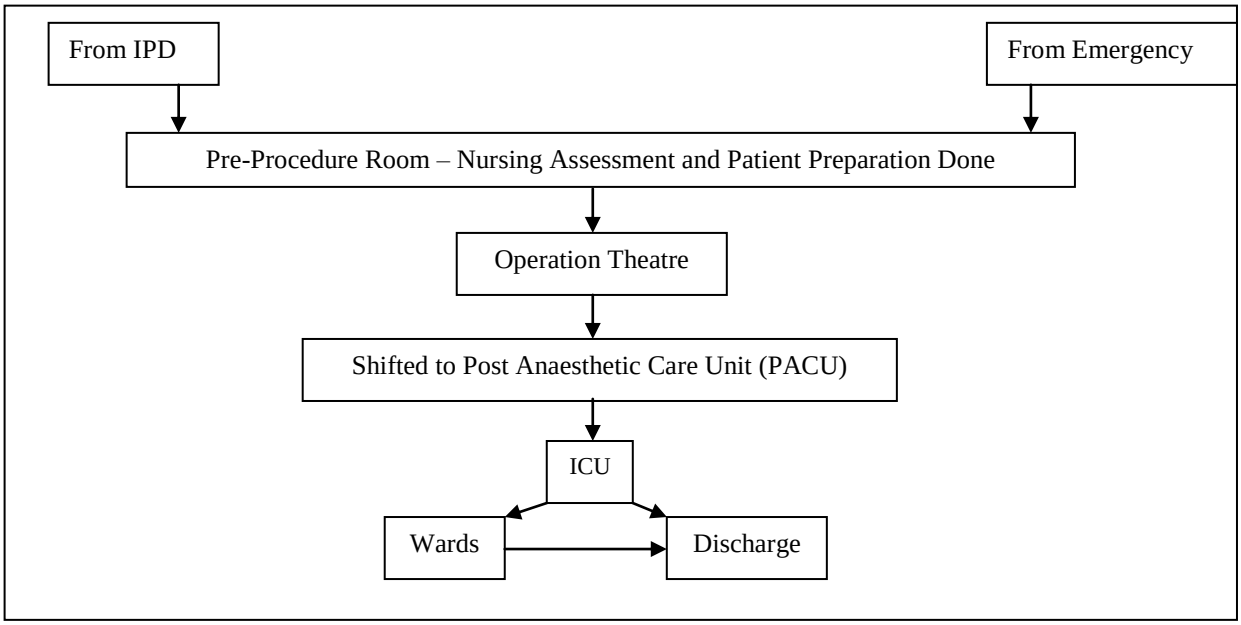


As mentioned earlier, each floor has its own OPD. However, the 10th floor and the 12th Floor have Day care facilities as well. Every floor has a procedure room and its own Front Desk. Appointments are centralized and are recorded on the Hospital Information Management System. As soon as appointments 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>

There are currently 40functional OTs. 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



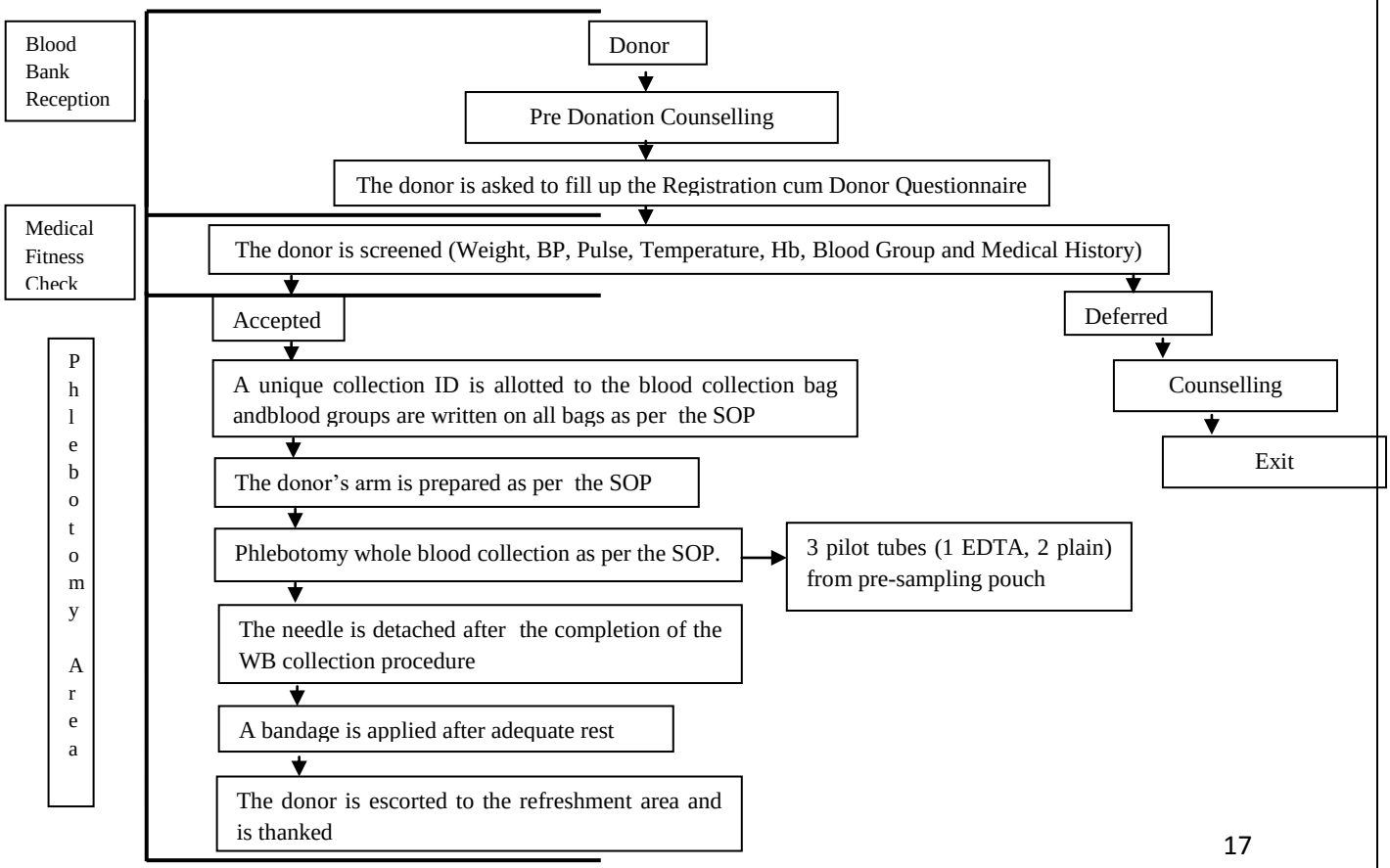
c) <u>Blood Bank</u>

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.	Date	30/11/2014
3.	Validity	5 years
4.	Name of the items on License	• Whole human blood. IP • Concentrate Human RBC (Packed RBC) IP • Platelets concentrates,USP • FFP,BP • Plateletpheresis / Leukapheresis using cell separator • Cryoprecipitate
5.	Name of the competent technical staff	• Blood bank officer • Technical supervisor • Technicians • Registered Nurse
6.	Licensing authority	Haryana State Drugs Controller 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.

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.

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

Figure5: Layout of Emergency Department

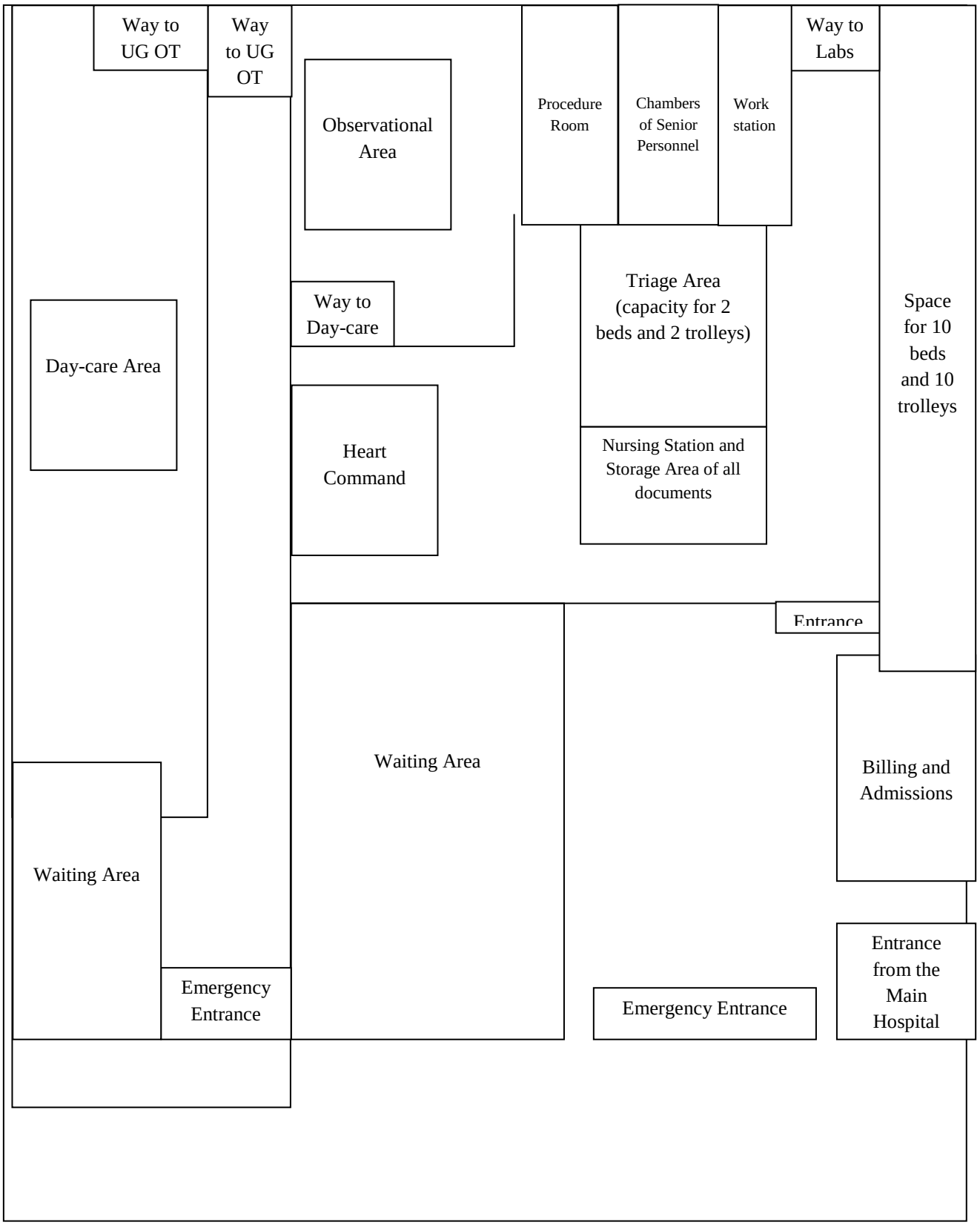
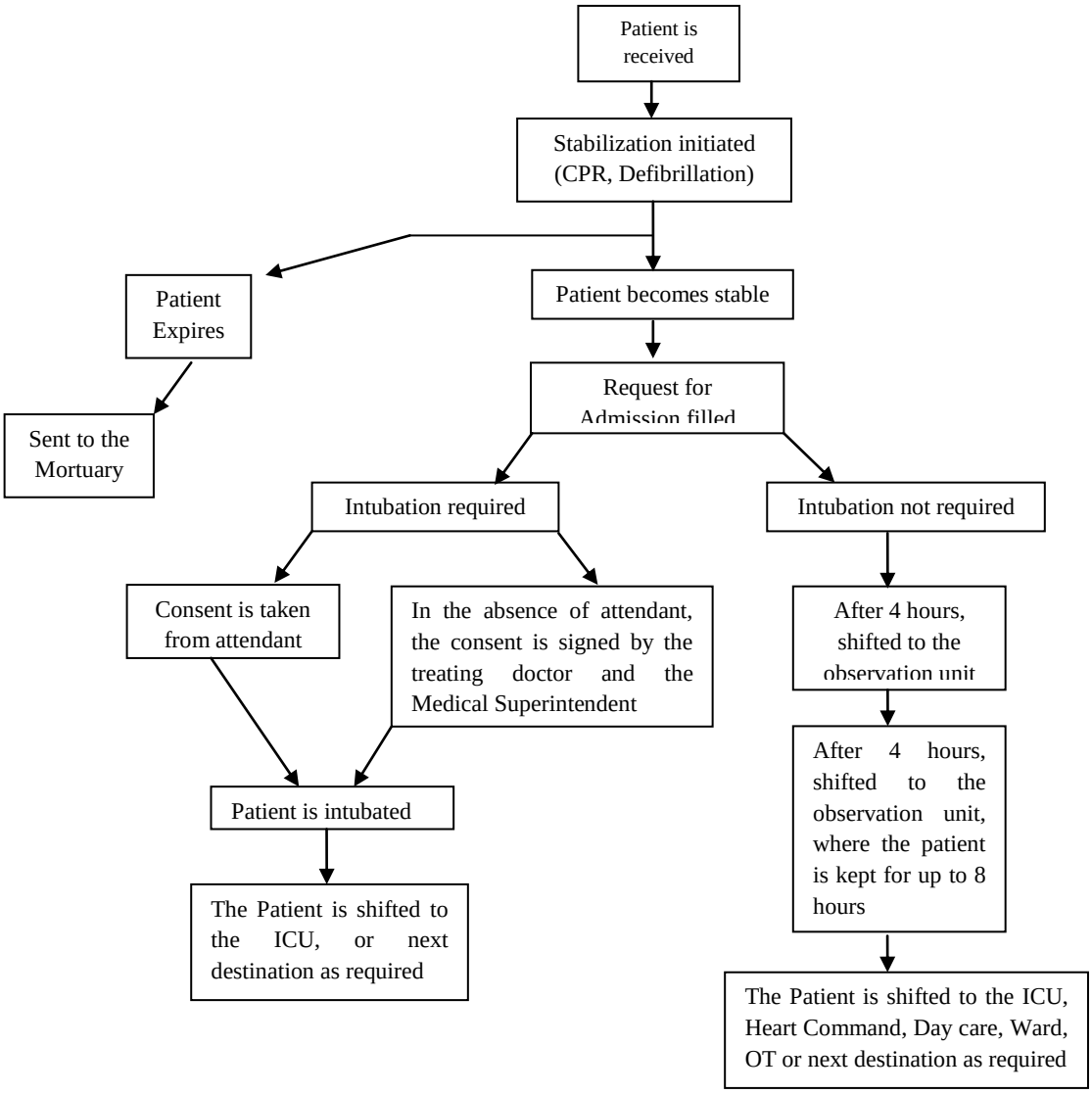


