

A STUDY ON TURNAROUND TIME IN THE RADIOLOGY DEPARTMENT OF A TERTIARY HOSPITAL

Summer Placement
in
Narayana Health (Mazumdar Shaw Medical Center), Bangalore
(April 1 to May 31st, 2015)

A Report prepared

By
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2014-2016


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CERTIFICATE

This is to certify that Dr. Nivedita Khanra has undergone summer training at Narayana Health, Bangalore from 1st April to 31st May 2015. She did her project on "A STUDY ON TOTAL TURNAROUND TIME IN RADIOLOGY DEPARTMENT OF A TERTIARY CARE HOSPITAL."

Her approach to the study has been sincere, scientific and analytical. This summer training is partial fulfillment of course requirement recommended before awarding the degree of Masters In Business Administration (MBA) in Health and Hospital Management.

I wish her success in all her future endeavors.



Col. (Dr.) Ashok Kaushik

Dean (Academic & Student Affairs)

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Professor and Dean (Training)

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Date: 31st May 2015

INTERNSHIP COMPLETION LETTER

This is to certify that Dr. Nivedita Khanra, pursuing her MHA First Year, from IIHMR University, Jaipur, has successfully completed internship at Narayana Health City, Bangalore from 1st April 2015 to 31st May 2015.

During the course of Internship, the intern has done project on **“A STUDY ON TURNAROUND TIME IN THE RADIOLOGY DEPARTMENT OF A TERTIARY HOSPITAL”**, under the guidance of **Mr. Karan Dave, Manager - Operations**, at **Narayana Health City, Bangalore**.

We found her sincere, hardworking, and technically sound and result oriented. She worked well as part of a team during her tenure.

We take this opportunity to thank her and wish her all the best for her future.

For Narayana Health Pvt. Ltd.



Dr. Rakesh Verma,

Group Head – Learning & Development Department.

ACKNOWLEDGEMENT

Success of an individual is possible when a person is being supported and promoted by others.

Apart from the efforts of myself, the success of this study depends largely on the encouragement and guidelines of many others. I take this opportunity to express my gratitude to the people who have been instrumental in the successful completion of this study. The guidance and support received from all the members who contributed was vital for the success of this study. I am grateful for their constant support and help.

I wish to express my sincere respects, regards and deep sense of gratitude to my Guide, **Karan dave** , Operation manager , Mazumdar Shaw Medical center Bangalore, a well versed teacher, experienced in a plethora of fields, with an inherent rare human quality to listen and to render physical and mental courage on the onlooker. I sincerely express my boundless reverence for his excellent guidance, constant courage, encouragement, timely advice, thoughtful criticism and constructive suggestions to which this thesis owes its very existence. His administrative intuition has made him as a constant oasis of ideas and his passion in administration, which exceptionally inspire and enrich my growth as a student, researcher and administrator I want to be.

I am also very grateful to **Dr. Venkataraman Bhat** , Head of the Department, radiology and imaging , at Mazumdar Shaw Medical Center , Bangalore , for his immense support and inputs towards the study to be a success.

I am also very thankful to **Dr. Puttanna Gowda V N** , Head of Ultrasonography at Narayana health, , who helped me by giving in their suggestions at every step of my project study and timely guiding me to proceed to the successful completion of the study.

My deepest heartfelt thanks goes to **Dr. Shiv Kumar Shetty** , Senior consultant radiologist , at Narayana health, Bangalore for the easy approachability and immense help that took the project towards its completion.

My heartfelt thanks to complete **staff of radiology department** , Mazumdar Shaw Medical Center, Bangalore, who were the subjects of this study, who have willingly shared their precious time during the data collection, without whose consent and cooperation this work would not be complete.

DATE

Dr. Nivedita Khanra

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ORGANIZATION PROFILE

INTRODUCTION

Narayana Health, headquartered in Bangalore is one of India's largest and world's most economical healthcare service provider. Since its inception in 2000 by leading cardiac surgeon Dr. Devi Prasad Shetty, as a 225- beds cardiac hospital 'Narayana Hrudayalaya' in Bangalore, the NH Group of Hospitals has grown to a healthcare conglomerate with a network of 32 multispecialty and superspeciality hospitals with 6498 beds spread across 20 locations. The Group was rebranded as 'Narayana Health' in 2013 to convey organizational vision, values, and objectives beyond just cardiac care.

The NH group offers services in all areas of medicine with special thrust in the areas of Cardiology & Cardiac Surgery, Cancer Care, Neurology and Neurosurgery, Orthopedics, Nephrology & Urology, Gastroenterology, General Surgery, Solid Organ Transplant & Critical Care and is focused on awareness, disease prevention, screening and early intervention.

Over the decade and a half, NH has set up clusters in South, East and West of the country and plans to create similar clusters in Northern & Central India and globally. They have set their global footprint with the establishment of Health City, Cayman Islands, North America that replicates the NH model of healthcare delivery. NH plans to reach out to people in Tier II and Tier III cities of India systematically, ensuring and providing them with quality care. Recognized world over for its social enterprise model, NH is committed to the principles of Compassion, Quality and Affordability in healthcare and leverages technology to achieve this.

NH has also been striving to build a self-sustaining healthcare ecosystem through various initiatives like building Health Cities to bring down the overall cost, leveraging economies of scale, CSR initiatives/donations from corporates/charitable trusts, offering academic programs, vendor management, thus addressing healthcare dynamics in a systematic manner. For its ability to reconcile quality, affordability, scale, transparency, credibility and profitability NH has emerged as a global industry model.

Going forward, NH intends to stay predominantly asset-light, reinvest accruals and engage with the state governments and like-minded private organizations for affordable healthcare, while leveraging the economies of scale and technology to its advantage.

Vision

To provide high quality health care with care and compassion at an affordable cost on large scale

CORE VALUES (ICARE)

I – innovation and efficiency

C- compassionate Care

A – Accountability

R- Respect for all

E – Excellence

What makes Narayana Health different?

- **Clinical Excellence** with 2 JCI (Joint Commission International) accredited Hospitals
- **4 NABH** Accredited Hospitals
- Service Excellence
- Affordability
- More than 90000 Cardiac Surgeries
- Amongst the **largest Telemedicine networks** in the world
- Patients from 76 countries

- One of the largest Dialysis units in India with 217 dedicated beds and 1,30,000 Procedures per year
- 80 bed dedicated post-operative pediatric cardiac ICU, largest in the world
- Digital Radiology
- Academic Excellence
- Financial Stability

FLOOR WISE FACILITY DISTRIBUTION

BASEMENT

BLOCK -A

- RADIOLOGY DEPARTMENT-CT SCAN , X –RAY , ULTRASOUND, MRI
- NUCLEAR MEDICINE
- DEPARTMENT OF SOCIAL WORK
- TELERADIOLOGY

BLOCK -B

- IT DEPARTMENT
- OUT PATIENT SERVICES – ONCOLOGY
- MEDICAL RECORD ROOM

FIRST FLOOR

BLOCK -A

- OUT PATIENT SERVICES(OPD)
- EXECUTIVE HEALTH CHECK
- EXECUTIVE OPD
- PAIN MANAGEMENT
- VOICE AND SWALLOW REHABILITATION

BLOCK -B

- OUT PATIENT SERVICES(OPD)
- RHEMATOLOGY
- VASCULAR SURGERY
- PAC
- DAY CARE UNIT
- BOARD ROOM

SECOND FLOOR

BLOCK -A

- GENERAL WARD

1ST WING TO 11TH WING

- NEURO PHYSIO UNIT

BLOCK -B

- SEMI PRIVATE WARD
- PRIVATE ROOMS
- DELUXE ROOMS
- SLEEP LAB
- INPATIENT PHARMACY STORE

THIRD FLOOR

BLOCK -A

- GENERAL WARD

HDU 1

HDI 2

4TH WING

5TH WING

6TH WING

- ISOLATION WARD
- MEDICAL INTENSIVE CARE UNIT (MICU)

BLOCK -B

- SEMI PRIVATE WARD
- PRIVATE ROOMS
- DELUXE ROOMS

FOURTH FLOOR

BLOCK -A

- OT COMPLEX

- POST ANAESTHETIC CARE UNIT(PACU)
- SURGICAL ICU(SICU)
- TISSUE REPOSITORY

BLOCK -B

- SEMI PRIVATE WARD
- PRIVATE ROOMS
- DELUXE ROOMS
- INPATIENT PHARMACY STORE

FIFTH FLOOR

BLOCK -A

- OT COMPLEX
- LABOUR ROOM
- NEONATAL INTENSIVE CARE UNIT
- PAEDIATRIC INTENSIVE CARE UNIT
- STEP DOWN PAEDIATRIC ICU
- TRANSPLANT INTENSIVE CARE UNIT

BLOCK -B

- PRIVATE ROOMS
- SEMI PRIVATE WARDS
- DELUXE ROOMS
- LABOUR SUITE
- COLONOSCOPY / PROCEDURE ROOMS
- GENERAL WARD
- OUT PATIENT SERVICES

PAEDIATRIC

OBSTETRICS AND GYNAECOLOGY

SIXTH FLOOR

BLOCK -A

- DIALYSIS

BLOCK -B

- OUT PATIENT SRVICES OF HEAD AND NECK
- OUT PATIENT SRVICES OF ENT
- OUT PATIENT SRVICES OF BREAST ONCOLOGY
-

SEVENTH FLOOR

BLOCK -A

- HEMATOLOGY DEPARTMENT

EIGHTH FLOOR

BLOCK -A

- CORPORATE OFFICE

BLOCK –B

- MAZUMDAR SHAW RESEARCH CENTER

Front Office

Location: Ground floor

1) Introduction

Front Office is the First Interactive Point for a patient coming to a Hospital. Front Office executives do multiple tasks right from taking multiple incoming telephone calls from patients who want to schedule appointments, registration, billing, admission, replying to queries of the patients, dispatching of reports, preparing individual patient file to entering records in HIS **Manpower & Hierarchy :**

There are 36 people working under Front Office Department.

Hierarchy:

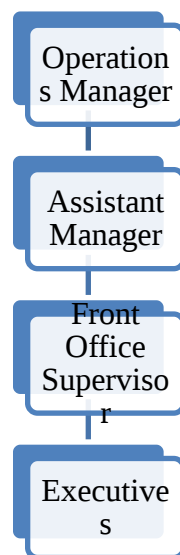


Figure 2.9.1: Organogram of Front Office Department

2) Different Departments in Front office:

- OPD Bill Counter
- Corporate Bill counter
- Report collection counter
- Counselling room
- OPD Counter A to F

- Call centre

OPD Bill counter

It accounts for registration & billing, and patient's queries; even corporate billing, Lab Billing, Radiology Billing which have their separate counters. But it is not meant for billing for PHC. Along with paying patients, cashless services are provided for ESI, ECHS and CGHS patients. For CGHS patients, if cash, Rs.58/- is being charged and Xerox of ID proof is kept by the Hospital. If credit, referral letter from CGHS Clinic is required, which is valid for 7 days. Colored photocopy of card & bill has to be kept.

For ECHS patients, referral letter is required which is valid for 30 days. Referral letter can be used for single time only. Cash patients need to pay Rs.58/- along with copy of ID proof.

Report collection counter

This is a report collection counter for Lab. Investigations, Radiology, cardiac procedures, Neuro procedures. Reports of endoscopy and PHC are given by the respective departments. (Normal timings for reporting- if tests are done before 12pm, reports can be collected after 5pm on the same day. If after 12 pm then next day morning.)

Counselling Room

If patient gets admitted in the hospital, patients are explained the estimate of hospital stay, expenses, etc. in this room. And they are allotted room according to their choice and availability.

Bed Management

It is responsible for allotment of bed and shifting of beds on patient's request. If the desired bed category is not available then the patient is upgraded into the immediate above bed category.

OPD Counters A to F

- **Counter A- Cardiology**

Manpower on Nursing Counter: 3 nurses.

Counter A also includes Cardiac Procedure room. The procedures performed in Cardiac Procedure Room and their Turn Around Time is as follows:

1. ECG-Electrocardiography: 5 min
2. Echocardiography/Color Doppler: 15-20 min
3. Treadmill Test(TMT): 25 min
4. Stress echocardiography: 35 min
5. Transoesophageal cardiography (TEE): 15 min

Procedures done per day (on an average):

1. ECG-7
2. ECHO-15
3. Stress ECHO-2
4. TMT-3

Manpower in Cardiac Procedure Room:

- 1 or 2 Doctors
- 1 Technician
- 1 Female Nurse
- 1 Medical Transcriptionist (M.T.)

- **Counter B** involves following specialties:

Obs. and Gynae.

Paediatrics

ENT

Ophthalmology

- **Counter C- Neurology**

This counter caters to patients coming for Neurology Consultation. Neuro Procedure Room also come under this counter where following Neuro procedures are being done.

1. EMG-Electromyography
2. EEG-Electroencephalography
3. NCV-Nerve conduction velocity test.

(Time taken by each procedure-45 min)

- **Counter D**

Counter D caters to patients coming for General and Lap. Surgeon consultation and this is also a Billing Counter for Lab. and Neuro procedures bill

- **Counter E** includes:

Internal Medicine

Orthopaedics & Joint Replacement

Gastroenterologist

Psychiatry

Rheumatology

- **Counter F** includes:

Neurosurgery

Urology

Haematology

Spine clinic

Psychiatry/Clinical Psychology

Nephrology

Dialysis unit

Dialysis unit has 5 dialysis machines and 1 dialyzer reprocessor. Dialysis takes 3-4 hrs. to complete the process. So the appointments given to the patients are in 4 shifts as mentioned under:

Morning 8-12

Afternoon 12-4

Evening 4-8

Night- 8-12

Manpower:

3 staff nurse

3 technicians-

1 GDA

1 housekeeping personnel

Endoscopy suite

Consists of procedure room, pre- & post-procedure room and cleaning area.

Procedures done:

1. Colonoscopy
2. Endoscopy
3. Sigmoidoscopy
4. ERCP (done in OT)

TAT for the procedures:

Each procedure takes 10-15 min. If pre-care, post-care and reporting is added it takes 30 min.