Figure6: Process Flow of Emergency Department



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 No I/V prick 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.

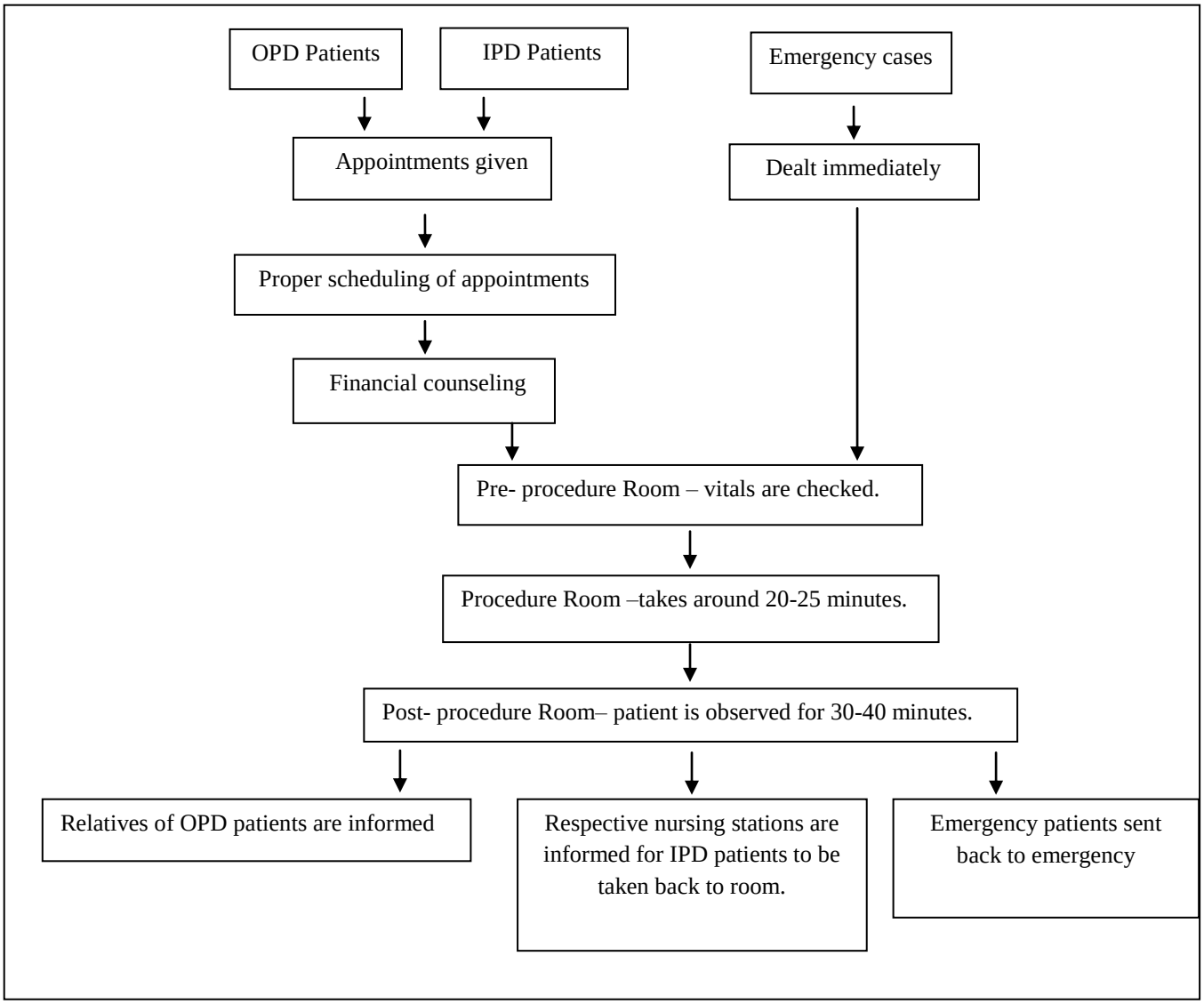
Sr. No	Parameters	Details
1.	Number of Ambulances	8
2.	Types of Ambulances	• Basic life support • Advanced life support • Air Ambulances
3.	Air Ambulance	• Non Scheduled passenger air ambulance • 40-50 patients are brought in by through this method every month
4.	Air Ambulance Staff	• Anesthetist • Cardiologist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

e) Endoscopy

This department is situated on the 11th 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:



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) <u>Dietetics, and Food and Beverages</u>

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.

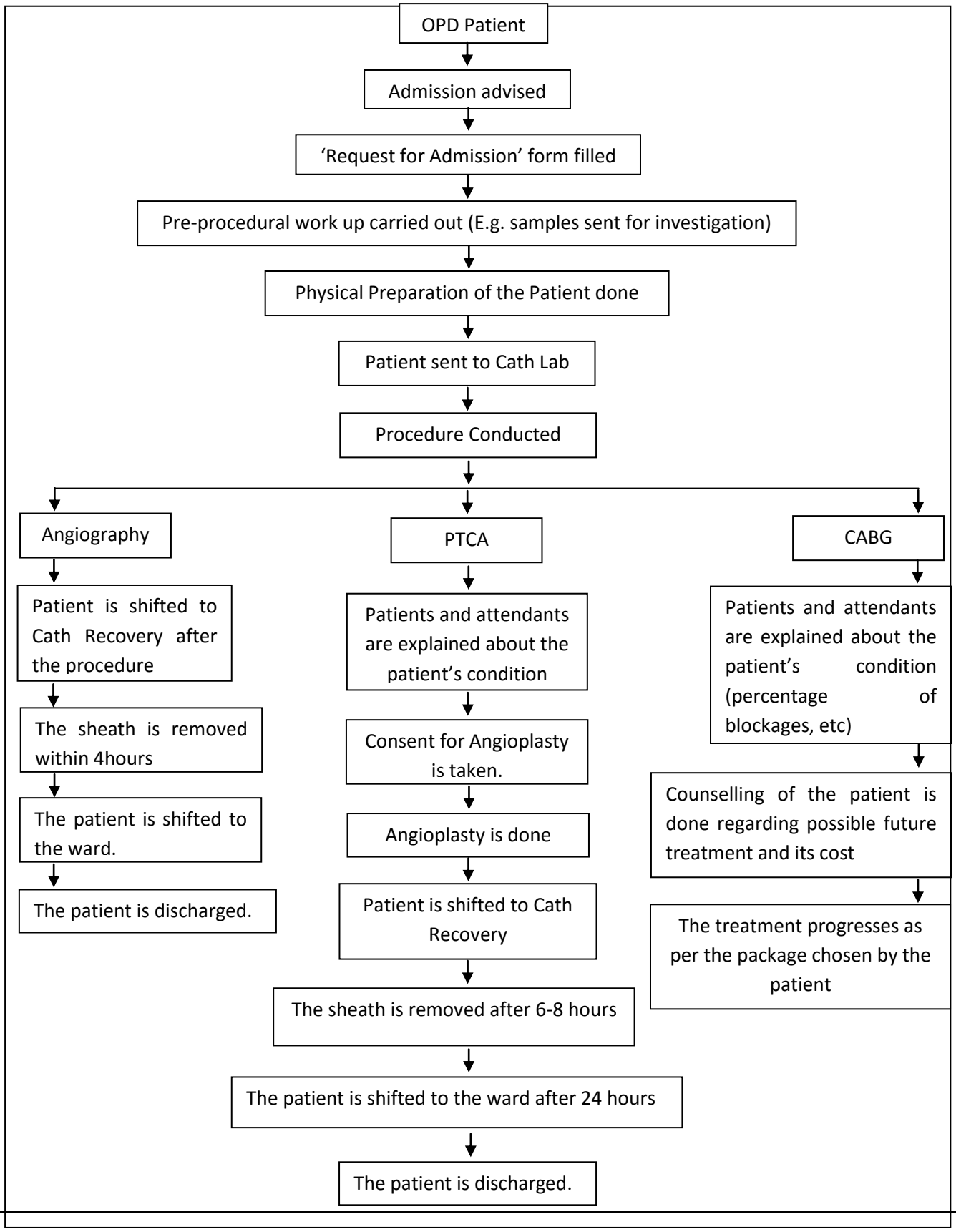
j) Engineering

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



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

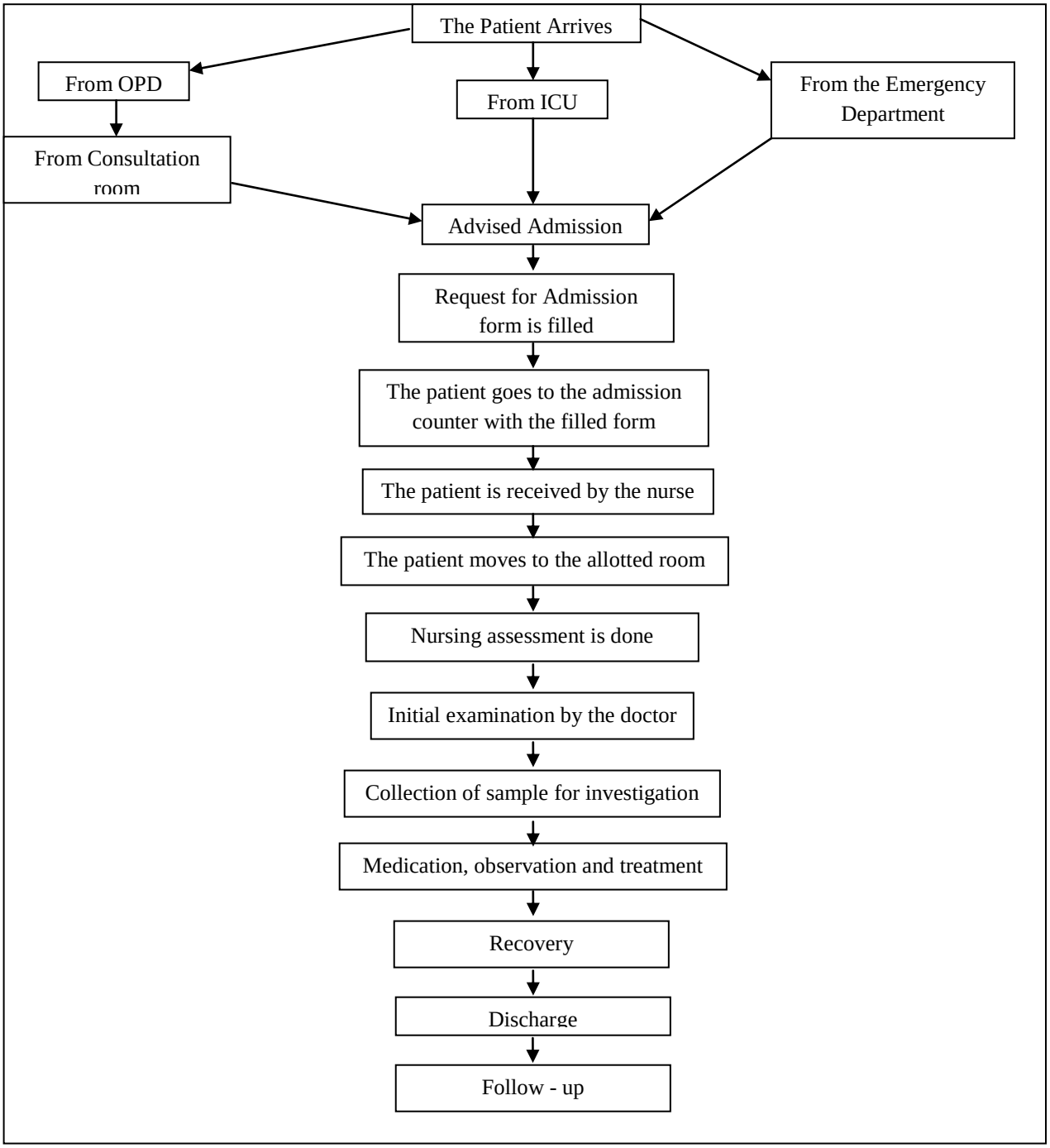
The distribution of the Intensive Care Units of Medanta the Medicity is as has been enumerated below.

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. Rohini Adlakha, Institute manager, Medanta Institute of Digestive and Hepatobiliary Sciences.

PROJECT 1: OPTIMIZING EFFICIENCY AT ENDOSCOPY UNIT OF MEDANTA INSTITUTE OF DIGESTIVE AND HEPATOBILIARY SCIENCES

INTRODUCTION:

Efficiency means maximizing production of services/goods with available amount of resources with best quality standards.

Optimizing existing capacity is the need of the hour as demand for endoscopy procedures increases. Working towards optimization requires understanding the patient flow, process flow and the overall functioning of endoscopy department.

The aim of the endoscopy unit should be to provide best possible therapeutic and diagnostic care while providing a comfortable and safe environment for patient as well as staff. In light of increasing demand for endoscopic procedure there is need for using the available resources and manpower to its full capacity.

To achieve efficiency we need to define the parameters on which the efficiency can be assessed. Understand the process flow along with identifying area of issue for improvement. Studying available research to incorporate the benchmark data following which a strategy for implementation of plan for improvement need to be developed.

This project aims at recognizing the road blocks, developing and implementing an improvement strategy and finally to assess the effectiveness of improvement plan.

RATIONALE

The endoscopy market is increasing at a steep rate, according to a news report by idata research, the gastro intestinal market is expected to grow to over $4.4 Billion by 2020. This market is segmented into gastrointestinal (GI) endoscopes, capsule endoscopes, stenting devices, dilation devices, endoscopic retrograde cholangiopancreatography (ERCP) devices, biopsy forceps, polypectomy snares, hemostasis devices and enteral feeding devices.

The increased market demand forces the relevant authorities to fully utilize the available resources and manpower to capture the maximum market share.

Therefore the purpose of this interventional study is to recognize the bottlenecks in the endoscopy department and take appropriate measures to reduce the delay.

SPECIFIC OBJECTIVE

Objective 1: Provide insight in the throughput process of the department, by mapping the main patient flows, the activities performed on the patients, the delaying factors in the process, and determine the duration of both activities and waiting times.

Objective 2: Recommend interventions to reduce the patient length of stay, by identifying and analyzing possibilities to reduce delays

RESEARCH OBJECTIVE

There is a twofold research objective. Firstly to provide an insight into the patient flow and delay in the endoscopy department and second is recommended interventions to reduce delays identified by comparing the observed data with standards/benchmarks available as a result of previous studies.

1. What are the current activity durations?
2. What are the delaying factors and identify bottlenecks?
3. Which interventions could we suggest to reduce the delays?
4. Which interventions were applied?
5. What are the consequences of intervention?

METHODOLOGY

Study type-

- Interventional

Study area-

- Endoscopy department, Medanta Institute of Digestive and Hepatobiliary Sciences ,Medanta –The Medicity , Gurgaon

Study duration-

- Two months

Data Collection-

- Observations and interviews with nurses, physicians, reception desk employees, and technicians to get insight in the way the endoscopy department operates and their processes.
- Patients were shadowed to measure activity and waiting time during the study period
- Patient records to gather quantitative information on core logistical numbers, like patient volumes.

Sampling method-

- Non probability convenience sampling

Sample size- 660 samples (shadowing) 20 (interviews)

(befor intervention 330 and after intervention 330)

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
- **IMPLEMENTATION and EVALUATION**proposed solution

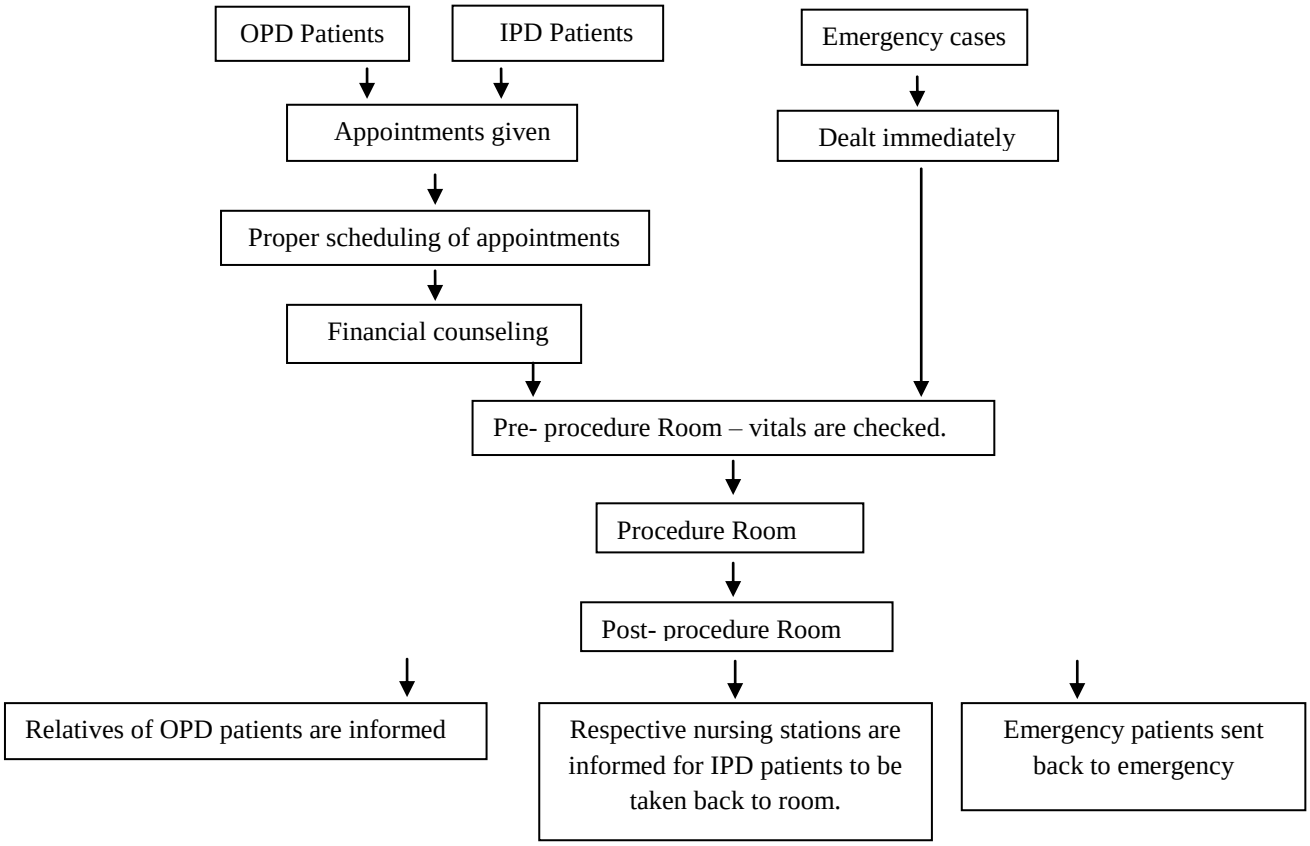
BACKGROUND:

Endoscopy unit is the heart of digestive and hepatobiliary institute. Endoscopy is a procedure in which an endoscope which is a camera is used to visualize inside of the body for diagnostic and therapeutic use.