Only colonoscopy requires 30 min. (only for the procedure)

Manpower:

1 Doctor

1 female nurse

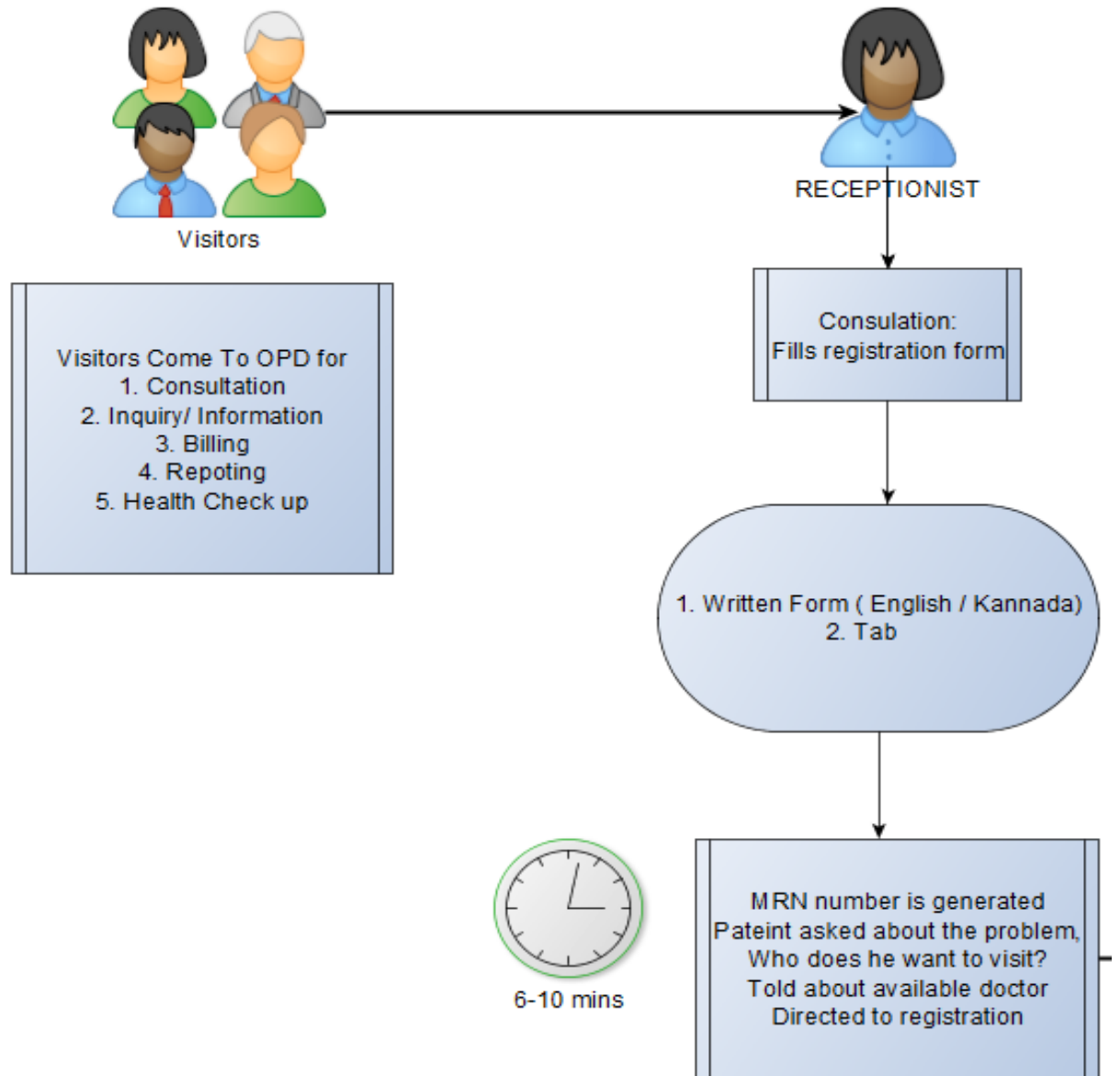
1 technician

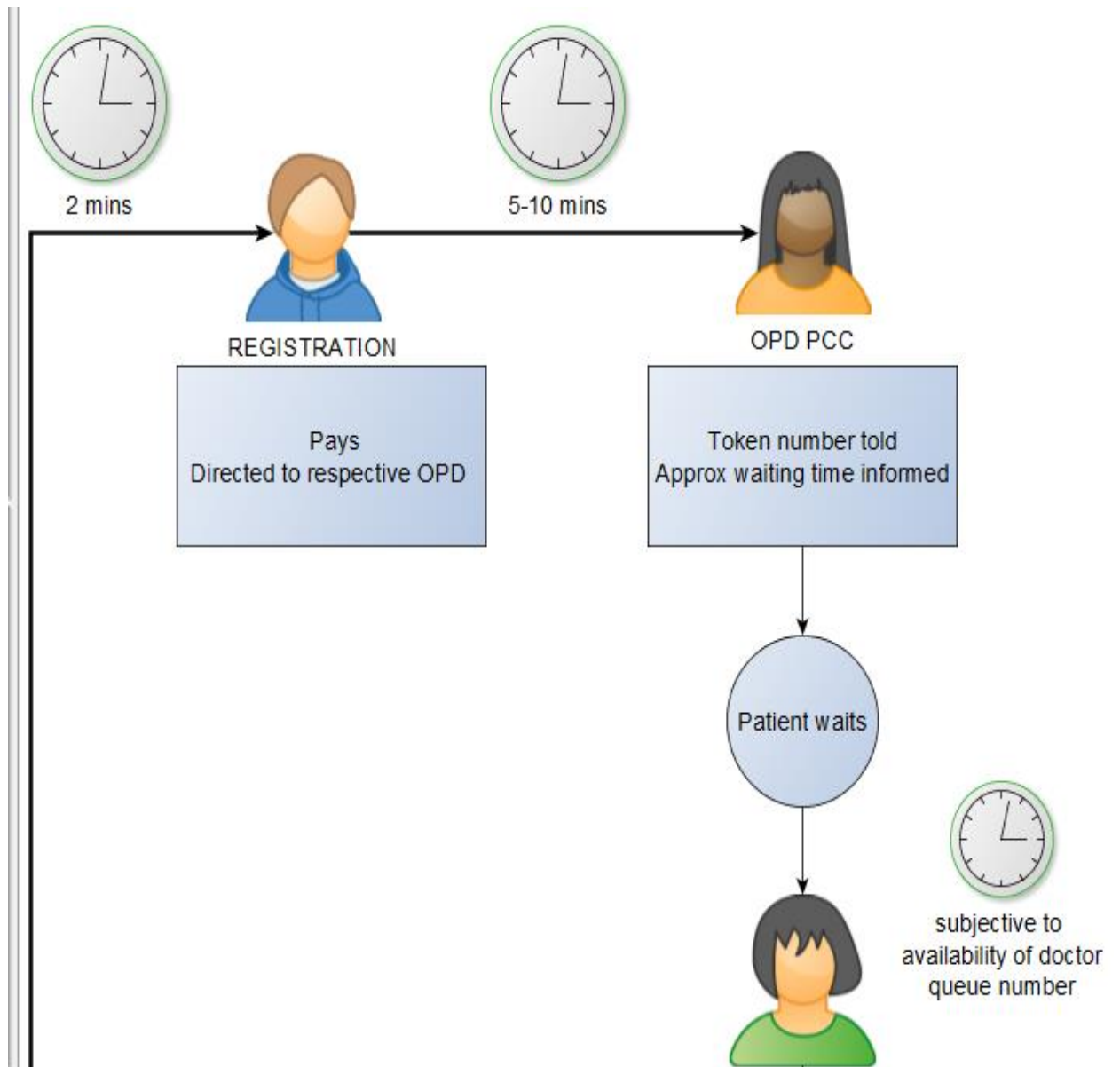
1 GDA

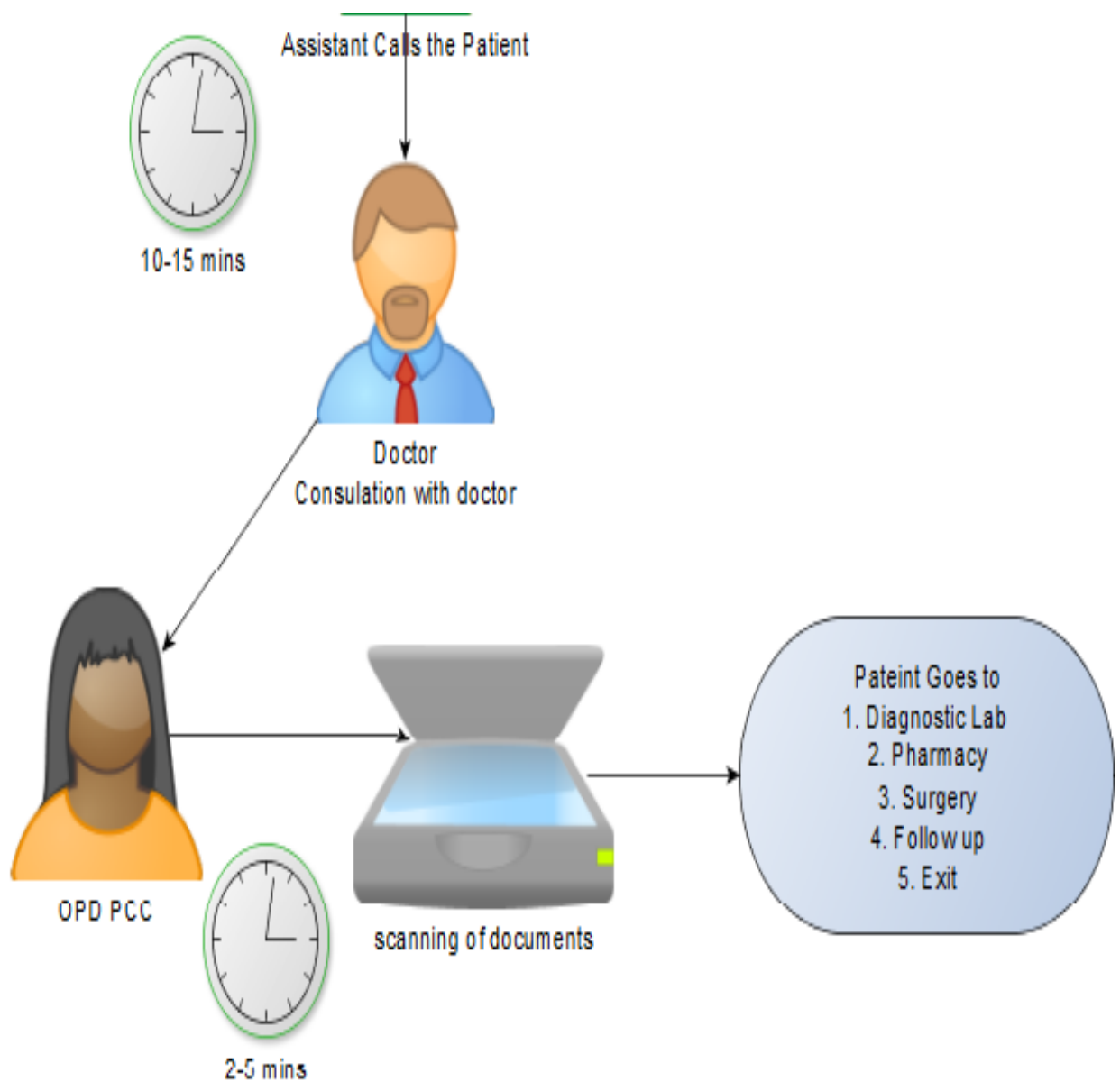
- There are 34 OPD's in MSCC
- 30,000 to 35,000 Out patients in a month .HINAI is used to manage patient queue.
- QIKWELL is the chosen software of choice now.
- Launched in three busy OPD's on ground floor of MSCC in April. These OPD's are Neurology, Urology and Nephrology.
- By the end of May this software has been scaled up to 9 other departments.
- Gather's information from the doctors, about their OPD timings and consultation time devoted to new and follow up patients.

- With this information a dashboard is created with the slot timings and OPD dates.
- The front desk secretaries were trained about booking the appointment for patients and the working of the system.
- Apart from this, patients receive a message as soon as they are checked into the system by the secretary or if the appointments are booked online, for the live slots of appointment of doctors can be seen on the site. This also provides MSCC to out lay all its doctors on the net platform.

OPD PROCESS FLOW HINAI

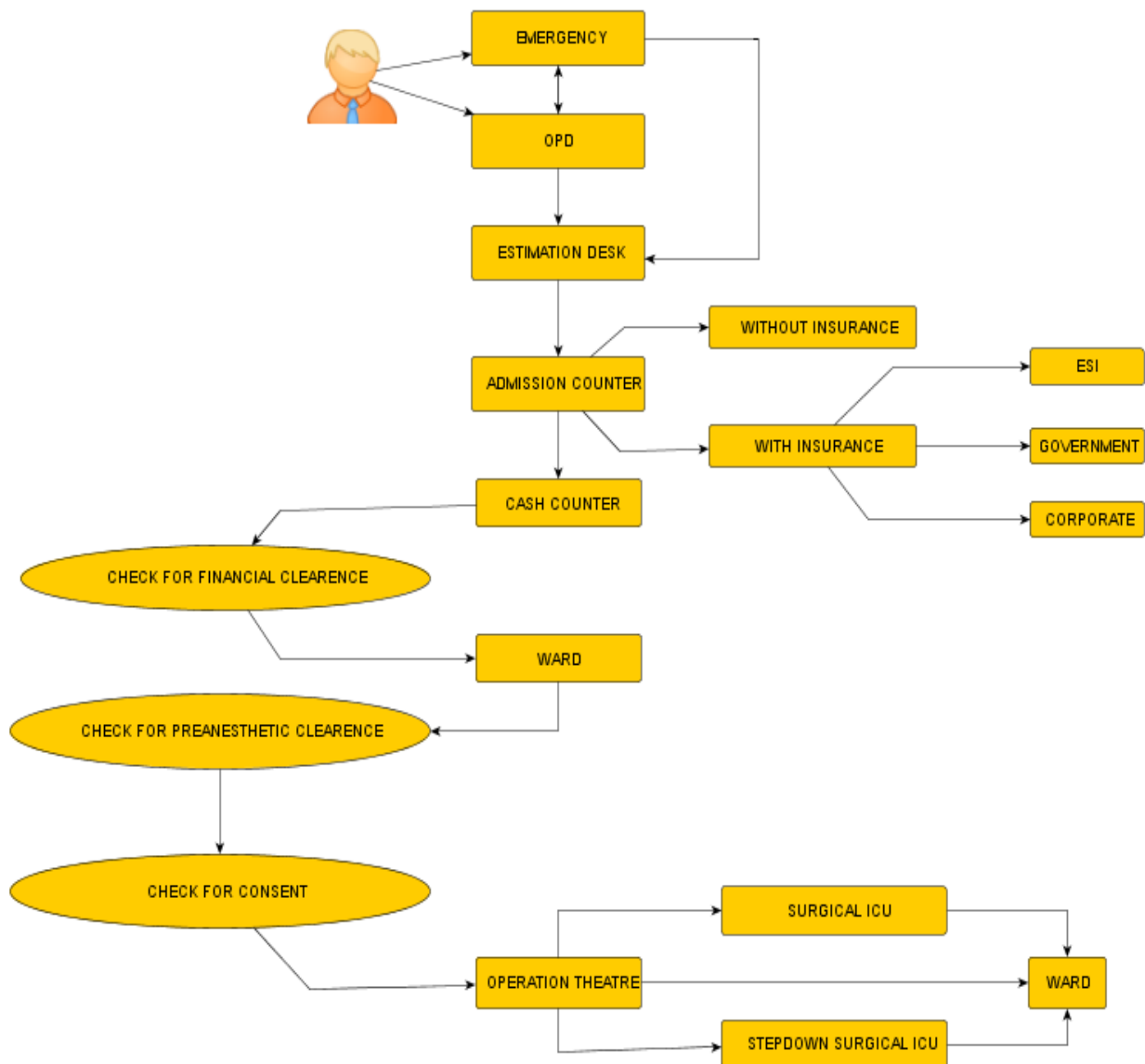






DEPARTMENT OF OPERATION THEATRE

WORK PROCESS FLOW



AREA

The size of each operating room is 6 * 9.2sq meters. Therefore the size of 13 operation theatres is 717.6 sq meters.

LOCATION

It is located in 4th and 5 floors in 'B' Block adjacent to Surgical ICU and Step-down surgical ICU in Narayana health (Mazumdar Shaw Medical Centre), Bangalore. There are total 13 Operation theatres, Out of that 11 Operation theatres are assigned to the particular departments and Operation Theatres 12 and 13 are assigned for Day care surgical procedures and Emergency cases respectively.

STAFFING

The surgical department is organized around five main groups of staff – the surgeons, anesthesiologists, nurses, technicians and aides/orderlies, Surgeons and anesthesiologists are salaried staff. The surgeons group consists of surgeons from all specialties – general, orthopedic, neuro, cardiac, vascular, plastic and reconstructive surgery, ophthalmology, otolaryngology, gynecology, urogenital surgery, oral surgery, etc. Anesthesiologists are medical doctors who administer anesthesia and provide medical direction in the recovery room.

The third group in the operating room consists of the operating room supervisor who is generally a senior nurse, and staff nurses. The nursing team usually consists of a circulating nurse and a scrub nurse. Circulating nurse coordinates activities, gets and hands supplies and specimens into and out of the sterile area and marks all the checklist. The scrub nurse assists the surgeon and organizes and passes instruments. Besides the nurse, the surgeon may have another assistant, a medical doctor, during certain procedures

Technicians are commonly used in specialty and teaching hospitals where complex procedures like cardiac surgery, neurosurgery is performed. Orderlies and attendants are generally used for patient transportation, patient positioning, cleaning work, mopping of floors and disposal of trash. Aides clean, check and wrap instrument kits. The Cleaning and preparation time for operation room is 20 minutes and the waiting time of the patient for surgery in pre-operative room is 15 minutes

UTILIZATION

The operating theatre is one of the most expensive departments of any hospital. Its capacity often limits the amount of routine surgical work that can be carried out. Surgeons, therefore, have a responsibility to ensure that theatre facilities are used as fully as possible, and also that good use is made of the operating time in the theatre. So Routine operation lists are prepared / planned in advance, so that each surgical team should be able to ensure that its share of theatre time is used as fully as possible, without being exceeded more often than necessary.

SCHEDULING:

Proper and judicious scheduling of cases and adhering strictly to schedule is important, as poor scheduling is often said to be the cause of lost OT time. The list of people to be operated is scheduled in such a way that surgical and anesthetic time is synchronized, e.g. patients with infection is operated in the end, so that they do not contaminate the theatre. Experts allocate the right amount of OT time to each service on each day of the week so that rarely do services fill their allocated OT time and leave another case to schedule

Emergency Department

The purpose of Emergency department is to ensure patients undergo an immediate care in an urgency that their treatment is initiated in a timely manner & to do triage assessment.

1) Scope of emergency

To cater all emergencies coming to hospital, their stabilization, admission, transfer or referral from emergency department within or outside the hospital.

- i. ER provides a comprehensive & uniform emergency service/ care to patient (functional 24*7).
- ii. All patients are assessed & triaged by a qualified & experienced medical & paramedical staff & provided appropriate level of care in ER department.
- iii. The ER department provides medical evaluation & treatment (including rapid resuscitation & stabilization) .Patients receive medical referral / transfer (including critically ill patients & or those are not in scope of services of hospital)
- iv. Emergency care services provided include-
 1. Stabilization of life threatening conditions.
 2. Life saving procedures.
 3. Immediate treatment of medical & surgical emergencies.
 4. Emergency treatment for minor injury or illness.

2) Admission process flow

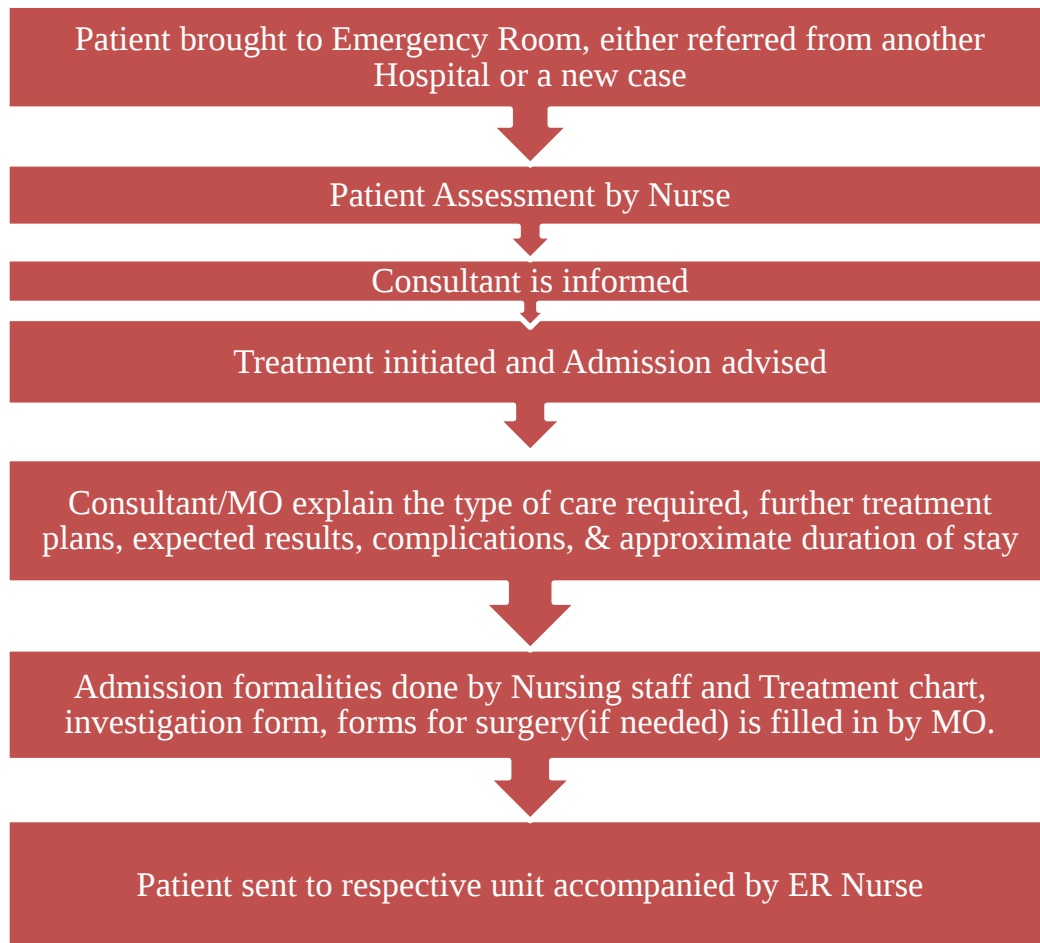


Figure 2.10.1: Process Flow showing admission process in Emergency Department

3) Process Flow in Triage

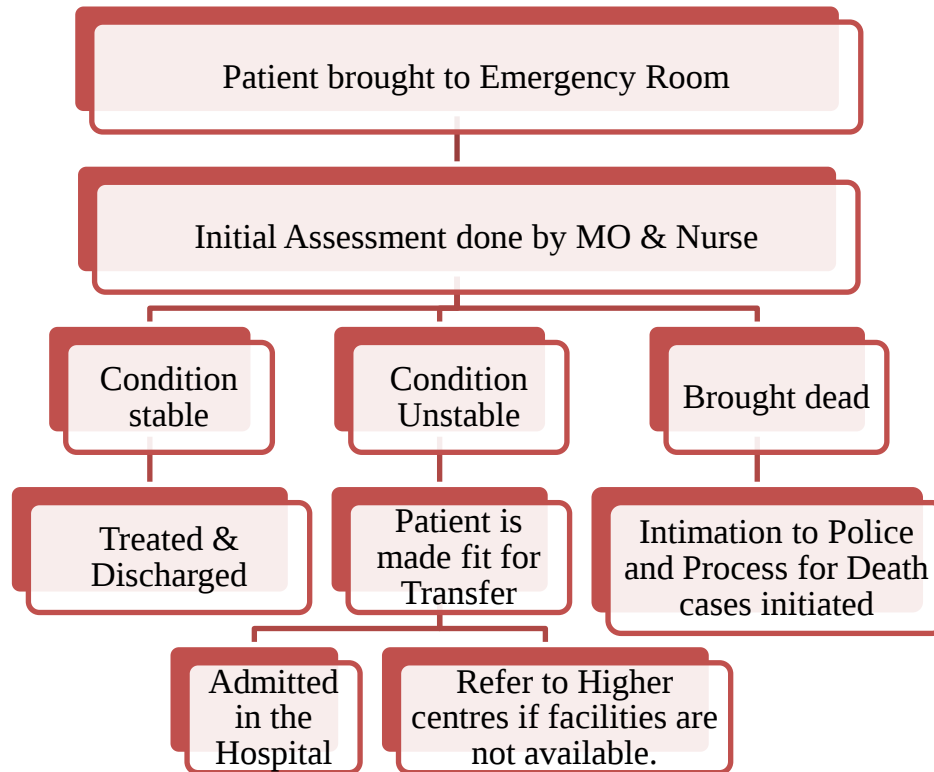


Figure 2.10.2: Process Flow in Triage

4) Overview of the department

ER department is situated at the Ground floor of Paras hospital. It is 24 hour functional & is eight bedded. Hierarchy is as shown:

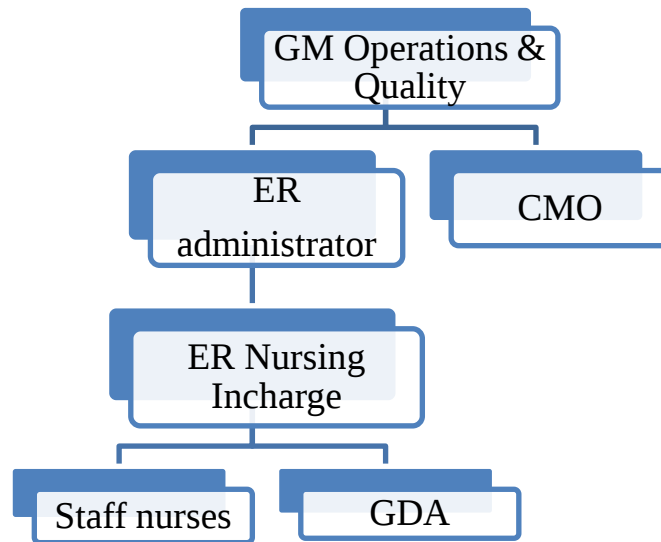


Figure 2.10.3: Organogram of Emergency Department

5) Important medications used in Emergency Department

High alert medications

These are defined as those which could cause an immediate life threatening condition for the patient if an error in administration occurs.

Narcotic drugs & psychotropic substances (NDPS)

These are drugs which required special storage & issue to prevent misuse, pilferage etc e.g. fentanyl, morphine, pethidine, sufentanyl (also known as Schedule 2 drugs).

Each person independently compares the label & product contents in hand versus the written order & EMAR (if it is the first dose) or label. Double check of medications prior to administration by 2 registered nurses after reading the label is mandatory.

Hospital has made some policies regarding the use of Narcotic Drugs

General guidelines for the Medicines:

- High alert medications dispensed, & administered only on prescription by credentialed personnel / OT/ ICU/ ER in charge doctors to critical care & special care areas

- Double check of Medications prior to Administration by 2 Registered Nurses by reading aloud:
 - i. Right medication, Right dose rate, including double check of any calculation & verification of pump settings.
 - ii. Right route , including line reconciliation., Right frequency, Right patient.
 - High alert medications details will be recorded in Medication Administration Record.
 - Storage as per manufacturer packaging instruction.
 - Narcotics must be stored under double lock & key.
 - In case of expiry/ breakage, excise inspector will be informed accordingly.
 - Warning labels for all cytotoxic drug containers, as well as shelves.

6) MLC cases

It is a case of injury or ailment etc where attending doctor after taking history & doing clinical examination of patient thinks that some investigations by law enforcing agencies are essential so as to fix responsibility regarding the said injury or ailment etc according to law.CMO attending the case, label the case as MLC.

Cases labeled as MLC-

Trauma, burns, electrocution, poisoning, industrial accidents, sexual offences, cases requiring age estimation, criminal abortion, animal or snake bite, cases of coma where cause could not be ascertained, cases of starvation including hunger strike, unclaimed newly born, hanging, strangulation, drowning, suffocation etc, cases brought by police or sent by court for medical examination, BID, where death certification due to disease or natural cause is not possible being not apparent, result of medical malpractices.

Central Sterile Supply Department

It is responsible for providing seamless supply of sterilized instruments and other devices to the required departments for the smooth working of the Hospital alongwith maintaining the sterility. The aim of CSSD is to reduce hospital acquired infection level to zero.

1) Structure of CSSD

CSSD is divided into 2 areas: **Sterile and Unsterile Area**. Unsterile area is for receiving the unsterile supplies, washing and packing them to proceed for sterilization whereas sterile area is to store the sterile items to avoid any kind of contamination. In the unsterile area, gauze pieces and gamzee roll (of half metre size) are also made for wards and OT which then is packed and sterilized in the Autoclave. For OT, set of 10 gauze pieces are packed together with a single piece of 8 layers and of size 10 by 10 whereas in the ward, a set of 4 pieces are packed with a single gauze piece of 12 layers and of size 7.5 by 7.5

3) Areas where CSSD supplies are required

- OT& ICU
- Nursing counters & OPD

Issuing of sterilized materials are done 2 times a day from the Issue Counter in the sterile area.

Receiving & Issue Time-

Morning- 9am-10am

Evening-3apm-4pm

Night-9pm-10pm

For sterilization of metal instruments, firstly Ultrasonic machine is used for disinfecting the instruments with Rapid-multi enzyme cleaner(10 ml/litre) and a chemical-Neadishter Iar (10ml/litre) to prevent the instruments from rusting. This takes 15-20 min. to complete the procedure. After completion of the procedure, instruments are washed in running water and then dried. Then these are packed in sets in a double sheet. Finally the packed sets are autoclaved at a temperature of 132-134 degree Celsius and 15 lb pressure. The process takes 40 to 50 minutes. Autoclave in CSSD has double door with one door opening in the non-sterilized area from where non-sterilized items are moved to the autoclave and another door in the sterile area.

For sterilization of plastic and rubber items, ETO sterilizer is used. It has an inbuilt tray for the items. It uses Ethylene oxide gas for sterilization which comes in the form of 100ml cartridge. A single cycle takes 10 hrs 20 minutes

5) Process flow

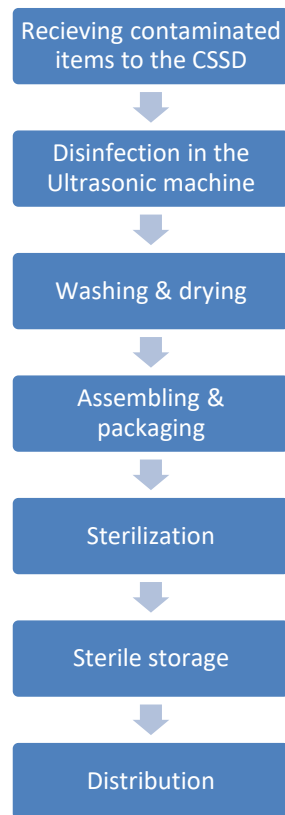


Figure 2.6.1: Flowchart of CSSD sterilization

7) Indicators of sterilization

Two types of Indicators are there: Chemical Indicator and Biological Indicator.

Chemical Indicator is an adhesive tape which is adhered to the packet which after the procedure turns its color indicating the process of sterilization has completed. For Autoclave, Green color turns to Black and for ETO, brown color turns to Green.

Biological Indicator-.Biological indicators are used to confirm autoclave's killing efficiency. A kit containing *Bacillus stearothermophilus* (for steam sterilizer) and *Bacillus Subtilis* (for ETO machine) is kept inside the machines; the machines are run for their actual processing time. Then the kit is sent to the lab to identify if the bacteria died or not. After this, the machine is declared fit to run. This test is performed on weekly basis, every Tuesday. Investigation of this test takes 48 hrs.

Other tests to ensure functioning of CSSD Equipments:

For every load, **Steam sterilization Integrator** is also used in both Autoclave and ETO which resembles a strip and changes its color indicating the successful procedure. In case of Autoclave, color changes from White to Blue and in ETO, color changes from Yellow to Green.

Bowie-Dick test or DART (*Dynamic air removal test*) is performed every morning before starting any procedure. A strip is placed in the Autoclave for 15-20 minutes, after which its color turns from Blue to Pink. This test is for checking prevaccum autoclave's air removing ability and steam penetration.

Fumigation every week on Monday Night.

8) Manpower and shifts

CSSD In charge (8:00am-4:30pm)

4 Technicians

9) CSSD Layout

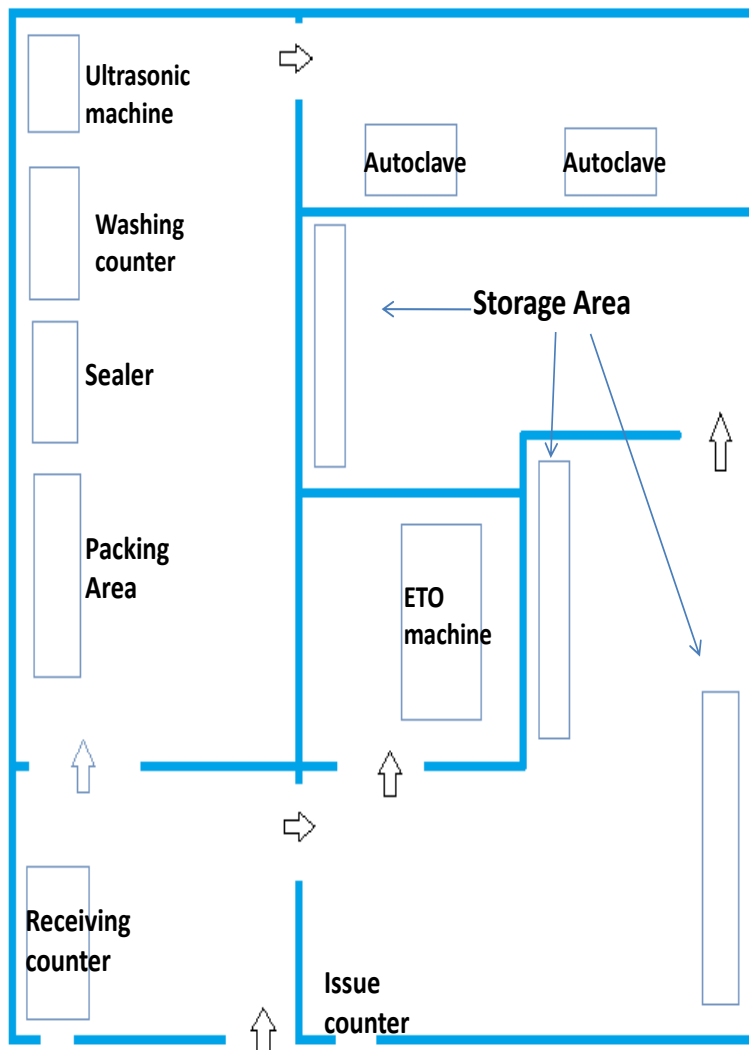


Figure 2.6.2: CSSD layout

IP Pharmacy

IP Pharmacy majorly caters to IPD, OT pharmacy and Emergency department.