Endoscopy department consist of the following areas:

1. Reception waiting area
2. Pre procedure area
3. Procedure area
4. Recovery area
5. Dirty utility area/clean area/storage room
6. Printing room

ENDOSCOPY PATIENT FLOW



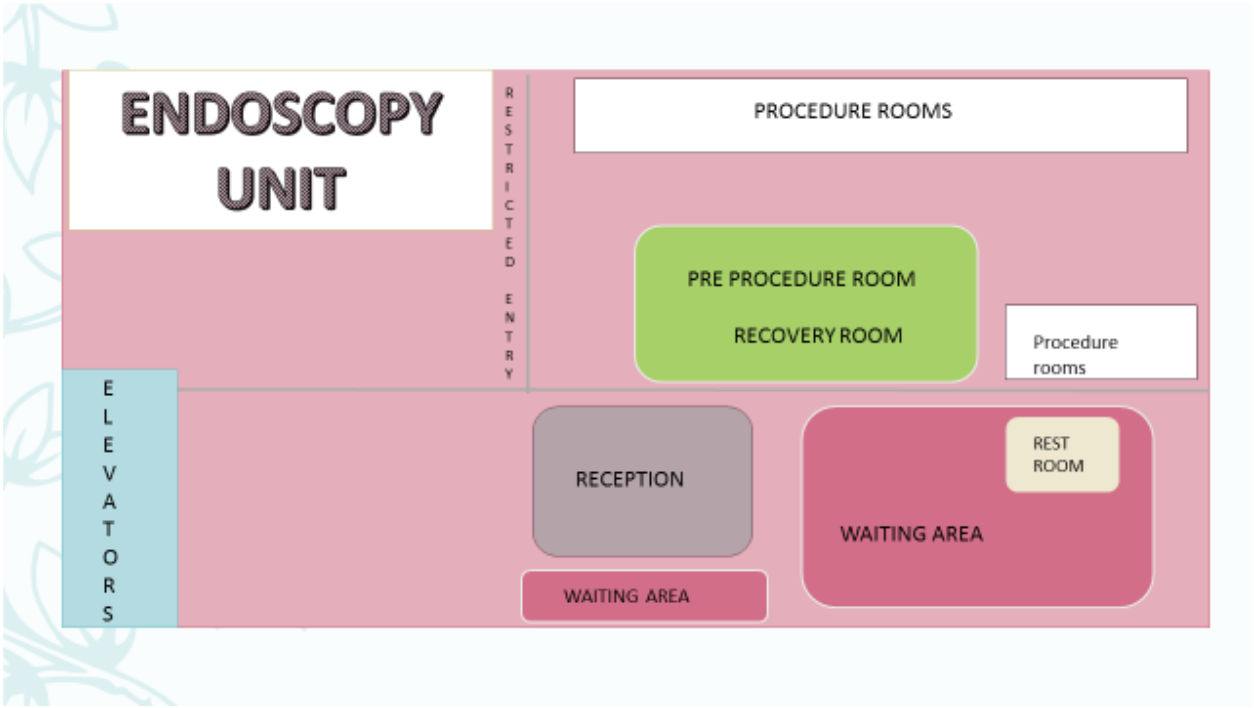
Endoscopy department capacity depends on various elements. These appears in common places but failure to recognize them may affect the unit's ability to delivery effectively.

Previous research studies have identified the following parameters on which efficiency could be assessed:

1. The reception wait
2. Pre procedure time
3. Procedure time
4. Recovery time
5. Room turnover time.

6. Procedure volume
7. Room turnover time

LAYOUT OF ENDOSCOPY UNIT:



CORE ACTIVITIES:

❖ At reception desk:

✓ Registration of patient and generating patient's barcode.

✓ Counselling about procedure, process and cost factor.

✓ Giving appointments.

✓ And informing attendants about the status of patients inside the endoscopy for pre procedure.

❖ At pre procedure:

✓ Taking history and procedure consent from patient/attendant.

- ✓ Inserting cannula and giving medication if any.
- ❖ At recovery:
- ✓ Monitoring patients status
- ✓ Initiating billing process
- ✓ Removing cannula after patient's full recovery
- ✓ Handing over the report to patient
- ✓ Giving post procedure instruction to patient.

OBSERVATIONS:

A. Staff interview outcomes:

1. "there is shortage of staff"
2. "people do not communicate"
3. "it gets crowded in preprocedure"
4. "no appointment system exists"
5. "no synchronization between staff"

B. Patient interview outcomes:

1. "how long will the procedure take"
2. "we are not being informed about our relatives procedure status"
3. "we have been waiting for 2 hours for our turn, how long will it take"
4. "doctor said it is a short procedure, why is it taking so much time"
5. "please adjust us today we cannot come tomorrow for our procedure"

C. Reception area :

- ➢ Ratio of patients with appointment to walk-in's : 61:39
- ➢ Percentage of patients missing their appointment(late/absent) : 49%

- Lack of information about process and procedure at patient's and attendants end.
- No leaflet/pamphlet available for patient information.
- Slotting system for appointments not followed.
- Communication gap between reception and pre procedure
- No information at the reception about IPD patient.

D. Pre procedure area:

- Skewed patient: nurse ratio sometimes as high as 1:10
- Pre procedure waiting time : 1 hour 30minutes
- No system for appointments to IPD patients.
- Chaos due to no single line of appointments for IPD and OPD which leads to clash.

E. Recovery area:

- Delay in sample dispatch.

F. Written communication material

- Unavailability of written communication material.
- No leaflet present for Process flow information.

DATA ANALYSIS AND INTERPRETATION:

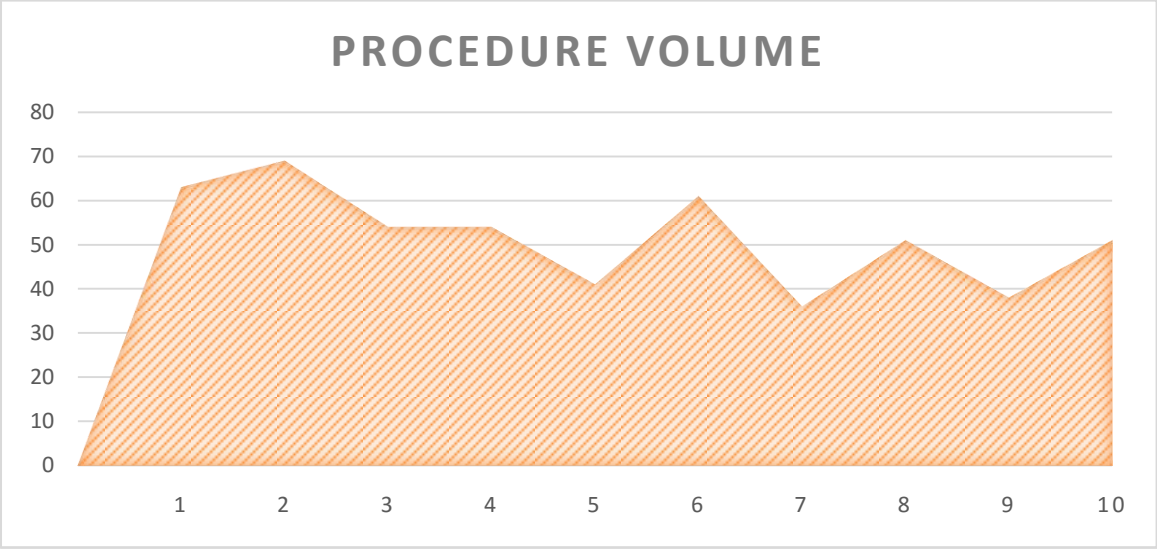
1. Comparing observed waiting time of parameters with standards:

ANALSIS OF DATA COLLECTED VS STANDARD

STANDARD VS OBSERVED	STANDARD	OBSERVED
RECEPTION	N/A	23minutes (0minutes -6 hours)
PRE PROCEDURE	2-22.2 MINUTES	1hour 30minutes (17minutes-6.5hours)
PROCEDURE	3-42MINUTES	25 minutes (5minutes-2hours 5minutes)
RECOVERY	10-60MINUTES	46 minutes (10minutes-4hours)
STANDARD DEVIATION		1hour 12minutes
TOTAL average		3 hours 5minutes

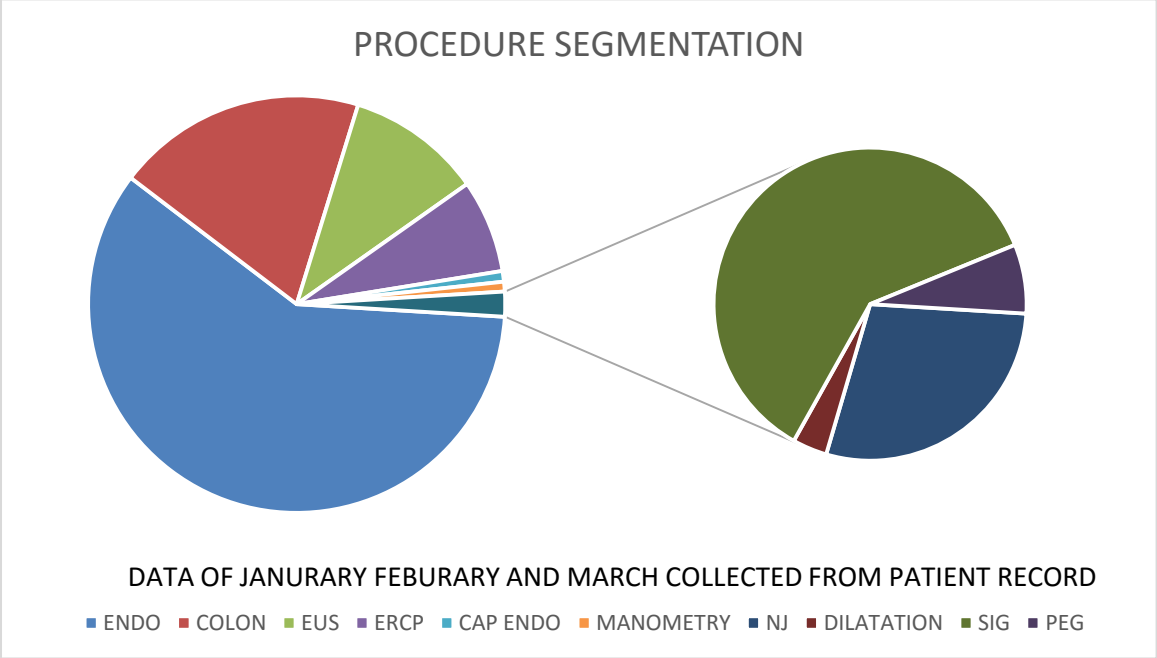
- On comparing the data observed with the standard time available, pre procedure waiting time came out to be quite high.
- No standards were available for reception waiting time.
- Averages of Procedure and recovery time were within standard range.