1) Manpower

Head of Department: 1

Deputy Manager: 1

Assistant Manager: 1

Executive: 2 (store)

Senior Pharmacist: 4

Pharmacist: 9

Pharmacy asst.: 5

2) Emergency Drugs:

A total of 35 critical life saving drugs and 48 high alert drugs are kept. High alert drug such as chemo drugs are those which need to be handled with care and prevent breakage etc.

Look alike and Sound alike drugs are kept in a different shelf and are marked as look alike and sound alike so that a person dispensing any of these drugs is more alert.

4) Drug Ordering:

Bulk orders are given on Tuesday and Friday but still depending on the stock at hand the department can put an indent every day. The ROL (Re order level) has a minimum stock marked for 7 days and a maximum for 15 days.

5) Medicine Expiry:

Every month in the last week, the IP Pharmacy staff checks the medicines which are three months before the date of expiry. Medicines found in that category are collected and returned to the respective vendor. Surgical device and vaccines can be kept before 6 months of expiry after which they are returned.

6) Legal Norms:

Forms 20 and Form 21 certify the pharmacy by the government to dispense medicines. As of now the pharmacy has three licenses issued in name of four people. Anyone of the four is expected to be at the hospital at all times.

For a person to qualify as a pharmacist, he or she is at least expected to have a Diploma in pharmacy. Also each pharmacist is expected to have a valid registration with the pharmacy

council which has to be renewed every year. To stock narcotics, a separate permit is also required.

8) Storing the drugs:

Drugs are stored based on alphabetical order and are segregated based upon the types.

9) Processes Taking Place in the Pharmacy:

Medicine Dispatch:

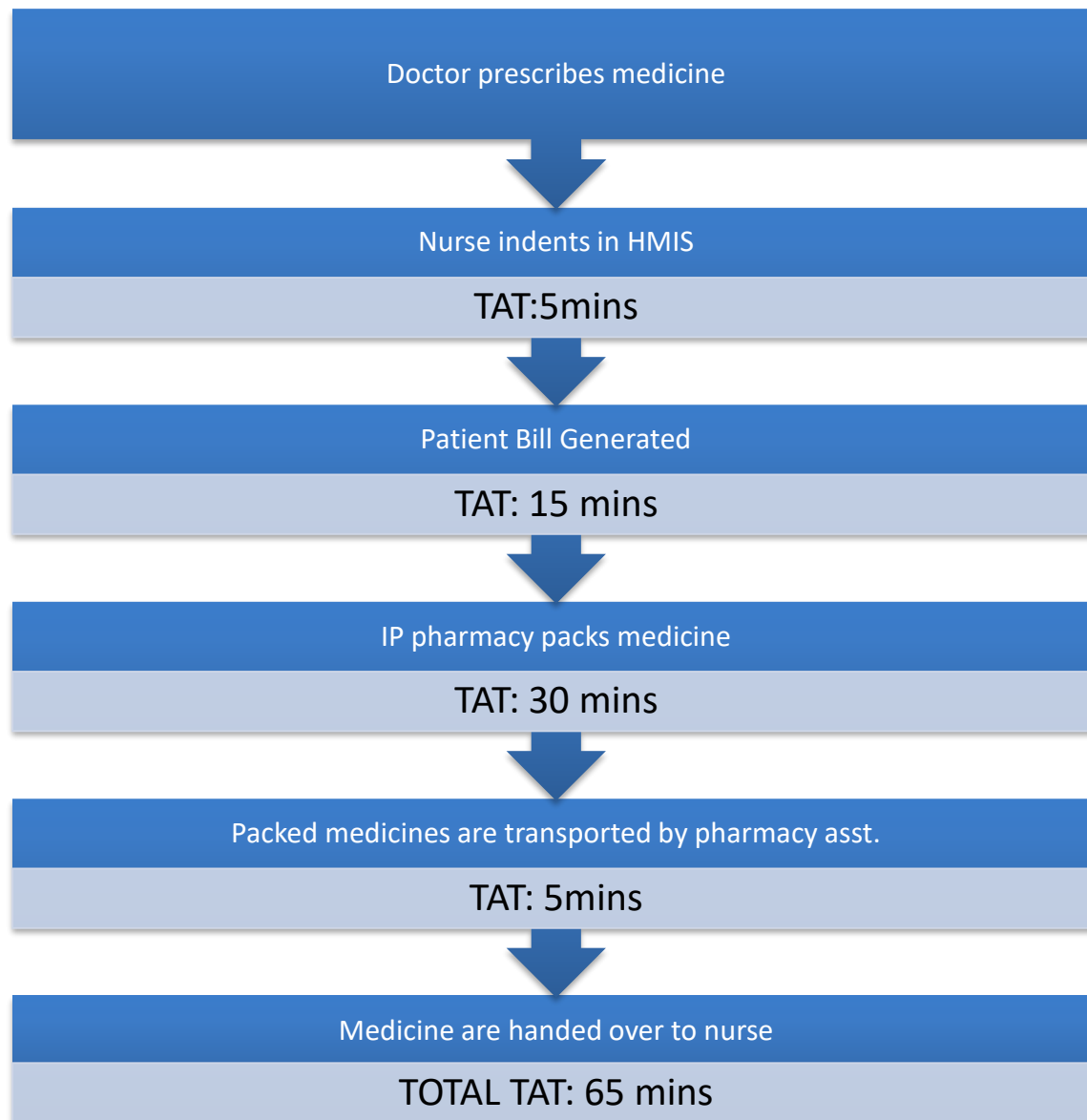


Figure 2.5.1: Process flowchart of medicine delivery

Medicine Return:

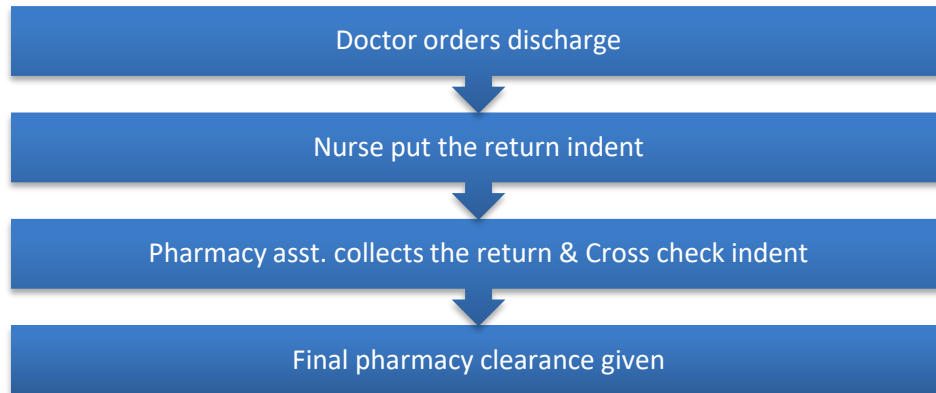


Figure 2.5.2: Medicine return process

The standardized hospital TAT for the above procedure is 40 minutes.

Also medicine is returned against a credit note or cash in the form of cheque from vendor.

Procurement of Medicine:

Everyday an indent can be put in if some new medicine is being prescribed by the doctors or if the store does not have a set of medicines. Bulk order days for pharmacy are Tuesday and Thursday.

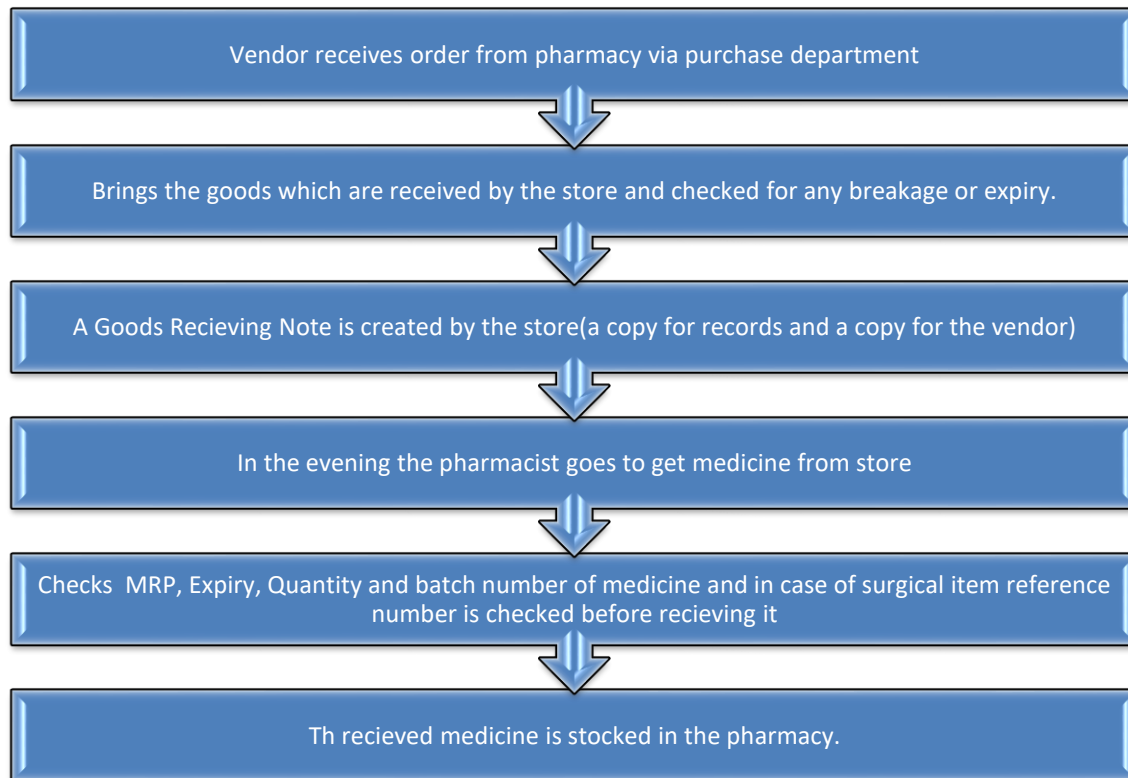


Figure 2.5.3: Process flowchart of procuring medicines

10) Manual Prescriptions are used for the following cases:

1. Medicine for emergency department
2. New admission in the IPD
3. Chemo Drugs
4. Urgent drugs
5. Non available drugs.

13) Adverse reaction:

In case of an adverse reaction of any medicine, an adverse reaction form is filled by the doctor and the batch no. of the medicine is noted. All the drugs of the batch are discarded from use and returned back to the vendor with the documents mentioning the reason.

Intensive Care Unit

Intensive care units (ICUs) provide intensive care (treatment and monitoring) for people in a critically ill or unstable condition.

Paras Hospital has **7 ICUs**:

1. CTVS ICU: For patients admitted for Cardio Thoracic Vascular Surgeries or critical Cardiac patients.
2. Surgical ICU: For patients who have undergone surgeries or trauma patients.
3. CCU: For patients who are admitted for invasive procedures in Cath Lab.
4. MICU: For patients with Medical conditions
5. NSICU: For Neuro patients
6. PICU: For Pediatric patients
7. NICU: For care of Neonates after delivery.

1) Admission Process in ICU

In ICUs patients get admitted via OPD, IPD or Emergency.

2) Discharge process from ICU

Generally, patient is stepped down to the ward if the condition gets stable and then discharged. In some cases, if patients' relatives want to take the patient against the Doctor's advice, then they are given LAMA (Leave against Medical Advice).

4) Equipments used & care in ICU

Major Equipments used in ICUs:

1. Ventilator
2. Monitor
3. Crash Cart
4. Air beds to prevent Bed Sores
5. BIPAP

In each ICU, Bed Panels are there for each bed through which medical air, oxygen, vacuum for suctioning is supplied. 2 Portable machines are also dedicated for ICUs, mainly for the Chest X-Rays of the bed-ridden patients.

In case of infectious patients, nurse-to-bed ratio is one with separate gown for the Nurse and Doctor who sees that patient. For infected patients with Respiratory diseases, double mask are given to the patients to wear to control the spread of infection to other patients and ICU staff. Identification to Infectious patient is by 'Barrier Nursing' or 'High Risk patient' Tag.

7) Nurse-to-bed ratio

For ventilated patients, nurse to bed ratio is 1:1

For non-ventilated patients, nurse to bed ratio is 1:2 or 1:3

6) Temperature in ICU

In each ICU, temperature is maintained between 22-24 degree Celsius, reason being bacteria and viruses cannot thrive at lower temperatures.

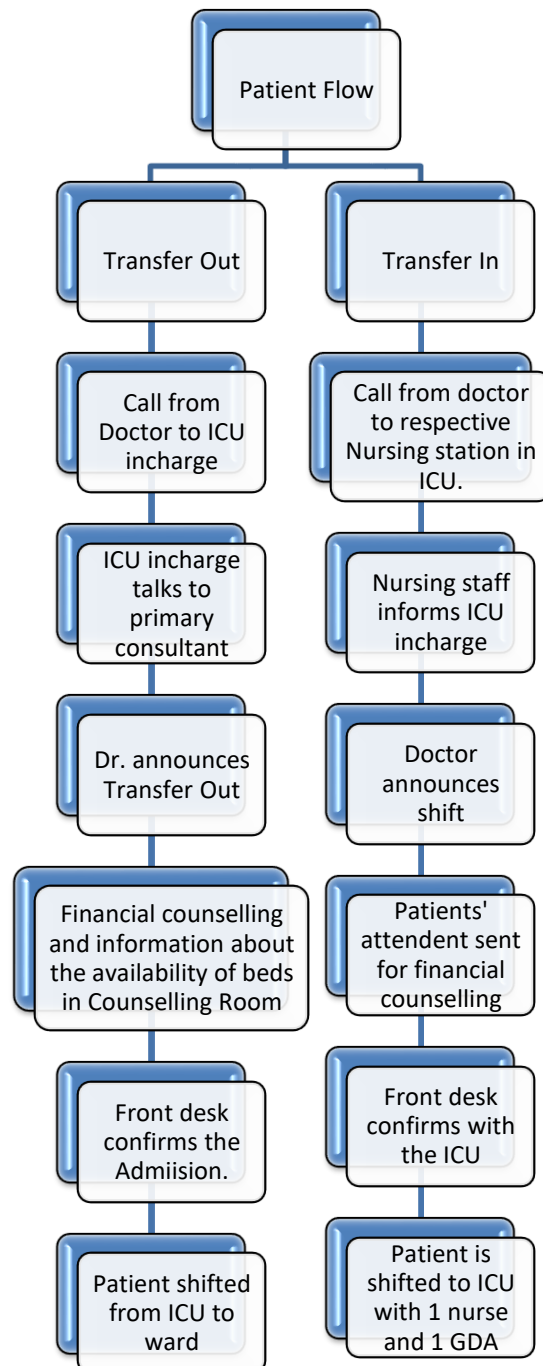


Figure 2.4.1: Transfer In Transfer out process chart

5) Infection Control in ICU

- ✓ Hand washing.
- ✓ Floor cleaning with Sodium Hypochlorite.
- ✓ Proper Biomedical waste segregation.
- ✓ Not more than 3 antibiotics
- ✓ Fumigation once in a month.
- ✓ Used items such as Ambu Bag, etc. are sent to CSSD for sterilization.
- ✓ Use of Gowns, shoe covers and masks inside the ICUs.
- ✓ After each Transfer Out or Discharge, bed is carbolized with sodium hypochlorite.

8) Food & beverages

Patients' diet is decided by the doctor by consulting the dietician.

8) Store rooms

Each ICU has store room where medicines, injectables, etc. are kept for the need of the hour.

Generally medicines for the patients are called from IP Pharmacy through Drug Requisition in HMIS. On Daily Basis, each Nurse is assigned to check the items of the store for its expiry date.

9) Manpower & shifts-

1 Senior Area Incharge (8:00am-4:30pm)

1 Area Incharge (12:00pm-8:00pm)

7 staff Nurses

- Morning shift-8:00am-2:00pm (3 staff nurses)
- Evening shift-2:00pm-8:00pm (2 staff nurses)
- Night shift-8:00am-8:00pm (2 staff nurse)

10) Different Areas in ICU-

- Patient Area
- Nursing Counter
- Store Room
- Utility Room

Specific to NSICU:

Neuro Surgical ICU has an isolation room which is mainly for highly infectious patients negative air pressure is maintained in this so that infection does not spread.

Specific to CCU:

Patients in CCU are admitted mainly for the Angioplasty or other Cath Lab Procedures. Before patient is sent to Cath Lab, below mentioned things are looked after:

- Part Preparation of Radial and Femoral site.
- Surgery Billing & Completion of Consent Forms
- Investigations, mainly kidney Investigations are done because the dye given during the Cath Lab Procedure can affect kidney.
- It also records the vitals for upto 72 hours.

Different Areas in ICU-

- Patient area
- Doctor's Room
- Store Room
- Utility Room

Specific to PICU:

Pediatric ICU mainly caters children of age 1 month to 15 years. It is 8-bedded ICU.

Specific to NICU:

NICU mainly caters to the neonates of less than a month. Only low-birth weight babies are treated in NICU for upto 3 months. NICU is divided into 2 areas: One is for outside patients and another is for inside patients. There are total 9 beds in NICU, 3 for the outside patients and 6 for the inside patients.

In NICU, admissions are mainly due to Pre-term, meconium aspiration or Low Birth Weight.

Patients in NICU are treated according to the Level of care needed:

For Level 1- only patient warmer is used.

For Level 2- patient warmer, monitor, syringe pump & phototherapy is used.

For Level 3- patient warmer, syringe pump, monitor & ventilator is used.

Equipments used in NICU-

- Neonatal warmers-9, which maintains the temperature between 36-37 degree Celsius.

- Phototherapy unit -4
- 3 ventilators- 2 Pediatric and 1 adult
- 6 oxygen hoods- to supply the oxygen to the patient
- Nasal prone, for patients with high respiratory distress.

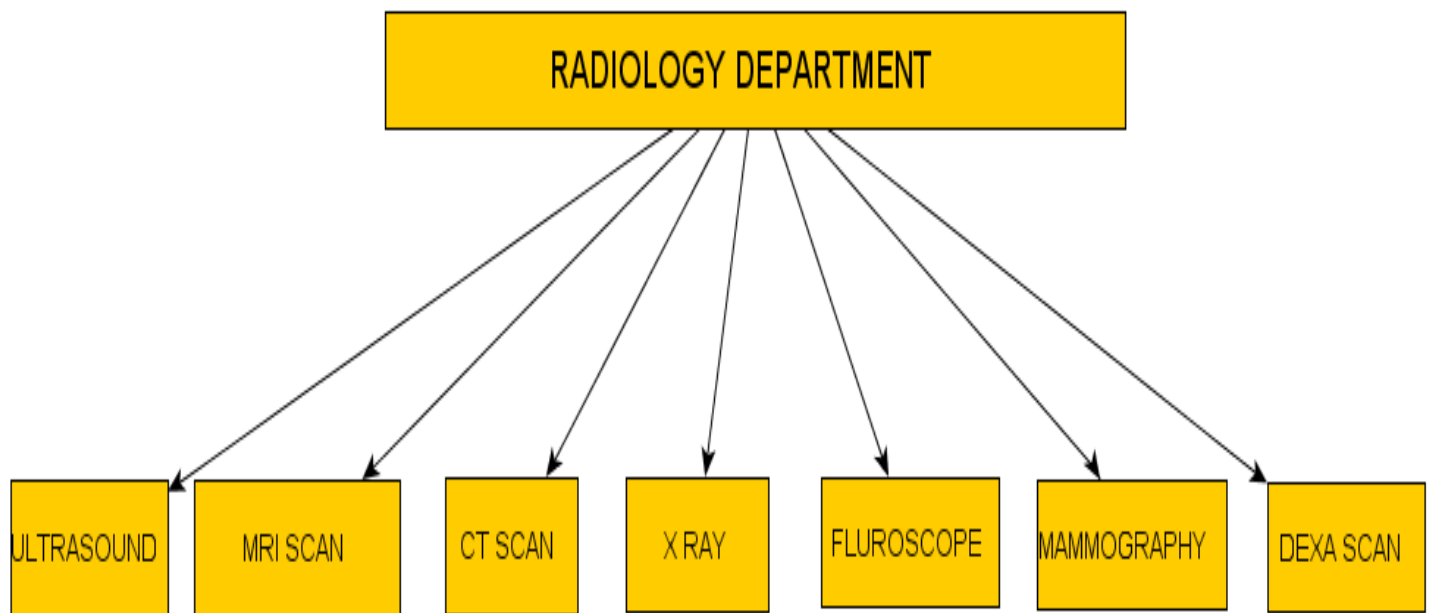
ABOUT THE DEPARTMENT OF RADIOLOGY

The department of Radiology and Imaging Sciences offers a wide variety of diagnostic examinations and interventional procedures, each equipped with state of the art technology.

It provides cardiac imaging, especially MRI and CT for both adult and paediatric patients. There are experts in the field of cardiac, chest, paediatric and neuro –imaging. It also provides head to toe imaging services with comprehensive interventional procedures all under one roof.

The department is housed in approximately a 7000square foot of space and is located in basementof Mazumdar Shaw Medical Center.

It provides a wide array of diagnostic imaging tests utilizing advanced imaging equipment ranging from X ray to 64- slice CT and 1.5 tesla MRI.



MAGNETIC RESONANCE IMAGING (MRI)/NUCLEAR MAGNETIC RESONANCE IMAGING (NMRI)/ MAGNETIC RESONANCE TOMOGRAPHY (MRT)

- It is used to investigate the anatomy and physiology of the body in both health and disease
- It is based on the principle of magnetic fields and radio waves to form images of the body.
- There are 2 type of MRI procedures done - plain study & contrast study.
- Brand of MRI - GE and PHILIPS.
- No of MRI machine-2

COMPUTED TOMOGRAPHY

- It is a diagnostic imaging procedure that uses X-rays in order to present cross-sectional images ("slices") of the body.
- There are 2 type of CT scan procedures done - plain study & contrast study.
- Brand of CT - PHILIPS.
- No of CT machine-I

ULTRASONOGRAPHY

- Ultrasonography is one of the oldest and safest investigation techniques in radiology.
- It emits high frequency sound waves which reflect off the lesions, organs and other anatomical structures. These waves are received and their interpretation allows visualization of pathological lesions.
- No of USG machines-10(2 for Doppler study and 1 for biopsy and 2 for executive OPD)
- Brand of Ultrasound-PHILIPS

CONTRAST STUDIES

- Involves the introduction of a radio opaque substance (barium, iodinated contrast, etc.) into an organ, vessel, duct, etc.
- Allows for the identification of the anatomy of the structure being studied, its shape, contour, size, etc.
 - “Filling defect” – describes an area where dye should be but isn’t.
- Chelates of gadolinium are used as contrast agents in the study

PATIENTS PREPARATION ROOM

- Nurse give patients the specific clothes required for scanning.
- Patients are given normal saline
(intravenously injection required only in MRI contrast case and CT contrast case).
- Checklist filled & signature of the patient on consent form.
- In case of ct abdomen contrast- oral contrast given

PLANNING

- **Location:** The department is located in basement. It is easily accessible to in-patients, out-patients and emergency services.
- **Area-** 7000 square feet space
- Patient waiting area, Circulation area-parking area for wheel chairs & stretchers, corridor.
- Technical area, supportive areas (consultants room, conference room,library,store room, staff room, record room)

WORKLOAD

- 130-150 ultrasound scans , 40-45 CT scans, 40-45 MRI scans are done per day

MANPOWER PLANNING

- Senior Consultant & HOD - 1
- Interventional radiologist - 1
- Senior Consultant – 5
- Junior Consultant - 11

Total- 18

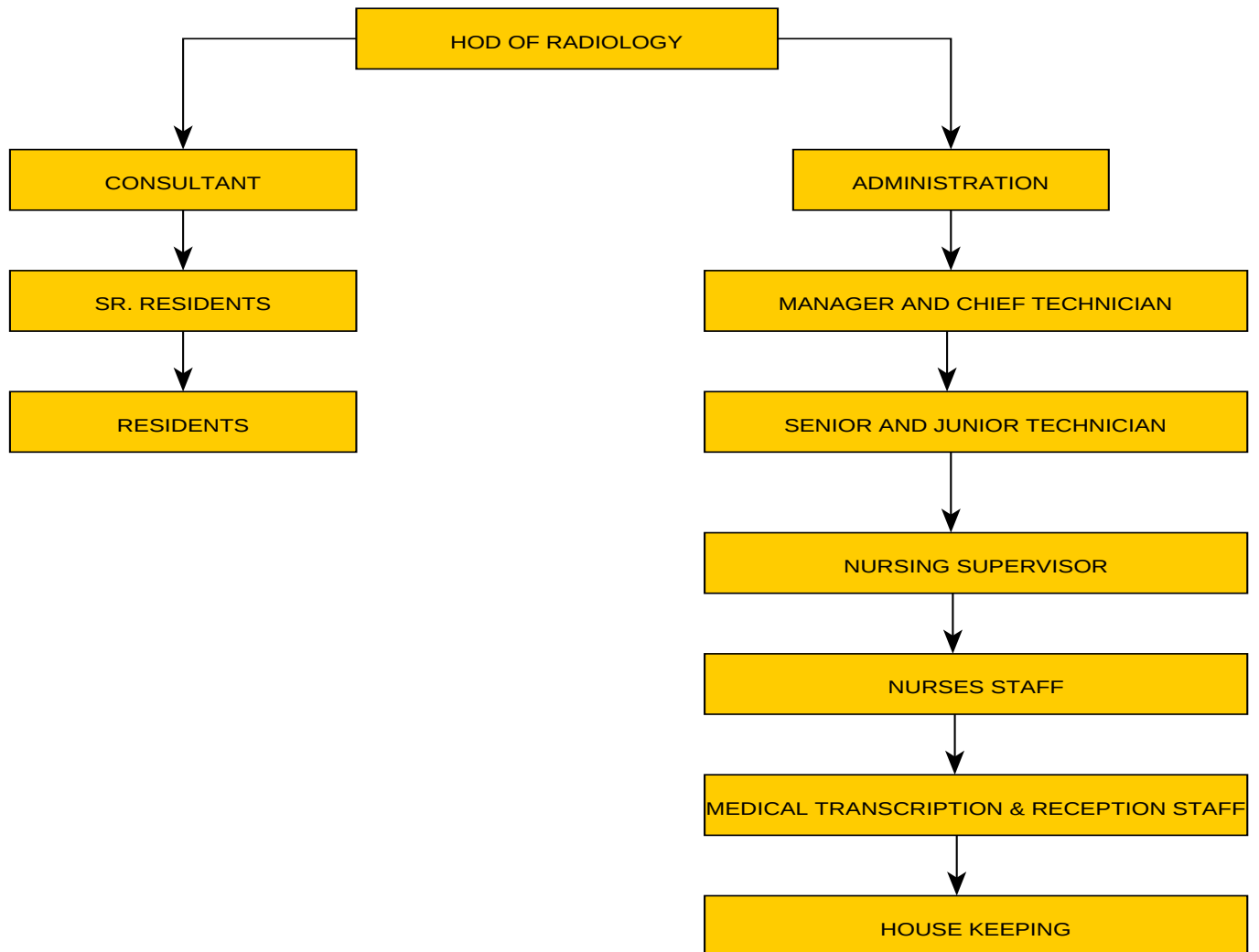
TECHNICIANS-

- Manager & Chief Technologist – 1
- Deputy Manager – 2
- Senior Technicians – 8
- Junior Technicians – 32

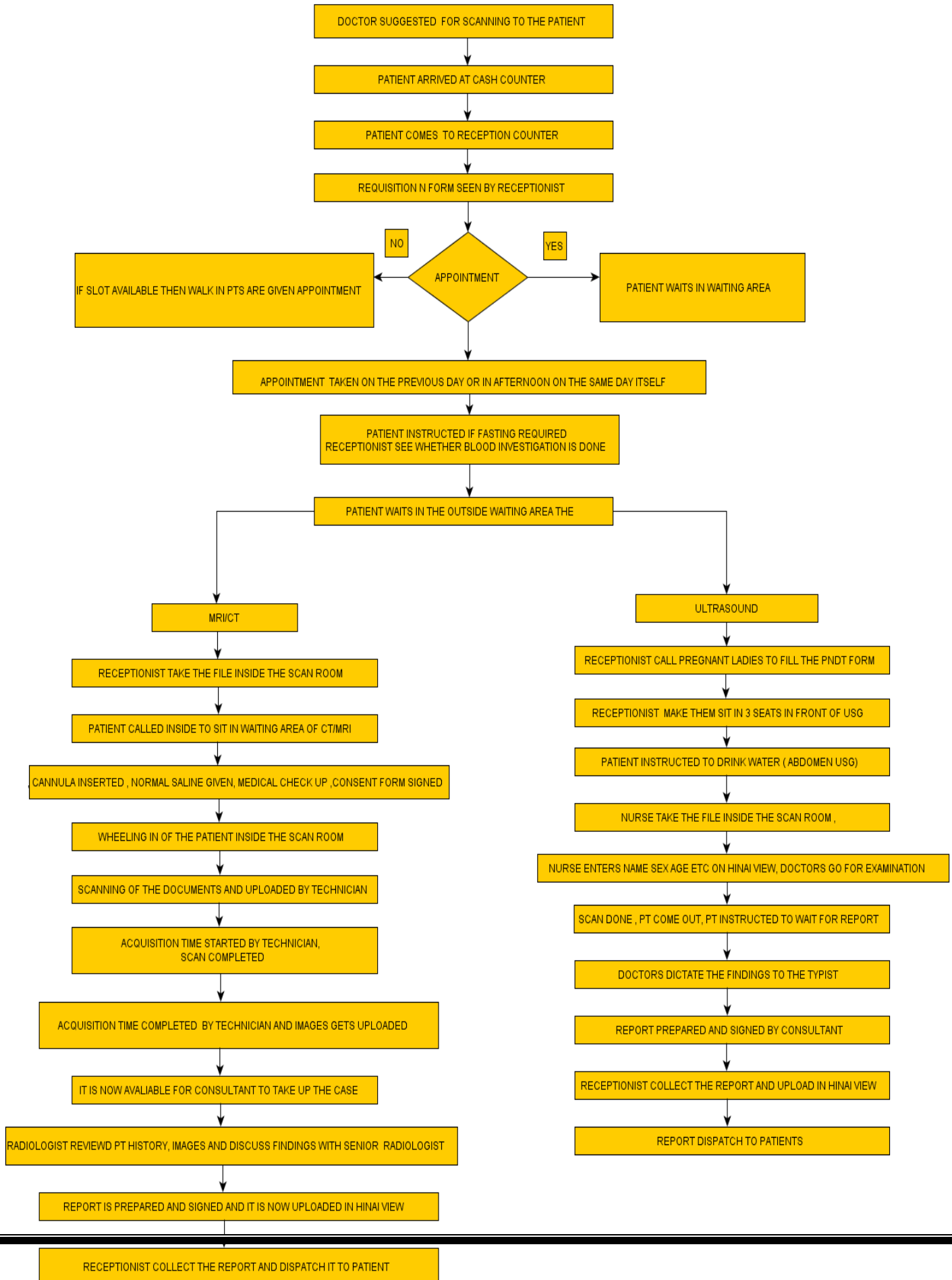
Total- 43

- Nursing supervisor – 2
- Nursing staff - 20
- Medical Transcriptions – 12
- Receptionalist – 7
- Housekeeping - 2

DEPARTMENTAL ORGANOGRAM



PROCESS FLOW



RADIATION SAFETY MONITORING

Monitored to record the dosage received during their work.