2. Procedure volume at the endoscopy department on an average is 51.8



AVERAGE NUMBER OF PATIENTS PER DAY :51.8 (data observed from 7th april to 19th april)

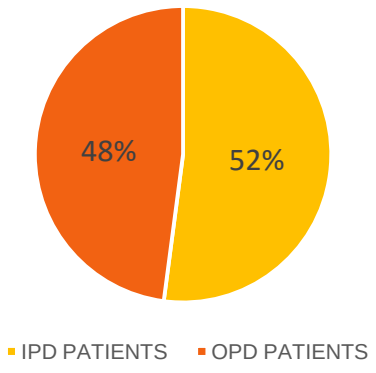
3. Procedure composition at the endoscopy unit is as follow:



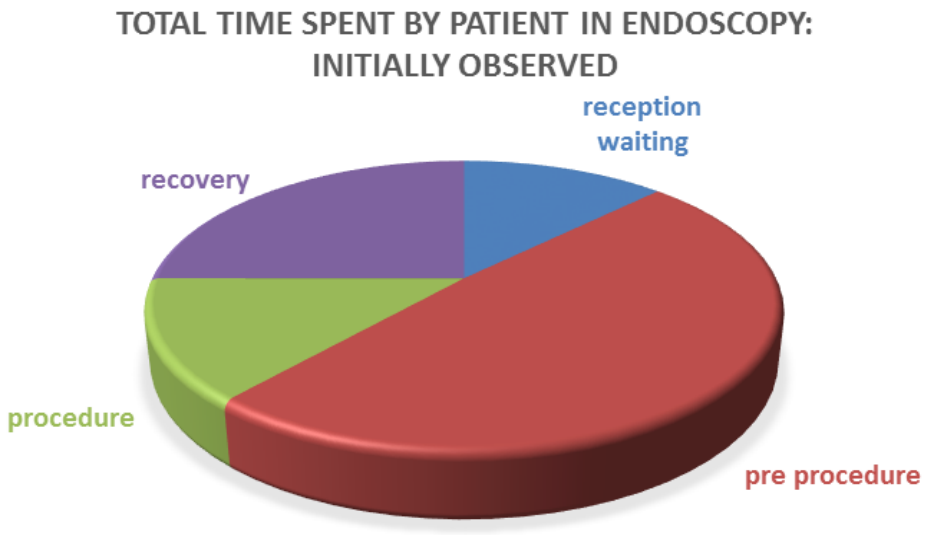
- Endoscopy : 59%
- Colonoscopy : 19%%
- EUS : 11%
- ERCP : 7%
- OTHERS : 2% (Manometery,NJ, Sigmoid, Dilatation)

4. Patient composition : IPD:OPD

   52% patients coming for endoscopy procedures are in patients.



5. Total time spent by a patient in endoscopy department :



-total time spent = 3 hours 05minutes

INTERVENTION APPLIED IN ENDOSCOPY:

❖ Reception area :

- A leaflet was prepared for the reception desk of endoscopy unit for patient/attendants information.

ENDOSCOPY DEPARTMENT

- ✓ At the reception desk, show your doctor's prescription and get yourself registered.
- ✓ Inform if you have consumed anything orally in the last 6 hours.
- ✓ **Patients with appointment will be given preference.**
- ✓ Wait in the lounge as your turn arrives. Attendants won't be allowed beyond this point.
- ✓ Next, you'll move to pre procedure where you'll be assessed and prepared for procedure.
- ✓ Once inside the preprocedure room, the whole process including the procedure might take 2-3 hours.
- ✓ Patients are requested to collect their report before leaving the department.

Apologies for delay due to unseen circumstances.

- Designed and implemented EHIS for appointments for the first time in endoscopy.
  -OPD appointments given through EHIS at reception.
  -walk in patients were adjusted in vacant slots.

❖ Pre procedure area:

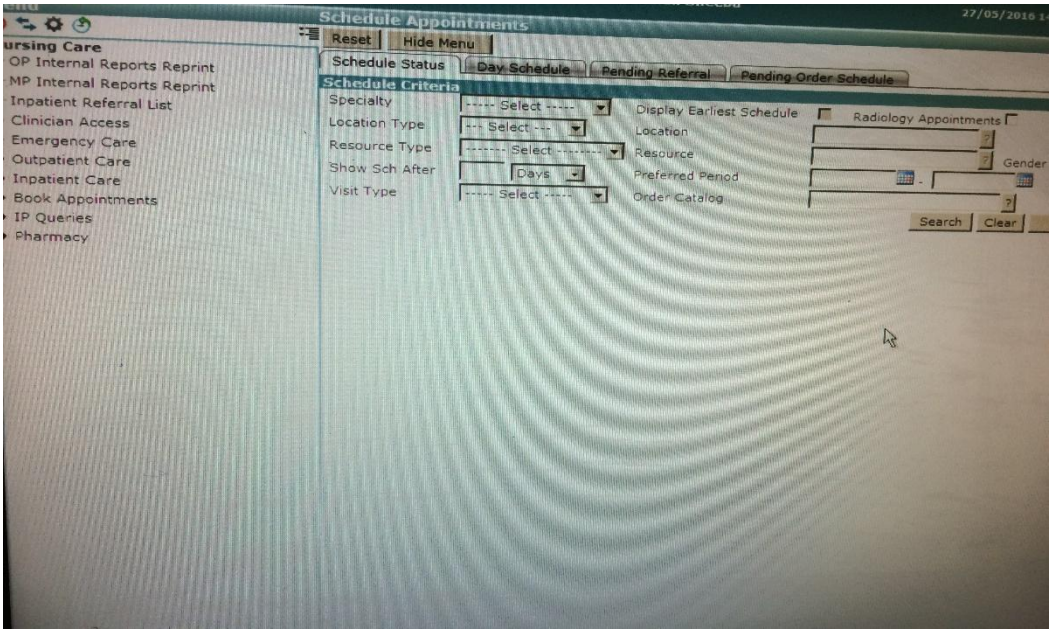
- Started restricting the number of patients in pre procedure.
- Increased phone calls between pre procedure and reception for improved communication.
- Starting giving appointments to IPD patients through EHIS system.

Staff including the endoscopy counsellor, nurses and doctors were trained for using the EHIS as it was new for everyone.

STEPS FOR USING eHIS

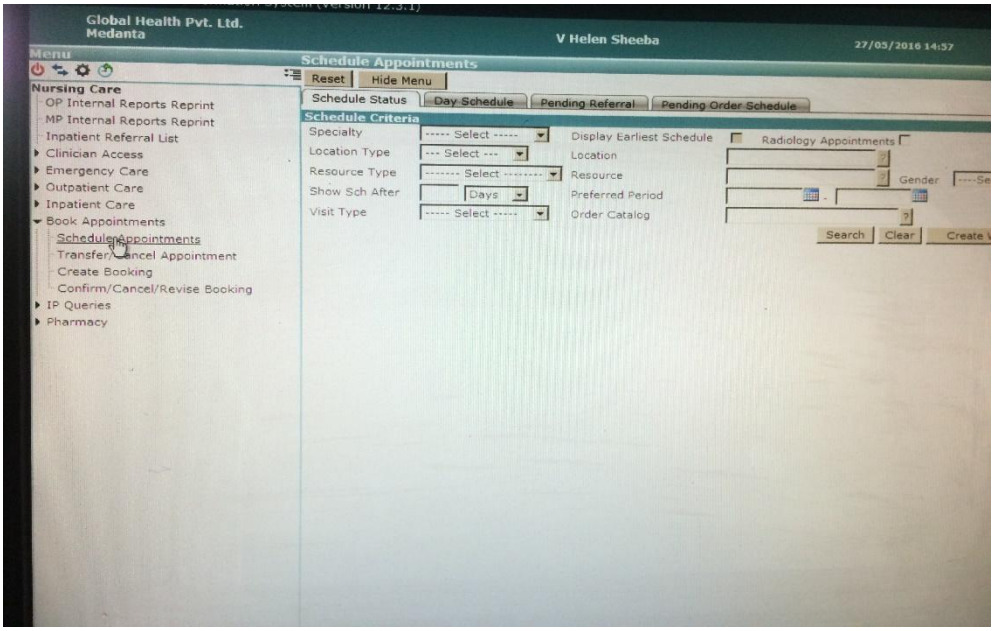
Step 1:

Login to live electronic hospital management system.



Step 2:

Go to book appointments and select .

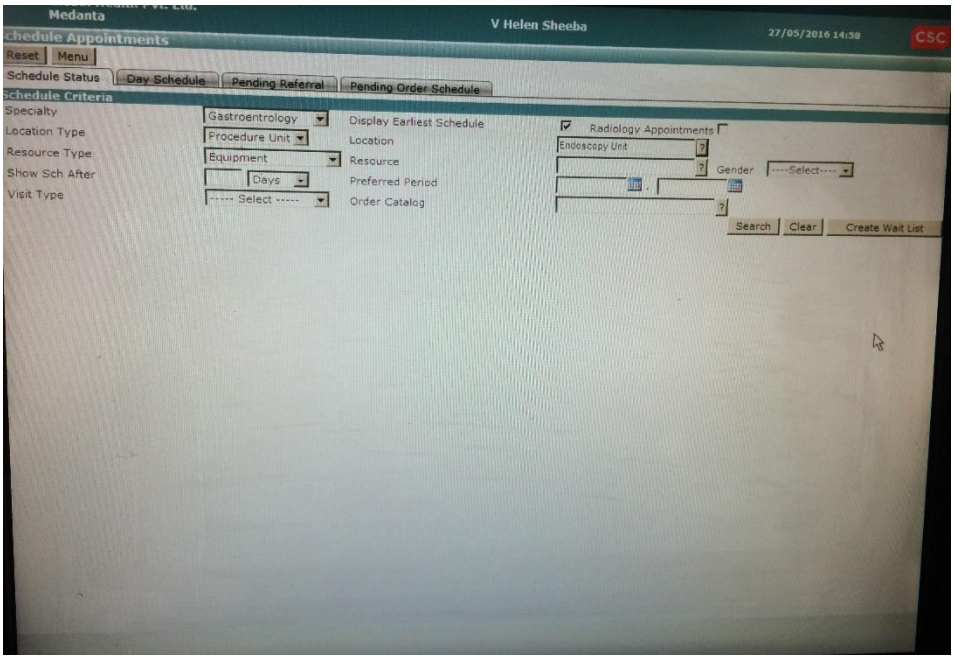


Step 3:

Fill in the pre requisite.

Specialty: gastroentrology

location: procedure unit



Step 4:

A window appears showing all the vacant slots.