- Usually done by requiring each operator to wear while at work a small film badge of standard design
- Routine use of radiation proof apron(lead equivalent of 2.5mm).
- Protective gloves (lead equivalent 0.3mm) must be worn whenever a patient needs to be held by healthcare professional.

RADIATION SHIELDING

- Radio Frequency (RF) and magnetic interference from nearby office systems, electrical equipment, or even passing traffic, can degrade MRI image quality
- Window RF Shielding – Walls and Ceilings
- Shield System is made of copper sheet Soundproofing
- shielded door
- Observation window

**A STUDY ON TURNAROUND TIME IN THE RADIOLOGY
DEPARTMENT OF A TERTIARY HOSPITAL**

INTRODUCTION:

The diversity of inputs and range of services provided makes the radiology department a very complex system to run .One of the hallmarks of a well managed radiology department is the short length of time patients spend before accessing a radiology service. Previous studies on the factors that affect patient's satisfaction with health care services show that they are patient centered, and include the time spent with the health care provider, willingness of the physician to listen to the patient, and expectations for treatment .Lengthy patient waiting times have been fingered as the major cause of dissatisfaction with health care services . There are evidences which points on the negative relationship between patient waiting time and satisfaction with services rendered .Overall patient satisfaction with health care services is determined to a great extent by the length of time spent with the healthcare giver.

RATIONALE -

Lengthy patient waiting time is a major cause of dissatisfaction of patients with healthcare providers. This study aims at identifying the various steps in patient registration process that significantly contribute to the increased length of time spent by patients in the radiology department.

RESEARCH QUESTION-

What is Total Turnaround Time of the patients in Radiology department?

What are the factors affecting Overall Patient Satisfaction in Radiology Department?

OBJECTIVE-

1. To study Total Patient Waiting Time & Report Waiting Time and Total Turnaround Time of the patients in CT, MRI, Ultrasound scanning process.
2. To determine the factors affecting Overall Patient Satisfaction in Radiology Department.

METHODOLOGY-

All patients were scheduled to undergo scanning procedures , between 14 April 2015 to 14May 2015 , at Mazumdar Shaw Medical Center , Bangalore were prospectively enrolled in the study.

Study Design-Descriptive (Cross sectional survey)

Sampling technique: Simple Random sampling

Area of Study- Mazumdar Shaw Medical centre, Bangalore

Target population –all age group men & women

Tools and Techniques

Quantitative data collection technique

TOOLS	TECHNIQUES	RESPONDANTS
observation	observation guidelines	Patients, doctors, nurses, technicians, receptionist
structured Questionnaire (close ended questionnaire)	structured Questionnaire guidelines	Patients

Sample size

1. OBSERVATIONAL STUDY

A total of 700 patients were sampled for study.

N=200 patients sampled for MRI. N=200 patients sampled CT scan. N=300 patients sampled for Ultrasound. Turnaround time is estimated from patient arrival till report prepared by consultant (8am to 8pm is working hours taken in the study).

2. STRUCTURED QUESTIONNAIRE

A total of 120 patients were given close ended questionnaire for the study. 50 Patients were sampled for CT/ MRI and 70patients were sampled for ultrasound

DATA ANALYSIS

TOTAL % OF CONTRAST CASES –

TABLE NO-1

CT SCAN	60%
MRI	23%

SOURCE: HINAI VIEW

TOTAL % OF APPOINTMENT PATIENTS

TABLE NO-2

CT SCAN	60%
MRI	54%
USG	25%

SOURCE: HINAI VIEW

SCANNING NOT DONE WITHIN APPOINTMENT TIME

TABLE NO-3

CT SCAN	74%
MRI	53%
USG	87%

WAITING TIME FROM PATIENT ARRIVAL TO THE TIME WHEN PATIENT SITS IN THE WAITING AREA

TABLE NO-4

	MEAN	MAXIMUM	MINIMUM
MRI	10min	1hr6 min	5min
CT SCAN	18 min	56min	2min
USG	7min	15min	2 min

WAITING TIME FOR THE PATIENT TO TAKE APPOINTMENT

TABLE NO-5

	MEAN	MAXIMUM	MINIMUM
MRI	7min	20min	3min
CT SCAN	5 min	20min	2min

USG	5min	7min	3min
-----	------	------	------

WAITING TIME WHEN PATIENT IS IN WAITING AREA TILL THE TIME ORAL CONTRAST WAS STARTED (ABDOMEN CT SCAN)

TABLE NO-6

MEAN	MAXIMUM	MINIMUM
29min	1hr 40min	5min

WAITING TIME FROM ORAL CONTRAST STARTED TILL THE TIME PATIENT ENTERS INSIDE THE SCAN ROOM

TABLE NO-7

MEAN	MAXIMUM	MINIMUM
2hr 20min	4hr 35min	20min

- ACQUISITION TIME TAKEN -2min
- AVERAGE WAITING TIME FROM PT ARRIVAL TO FILL PNDT FORM (FORM F) IN CASE OF PREGNANT LADIES- 20min
- TOTAL WHEELING TIME-5min
- TOTAL TIME SPENT IN PREPARATION ROOM -10min

WAITING TIME WHEN PT IS IN THE WAITING HALL TILL THE PATIENT GO INSIDE THE PREPARATION ROOM

TABLE NO-8

CT SCAN	10min
MRI	10min

WAITING TIME WHEN PATIENT COMES OUT OF PREPARATION ROOM TILL THE PATIENT ENTERS INSIDE THE SCAN ROOM.

TABLE NO-9

	MEAN	MAXIMUM	MINIMUM
CT SCAN	40min	3hrs 2min	4min
MRI	57min	3hrs 16min	10min

TIME TAKEN BY THE NURSE TO REMOVE CANNULA AFTER SCANNING IS DONE-
15min

WAITING TIME FROM PT IS IN WAITING HALL TO 3SEATS IN FRONT OF
ULTRASOUND

TABLE NO-10

MEAN	MAXIMUM	MINIMUM
40min	1hr 11min	5min

PATIENT WAITING TIME FROM 3SEATS IN FRONT OF USG TO SCAN IN TIME

TABLE NO-11

MEAN	MAXIMUM	MINIMUM
1hr 45min	4hrs 11min	13min

TIME TAKEN BY DOCTOR TO START SCANNING

TABLE NO-12

MEAN	MAXIMUM	MINIMUM
7min	20min	2min

TOTAL PATIENT WAITING TIME

(Waiting time when patient is in waiting area till he enters scan room)

TABLE NO-13

	MEAN	MAXIMUM	MINIMUM
MRI	50min	1hr 36min	15min
CT SCAN (ABD)	2hrs 34min	5hrs	27min
CT SCAN (OTHER CASES)	1hr10min	2hr 26min	20min
USG(ABD)	2hrs 15mins	4hrs 44min	8min
USG(OTHER CASES)	2hrs 20mins	5hrs 5min	11min

REPORT WAITING TIME-

TABLE NO-14

	MEAN	MAXIMUM	MINIMUM
MRI	6hrs 50min	13hrs	10min
CT SCAN (ABD)	8hrs	15hrs 50min	1hr
CT SCAN (OTHER CASES)	5hrs15min	13hrs 2min	14min

USG(ABD)	1hrs 3min	2hrs 50min	22min
USG(OTHER CASES)	1hrs 4min	3hrs 5min	10min

SOURCE: HINAI VIEW

TOTAL TURNAROUND TIME

(Time from patient arrival to report dispatch)

TABLE NO-15

	MEAN	MAXIMUM	MINIMUM
MRI	9hrs30min	27hrs	1hr 22min
CT SCAN (ABD)	12hrs19min	30hrs	6hrs 21min
CT SCAN (OTHER CASES)	7hrs	27hrs	1hr 22min
USG(ABD)	3hrs 50min	13hrs 37min	1hr 34min
USG(OTHER CASES)	4hrs 30min	3hrs	2hrs

PROCESS TIME

(Difference between scan in and scan out)

TABLE NO-16

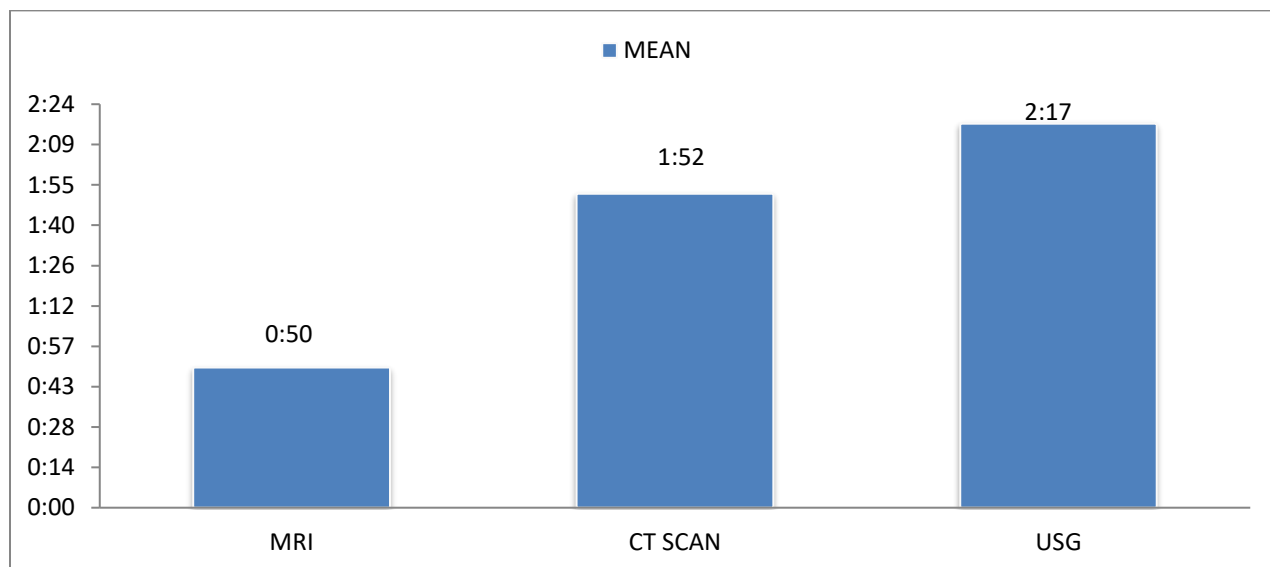
	MEAN	MAXIMUM	MINIMUM
MRI	33min	2hrs 30min	5min

CT SCAN (ABD)	11min	20min	5min
CT SCAN (OTHER CASES)	15min	3hrs 38min	3min
USG(ABD)	18min	50min	5min
USG(OTHER CASES)	22min	2hrs 15min	5min

SOURCE: HINAI VIEW

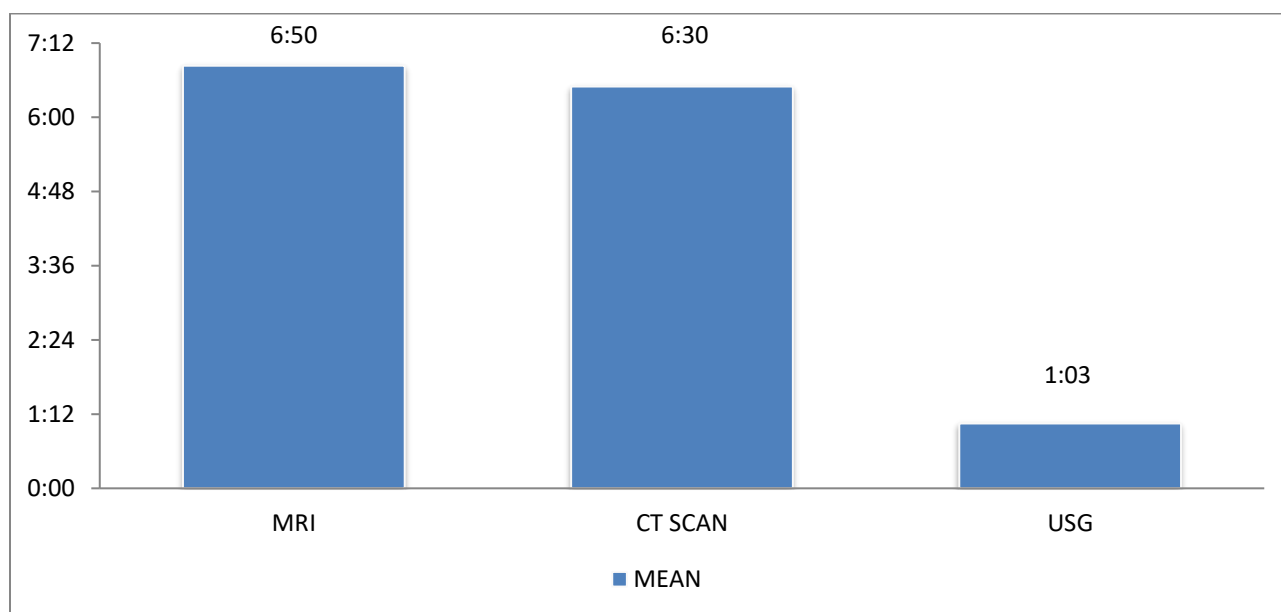
DATA INTERPRETATION AND RESULT

PATIENT WAITING TIME



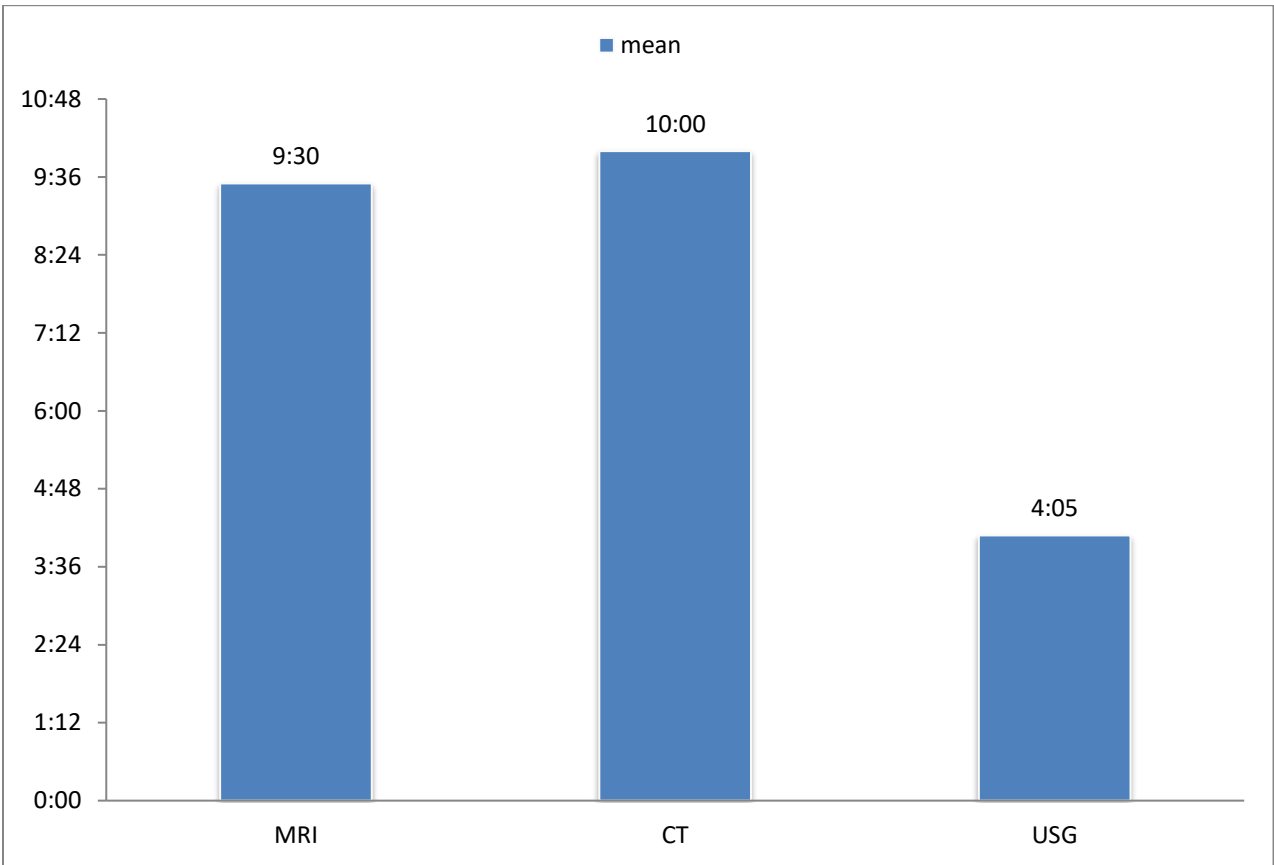
Patient waiting time is around 2hrs in Ultrasound and CT scan