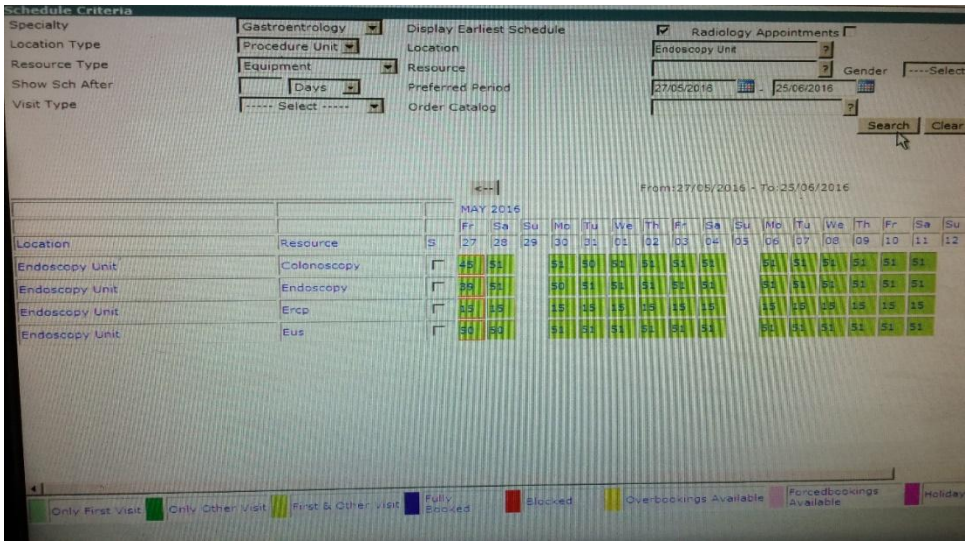
In this picture, there are 39 out of 51 vacant slots for endoscopy.

Total slots available per day: 51-endoscopy

51-colonoscopy

51-ercp

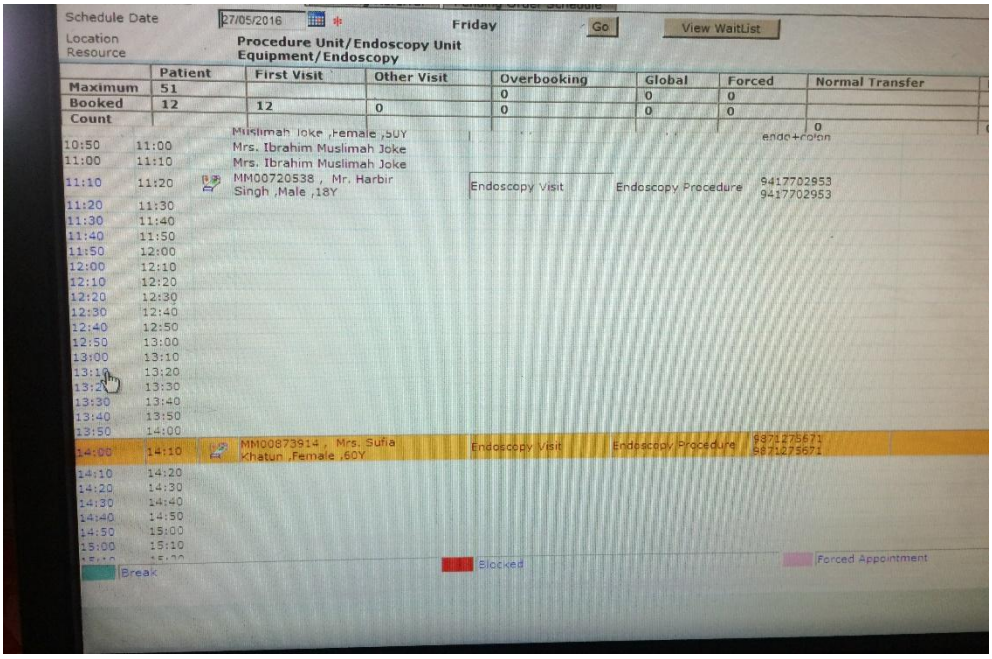
15-eus



Step 5:

Open the requested procedure by clicking on the vacant number of slots.

And select the requested time.

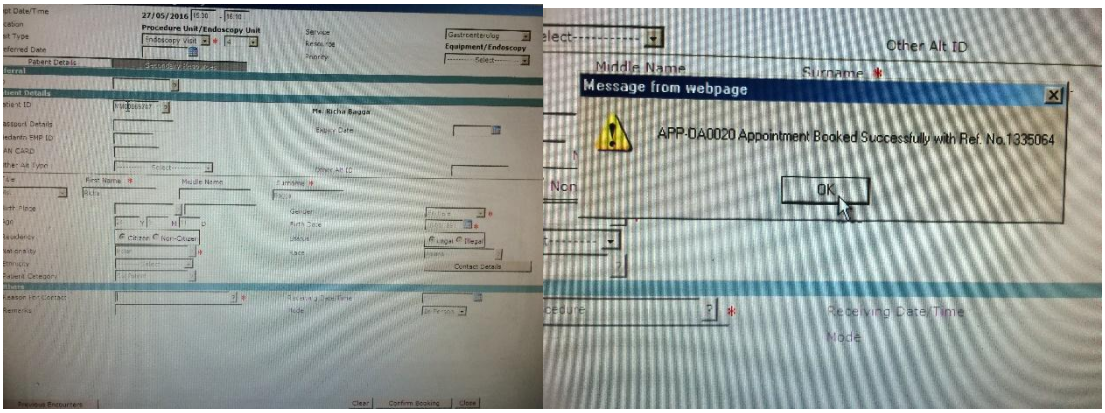


Step 6:

Fill in the patient uhid and everything gets filled automatically.

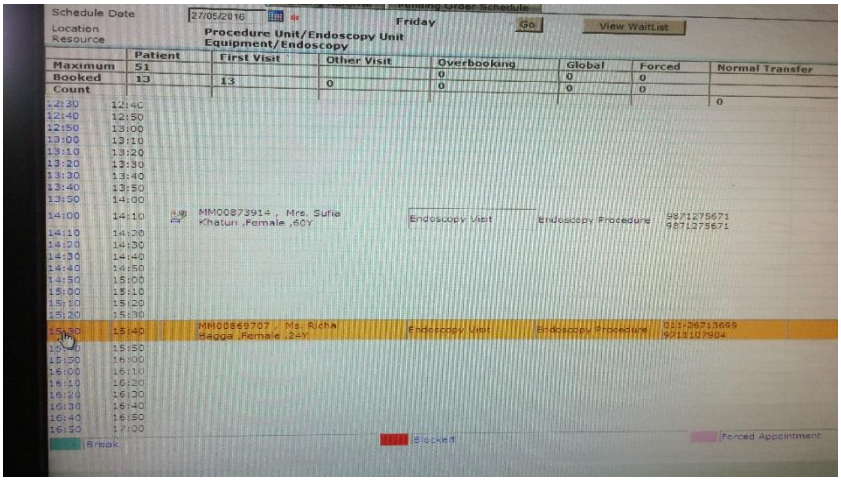
Select the reason for contact for appointment.

And click on confirm booking.



Step 7:

Appointment gets booked and can be looked at, reschedule and cancelled at any point of time.



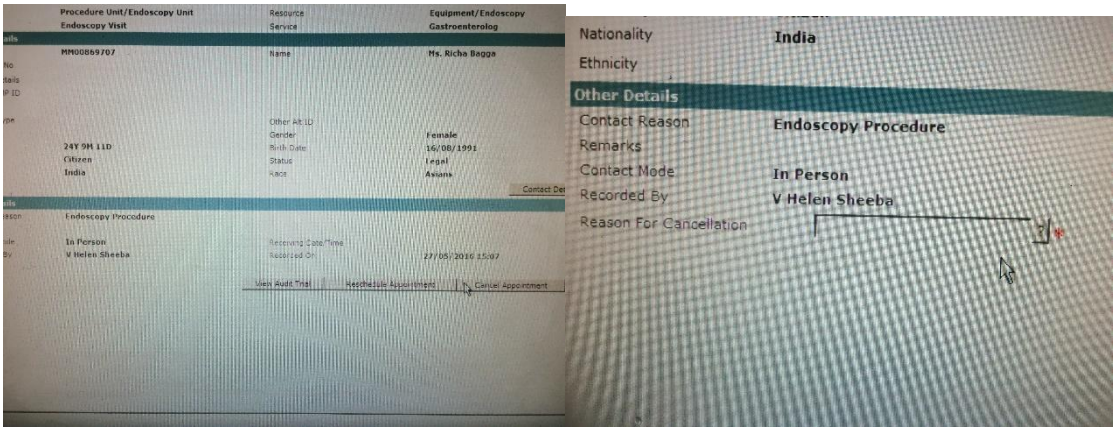
For cancellation/reschedule:

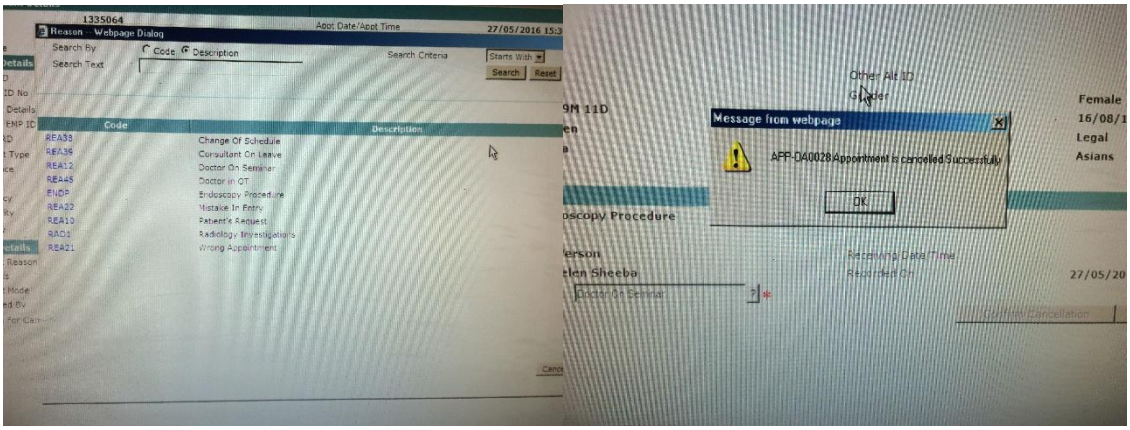
Select the appointment by clicking on the time.

Click on cancel booking.

Select reason for cancellation.

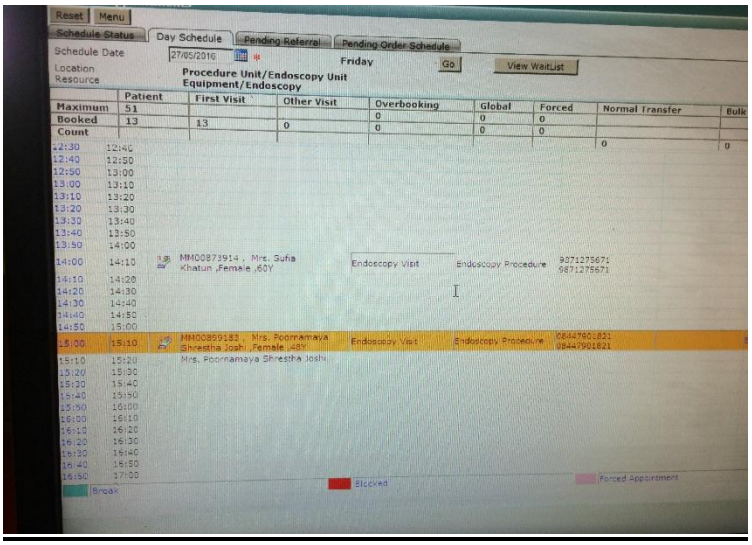
And confirm cancellation.





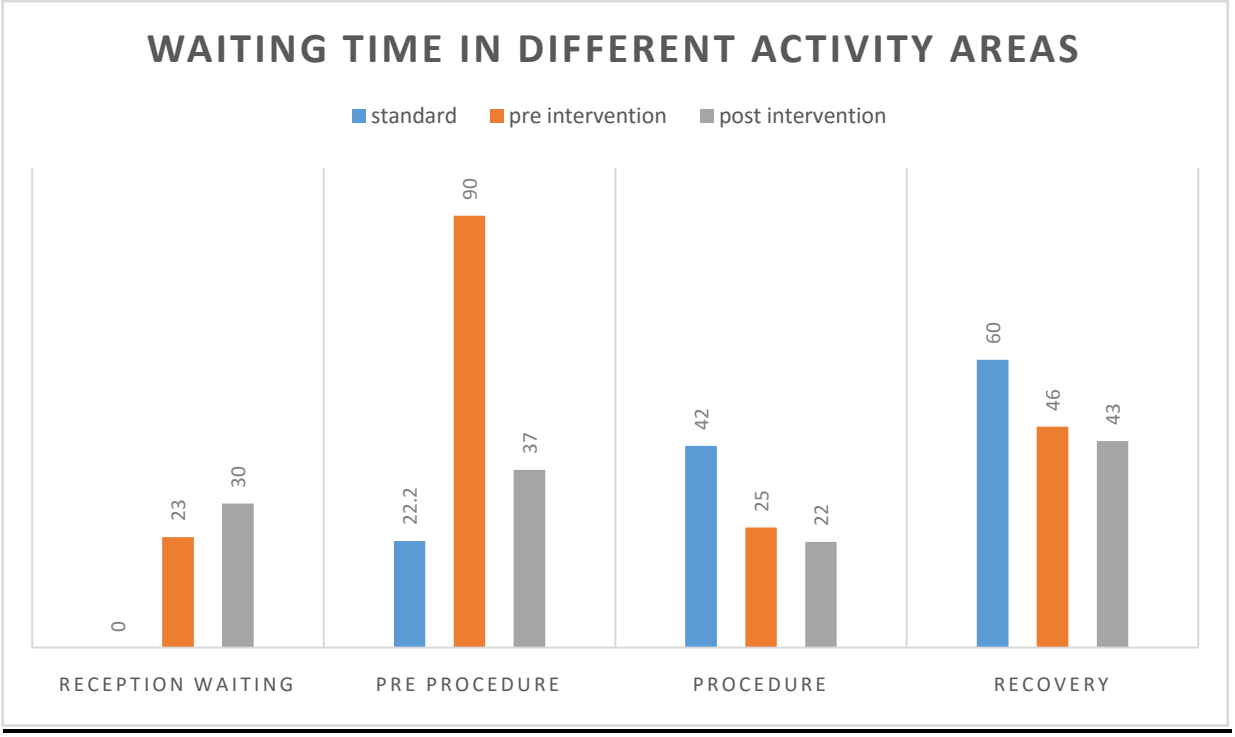
For IPD patient:

A bed appears in front of the IPD appointment.

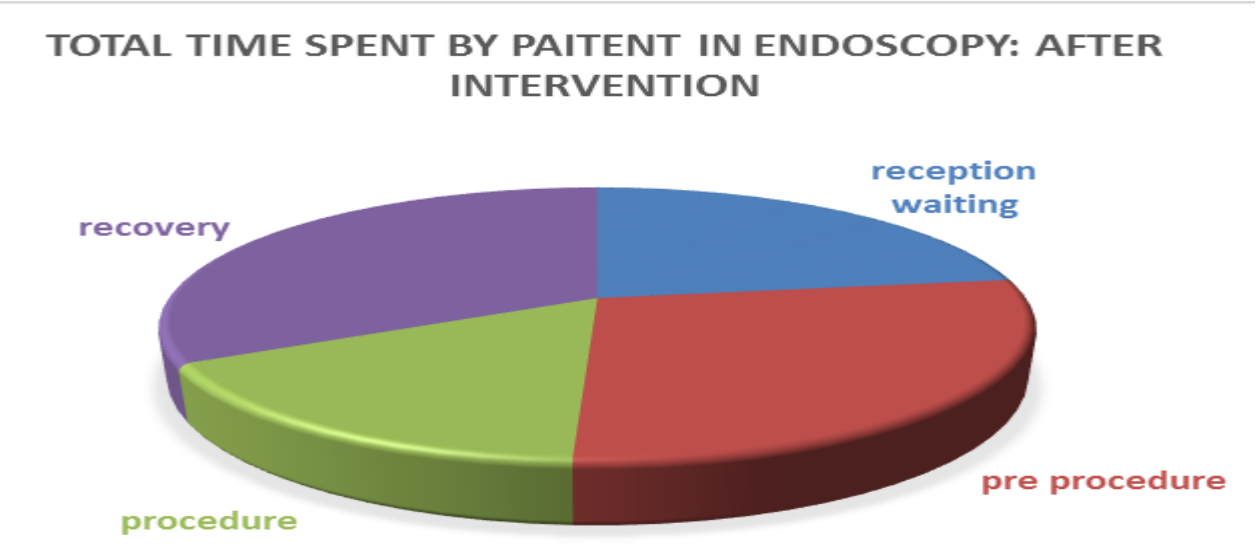


POST INTERVENTION DATA ANALYSIS AND INTERPRETATION:

I. Post intervention waiting time of pre procedure was reduced from 90 minutes to 37 minutes at the expense of increasing reception waiting time from 23 minutes to 30 minutes (7minutes). Also there was reduction in procedure and recovery time.(averages)



II. Post intervention there was reduction in total time spent by a patient who came for endoscopy procedure from 3 hours 05 minutes to 2 hours 14 minutes. The difference was significant.



III. Staff feedback for newly implemented EHIS:

- **Day 1:**

  “Its nice but time consuming we wont get time to do it”

  “need extra staff for this”

  “its difficult to follow”

  “this will increase our work load”

  “this wont work”

- **Day 7:**

  “I like it”

  “it had made our task easy”

  “now we can easily know without calling reception to know the number of walk in patients waiting”

  “opd patients have started coming on their assigned/slot time”

  “its nice that anyone sitting anywhere can see how many appointment slots are empty”

  “as a doctor it helps me track my patients arrival in endoscopy”

TEST OF SIGNIFICANCE

NULL HYPOSTHESIS: no significant difference in total length of stay of patient pre and post intervention in endoscopy department.

	PRE	POST
MEAN	0.13	0.09
SD	0.05	0.04
SEM	0.0028	0.0022
N	330	330
CALCULATIONS		
t	11.3481	
df	658	
Standard error of difference	0.004	

P value and statistical significance:
The P value is less than 0.0001
By conventional criteria, this difference is considered to be extremely statistically significant.

Confidence interval:
The mean of pre minus post equals 0.0400
95% confidence interval of this difference: From 0.0331 to 0.0469

A **p-value** less than 0.01 **mean** that the null hypothesis is false.

CONCLUSION

EHIS was successfully implemented in endoscopy department for scheduling appointment. Roadblocks in the patient flow were recognized and measures were incorporated to reduce the delays.

Also we were successful in reducing the length of stay of patient in the endoscopy department.

RECOMMENDATION

- Need an organized system for sample dispatch.
- More staff is required in both pre and post procedure area.
- Appointment slotting system needs to be followed strictly.

REFERENCES

- Guidelines for designing a digestive diseases endoscopy unit-report of world endoscopy organization."chris j.j mulder, marten a.j Jacobs digestive endoscopy 2013
- Simulation as a guide for system redesign in gastrointestinal endoscopy-"javad tahen zaid gellad"
- Optimizing endoscopy centre efficiency with the safety net-"lukejohn w.day MD"
- Gastroenterology research and practice e volume 2015 article-764153,9
- Studying and incorporating efficiency into gastrointestinal endoscopy centres-"jukejohn w.day and david belson"

Specific/special Learning:

❖ Learned to manage department of endoscopy independently:

- ✓ Giving appointments to opd patients.
- ✓ Managing nursing staff.
- ✓ Checking requisition form
- ✓ Calling IPD patients for transfer.
- ✓ Counselling patient and attendants regarding the procedure and process.
- ✓ Managing and coordinating the flow of patients and their discharge.

❖ Dealing with specific situations

- ✓ Dealing with patients refusing to pay the bill.
- ✓ Dealing with anxious patients whose procedure got delayed.
- ✓ Finding misplaced files during procedure.
- ✓ Solving mismatched dispatch of samples.
- ✓ Patient transfer related problem solving.

PROJECT 2 : TO AUDIT ACTIVE IN PATIENT'S FILE IN MEDANTA INSTITUTE OF DIGESTIVE AND HEPATOBILIARY SCIENCES

Objective:

- To assess whether the documentation is being done as per the standard protocols of the hospital.
- To check for non-compliance in documentation of active in patient in medanta institute of digestive and hepatobiliary sciences.
- To recommend effective solution wherever required.

Background:

According to ISO 9000, "quality is degree to which a set of inherent characteristic fulfil requirements".

Quality of a service refers to the perception to the degree of which a services meets the standards.

Medical record is a systemic documentation of a patient's personal and social data, history of his her ailment clinical findings, investigations, diagnosis treatment given, and an account of follow up and final outcome.

All healthcare practitioners and others who enter information into patient records must understand the importance of writing down or filling in patients details and maintaining accurate records and be aware of legal and medical implications of failing to do so.

A medical record enables healthcare professional plan and evaluate a patient's treatment and ensures continuity of care among multiple providers. The quality of care a patient receives depends directly on the accuracy and legibility of information the medical record contains. Maintaining a complete record is important not only to comply with licensing and accreditation requirements, but also to enable a healthcare provider to establish that a patient received adequate care. Statutes, accreditation standards, and professional associations frequently impose standards relating to the legibility, accuracy and completeness of medical records. Standard operating procedures for hospitals require that data be collected in a timely economic and efficient manner using the degree of accuracy and completeness necessary for the data's required used and health records to be

periodically reviewed for completeness, accuracy and timeliness of the information they contain.

Aim:

- To assess whether the existing documentation procedure is in accordance with the SOP established by the hospital.
- To identify the lacunae in the same and to propose some possible solutions.

Rationale:

Documentation by clinical staff (doctors and nurses) is an integral part of practice to ensure safe and high quality care of the patient.