REPORT WAITING TIME



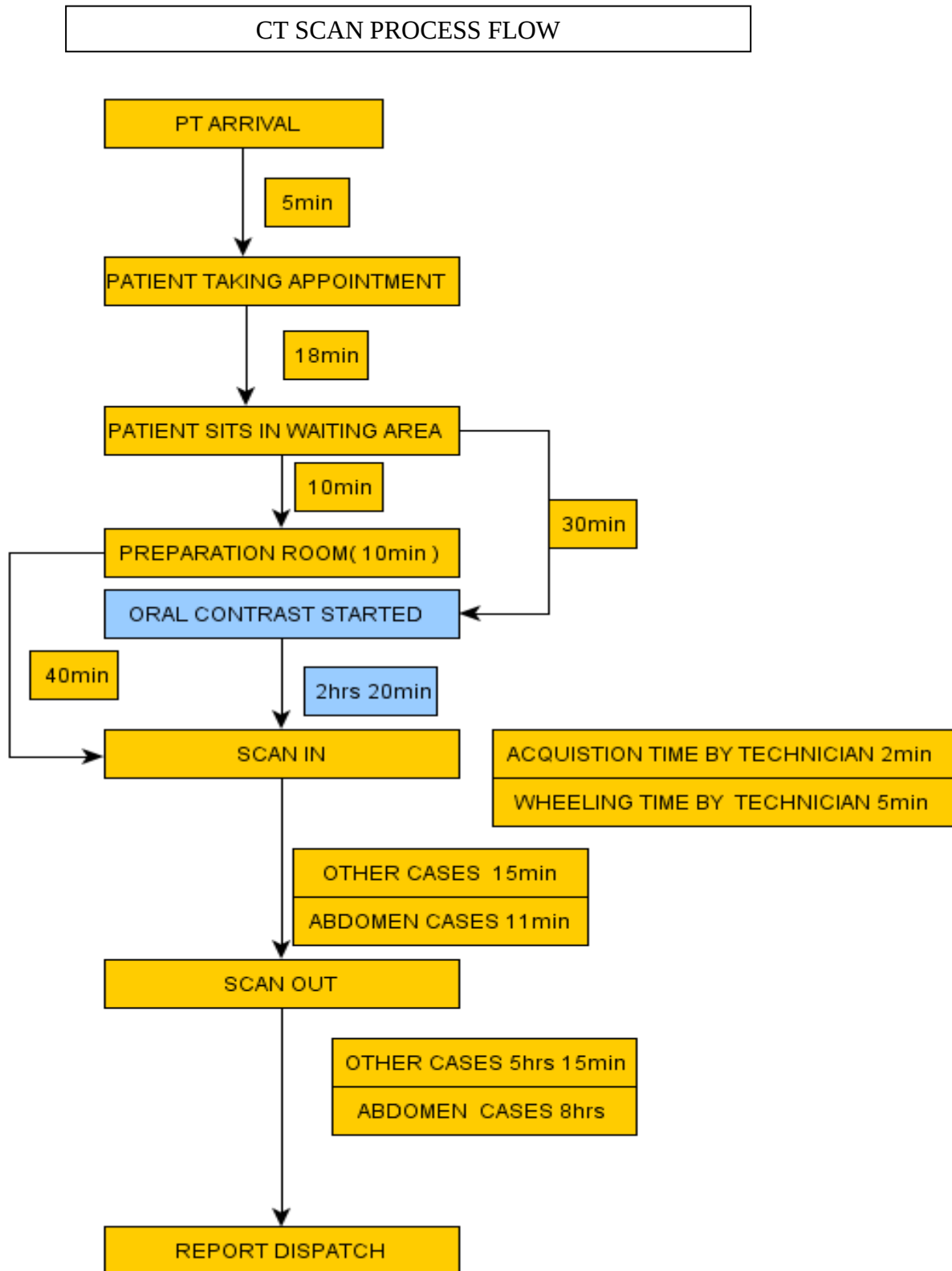
Report waiting time is around 6hrs 30min for both CT and MRI

TURNAROUND TIME OF THE PATIENT

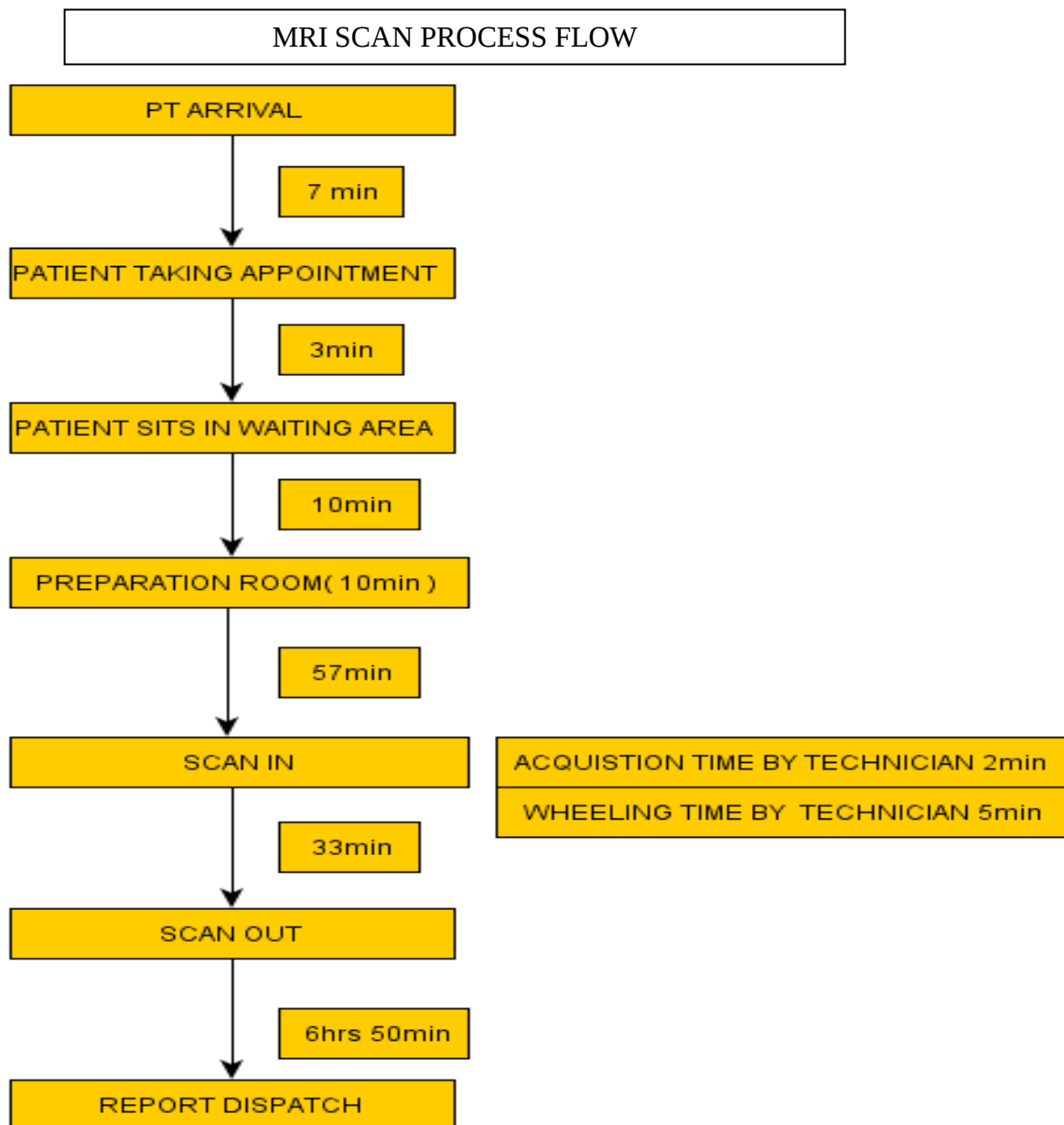


Turnaround time of CT and MRI is around 10hrs

DATA INTERPRETATION OF THE PROCESS FLOW

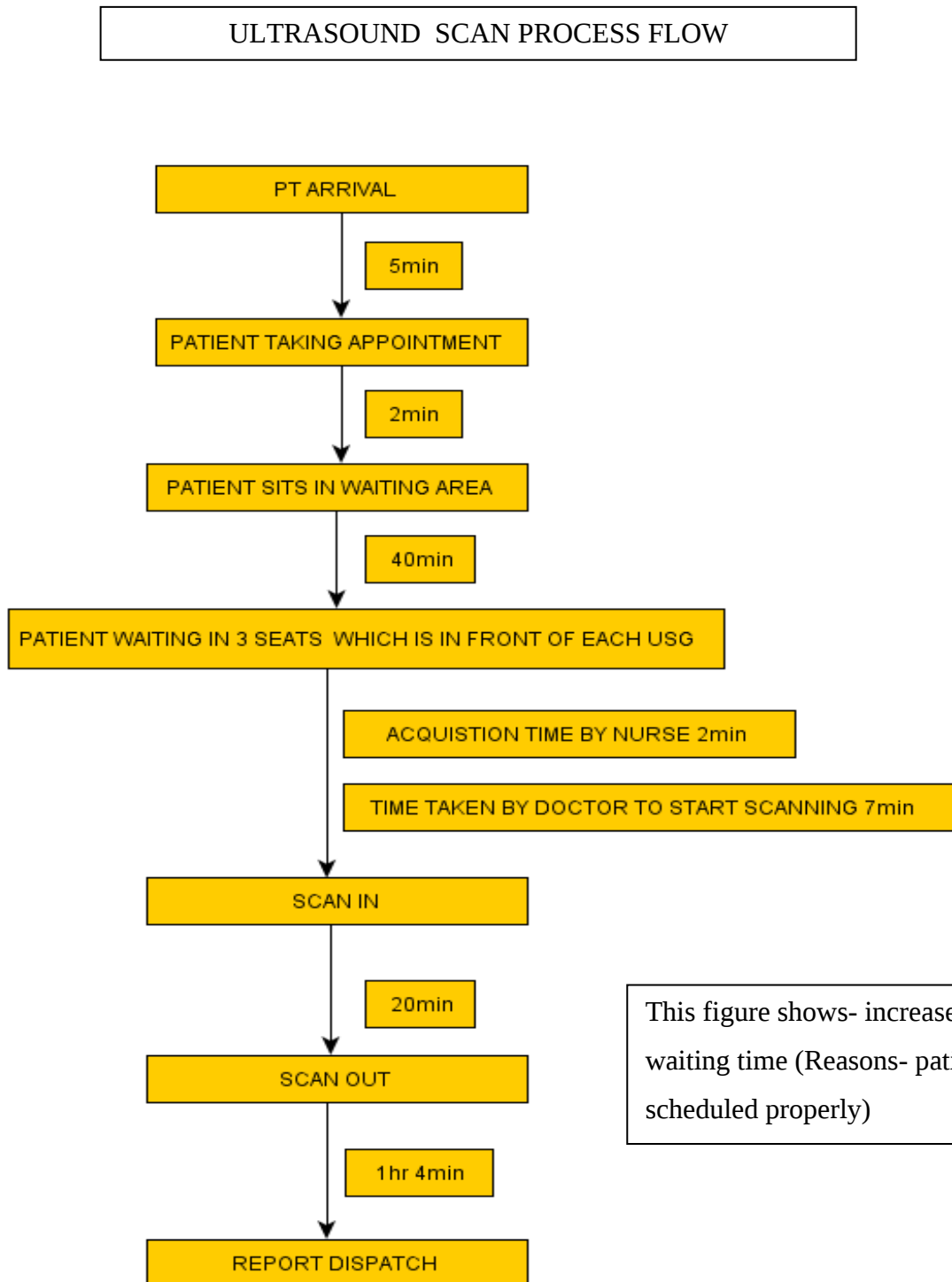


This figure shows – delay in report dispatch (reason- consultant wanted to see old films and old reports . As patients were not oriented earlier to bring old films and old reports , this results in report waiting time)
Waiting time from preparation room to scan in room is 40min (reasons- proper scheduling of patient not done , biopsy and IPD patients were not segregated as a result , it increases the patient waiting time of OPD patients.



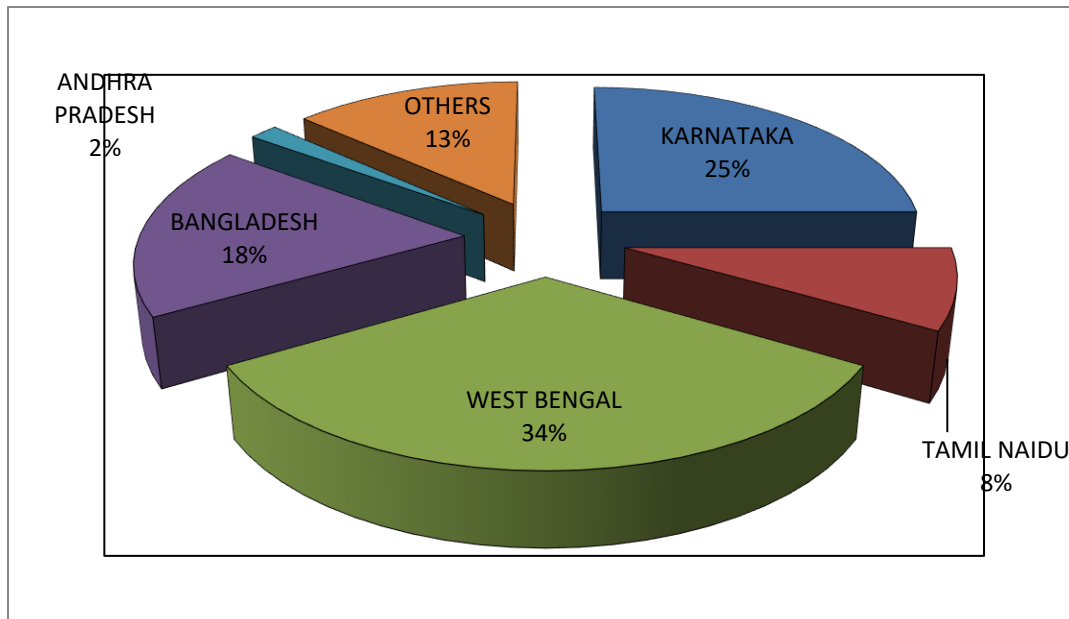
Process time of MRI is 33min for each patient. Patient was not scheduled properly. As a result scanning of the patient not done at the appointment time given.