Also it is necessary for the hospital to maintain properly documented records from the point of view of medico legal issues. An effective documentation system requires regular review and revision. So, this project was done to ensure that the documentation is being done in accordance with the standard protocols of the hospital.

Methodology:

Observational study

Study area: IPD unit of Medanta Institute of Digestive and Hepatobiliary Sciences (Floor 11 wing A, HDU and B, floor 7 wing B)

Sample;

- Size: 152 IPD files
- Type: non probability convenience

Variables used:

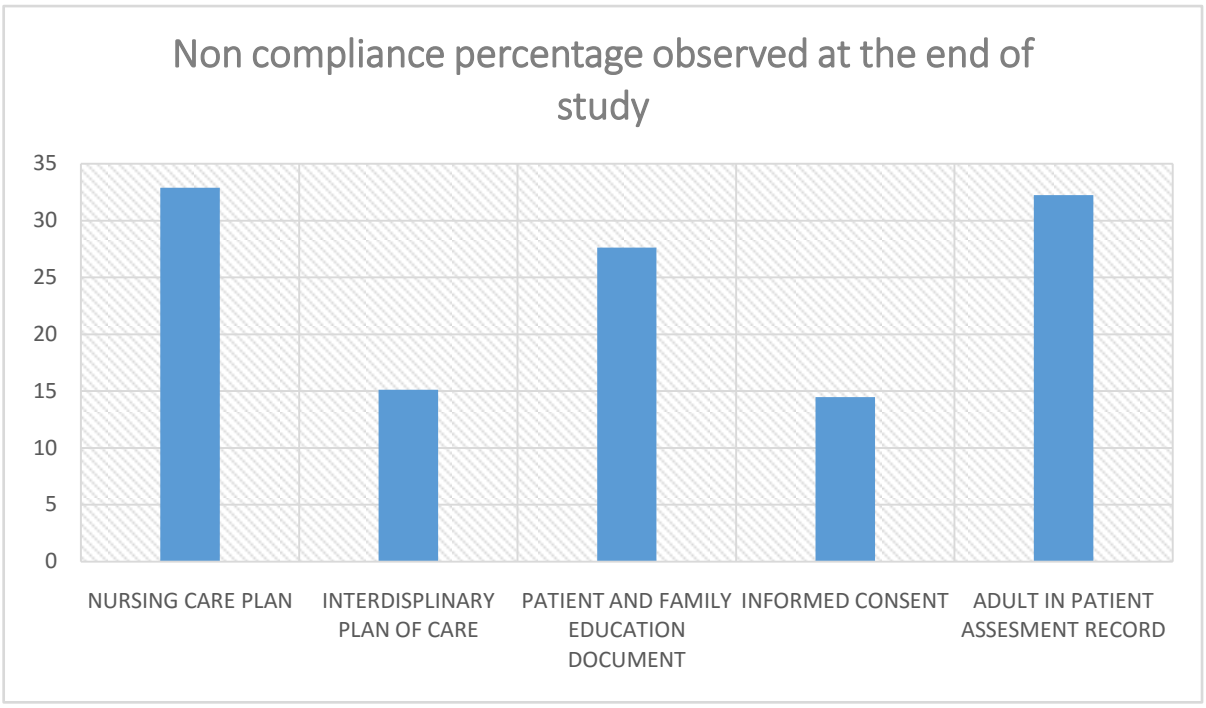
PATIENT'S NAME UHID AGE SEX ROOM NUMBER DOCTOR'S NAME ON EVERY PAGE
PATIENT DOCUMENT CHECKLIST
REQUEST FORM FOR ADMISSION
FACESHEET CONTAINING PATIENT AND DOCTOR'S SIGNATURE
PATIENT BELONGING AND VALUABLE FORM WITH ASSIGNED NURSE PATIENT ATTANDENT AND SECURITY PERSONNEL"S SIGNATURE
INFORMED CONSENT FOR MEDICAL MANAGEMENT: PT AND DOC SIGN IF ATTENDED THEN REASON

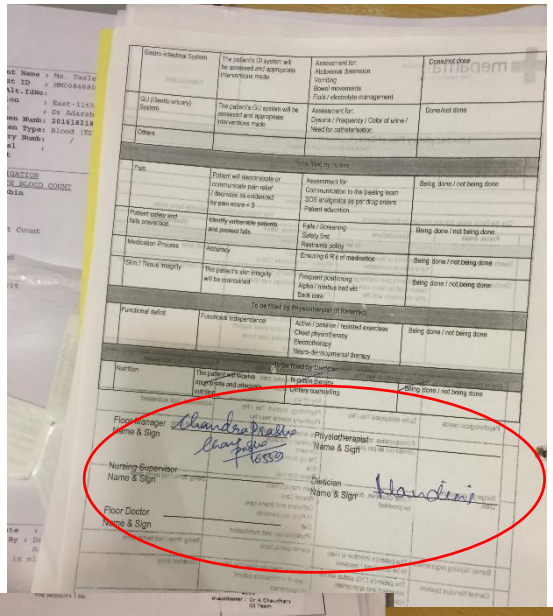
ADMISSION CHECKLIST:NURSE SIGN
ADULT IN PATIENT ASSESSMENT RECORD
PATIENT AND FAMILY EDUCATION DOCUMENT
PATIENT AND FAMILY EDUCATION ON FALL PREVENTION
INTERDISPLINARY PLAN OF CARE
PROGREE SHEET: DATE TIME NOTES AND SIGN
INFORMED CONSENT (OTHER PROCEDURES)
MEDICAL ADMINISTRATION RECORD
CURRENT LIST OF MEDICATION
LAB/X RAY REPORTS
PLAN/TREATMENT NOTE/DIAGNOSIS
NON DRUG ORDER SHEET
DAILY NURSING FLOW SHEET/NURSING CARE PLAN
NURSE PROGRESS SHEET
NUTRITION CARE PLAN/DIET CHART
PHYSIOTHERAPY CARE PLAN
ALLERGIES/ADR NOTES
TRANSFER FORMS
HEALTH RISK ASSESSMENTS

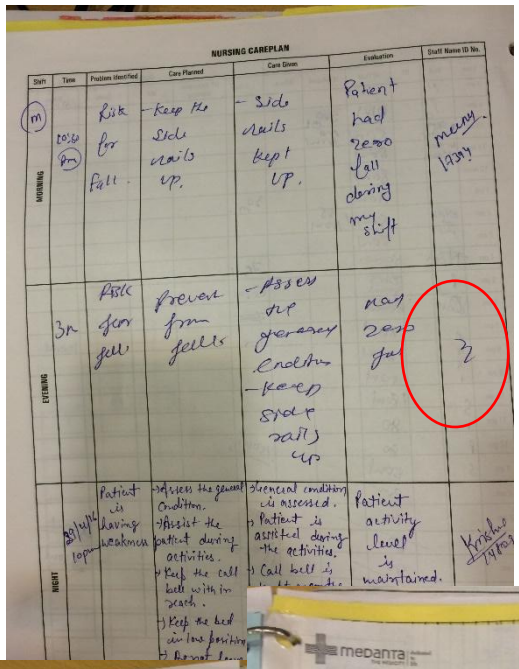
Findings:

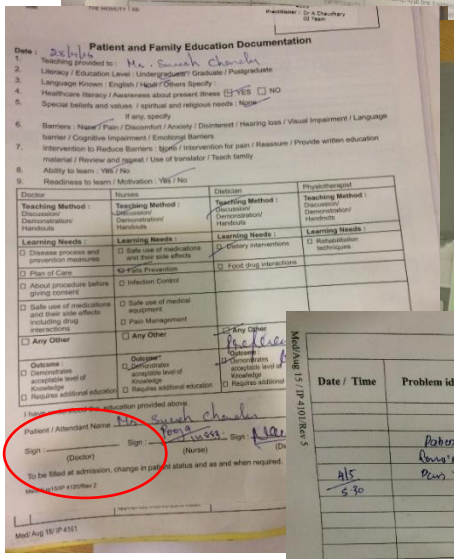
Top 5 non compliances observed:

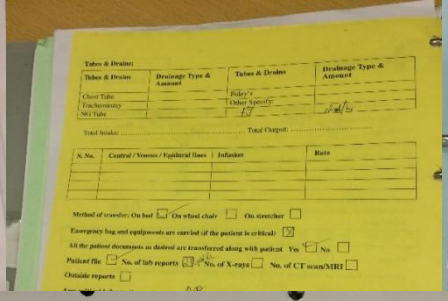
- Nursing care plan form: 33% non-compliance.
- Adult in patient assessment record: 32% non-compliance
- Patient and family education document:28% non-compliance
- Interdisplinary plan of care form:15%
- Informed consent:14% non-compliance

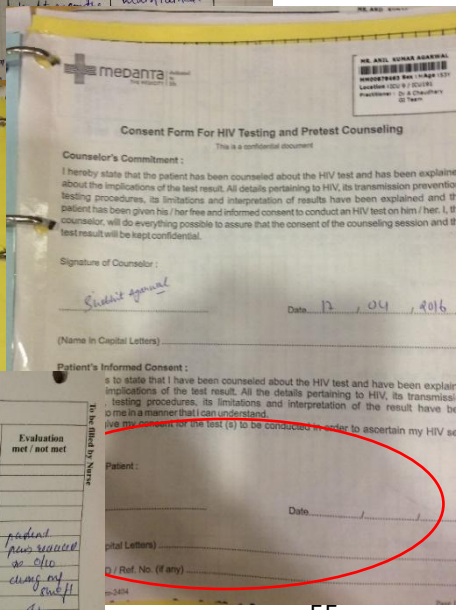

Non compliance percentage observed at the end of study
35
30
25
20
15
10
5
0
NURSING CARE PLAN
INTERDISPLINARY PLAN OF CARE
PATIENT AND FAMILY EDUCATION DOCUMENT
INFORMED CONSENT
ADULT IN PATIENT ASSESMENT RECORD




NURSING CAREPLAN


Patient and Family Education Documentation

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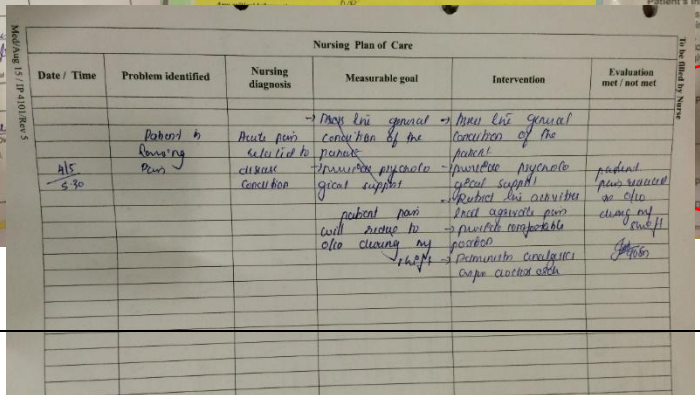
Consent Form For HIV Testing and Pretest Counseling


Nursing Plan of Care

Recommendation:

Sensitizing the clinical staff regarding the importance of proper documentation of the forms.

Rewarding the best performing wing.

Monthly audit of documentation procedure.