There is increase in report waiting time (reason- consultant wanted to see old films and old reports. As patients were not oriented earlier to bring old films and old reports, these results in report waiting time)

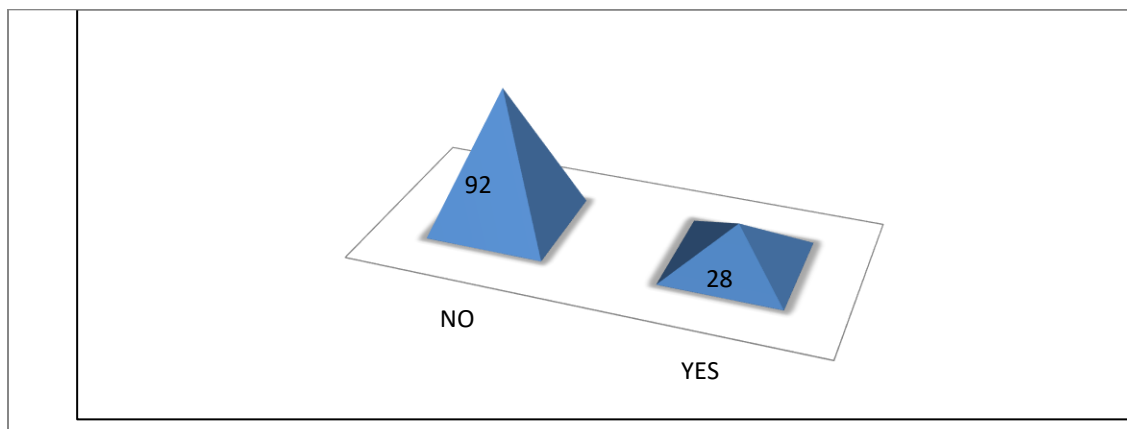


DATA ANALYSIS OF FACTORS AFFECTING OVERALL PATIENT SATISFACTION

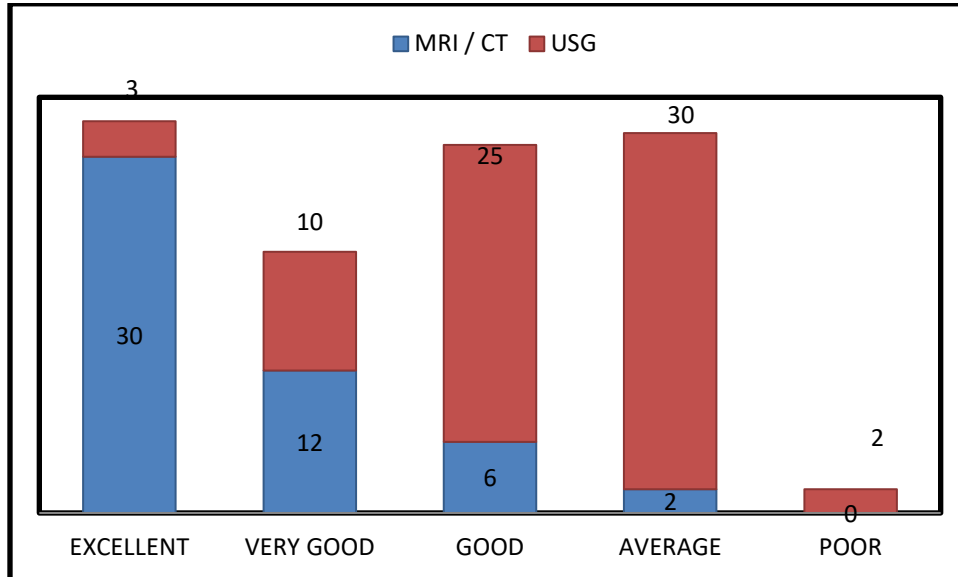
1. DEMOGRAPHIC VARIANCE



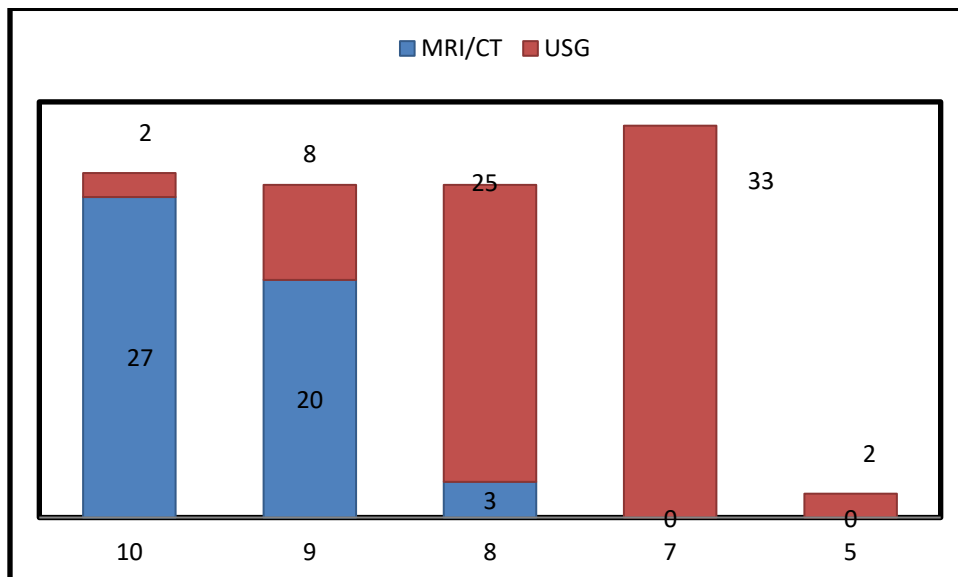
2. SIGNAGE DIFFICULTY FACED BY THE PATIENTS



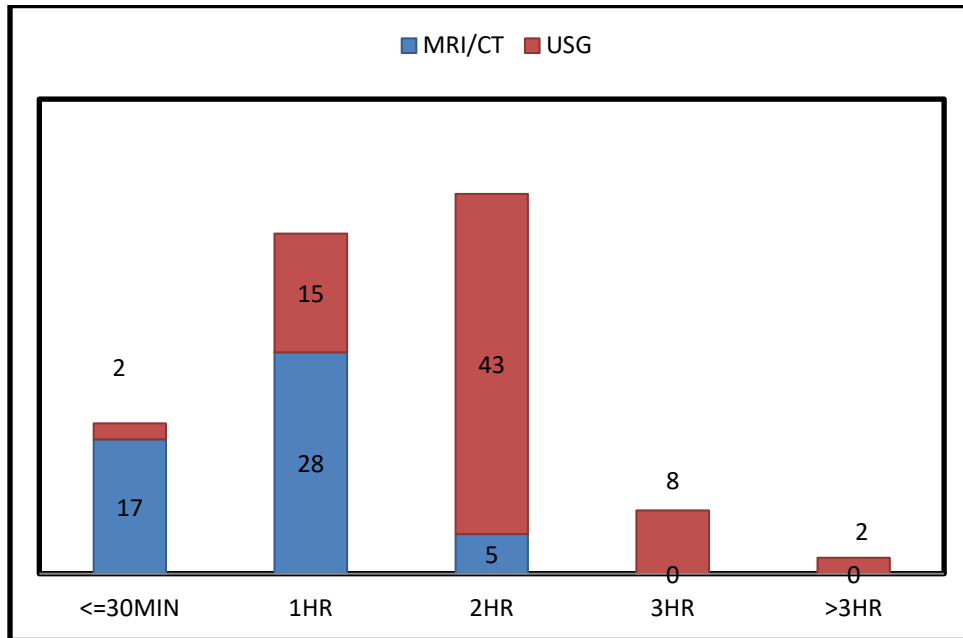
3. AMBIANCE OF THE DEPARTMENT



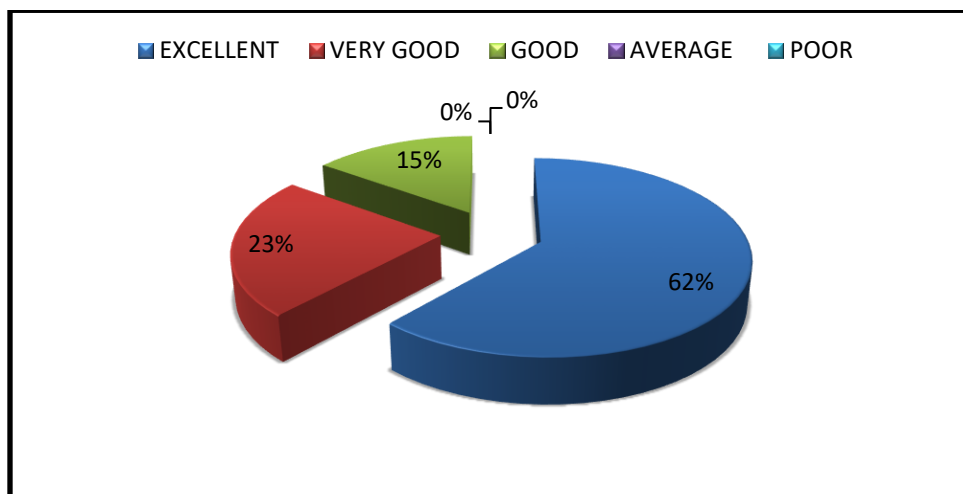
4. RECEPTIONIST WAS COURTEOUS ENOUGH DURING INTERACTION (RATINGS SCALE 0-10)



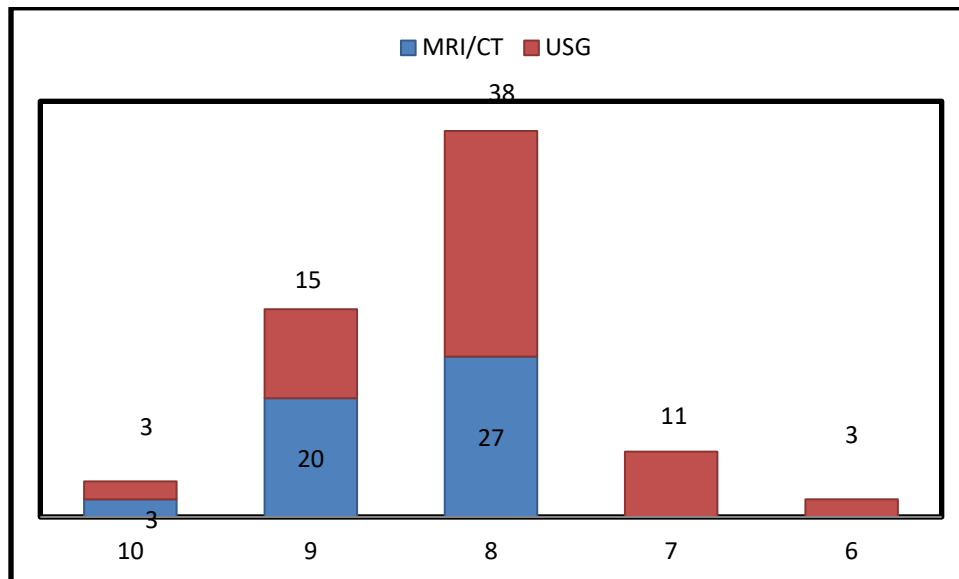
5. PATIENT WAITED STILL AFTER TAKING APPOINTMENT.



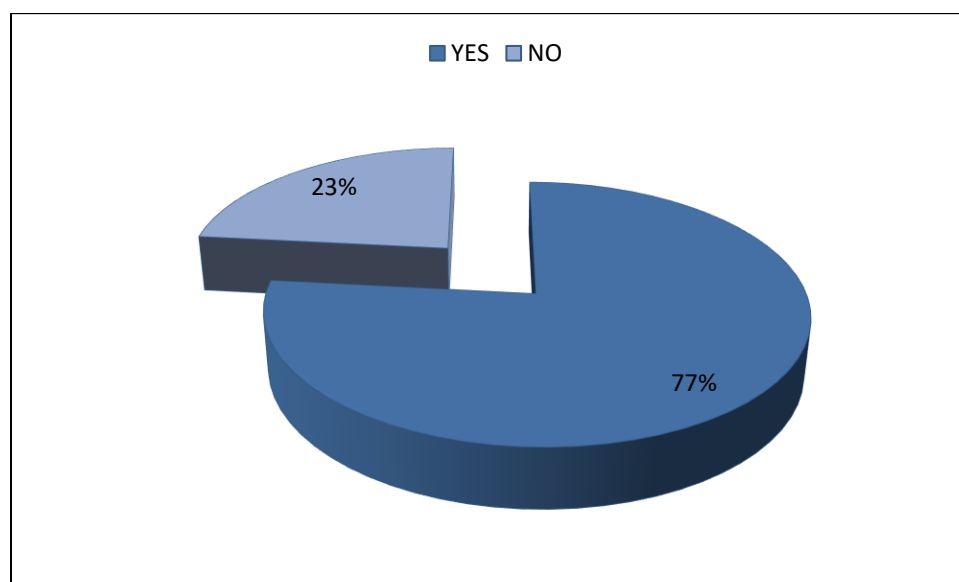
6. DOCTOR ATTENTIVE & CARING DURING INTERACTION



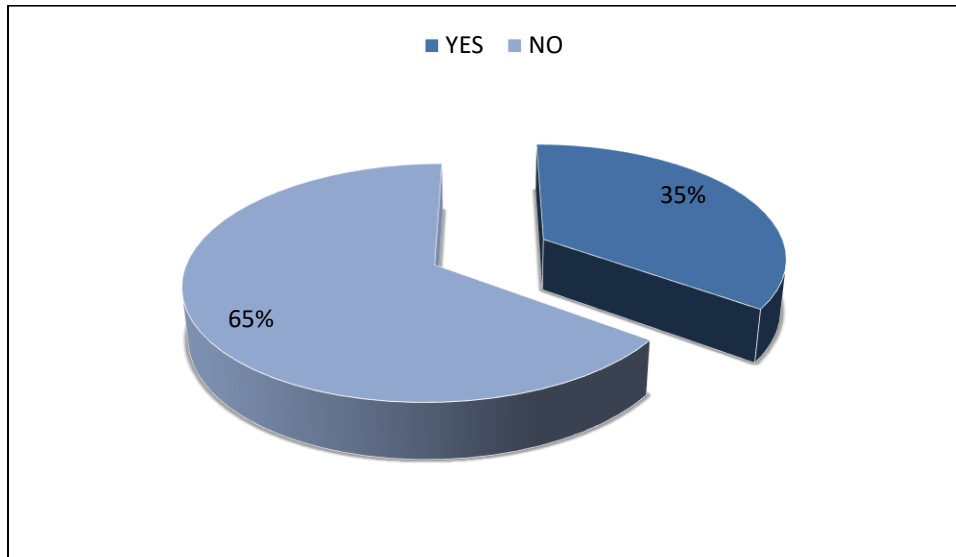
7. NURSE/ TECHNICIAN MADE PT COMFORTABLE THROUGHOUT THE PROCESS



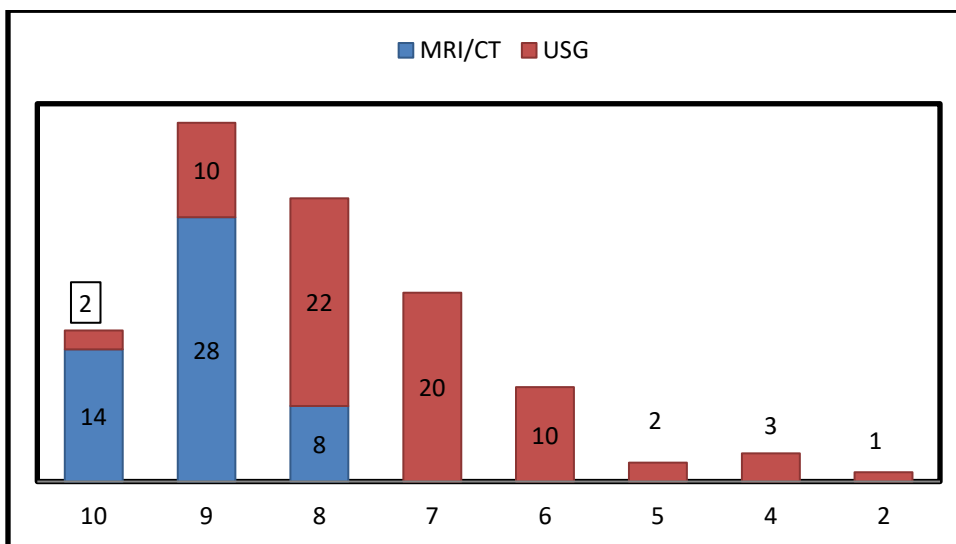
8. COST WAS REASONABLE



9. REPORT WAS GIVEN AS PER THE TIME GIVEN



10 OVERALL PATIENT SATISFACTION LEVEL



PROBLEM AREAS

- Managing the crowd is difficult at counter.
- Patients could not see the cash counter from front
(as it is behind the registration counter)
- Excessive movement of the patient in console room – it increases the scanning time
(Directions not given properly).
- Sometimes accountable person not present at their counter as they have to attend other task (Increased workload on each staff)
- Patients does not follow the directions given (language barrier).
- Delay in report received by patient
- MRI machine did not start early (as a result increases patients waiting time).
- Cancellation of scanning during procedure
(patient not cooperative , suffer from suffocation).
- Patients are not called according to the appointment time given to them

- In some cases Medical requisition form was not given by respective doctors which has lead to wrong diagnosis (wrong leg of the patient was scanned)

RECOMMENDATIONS

- ✓ Staff should follow proper scheduling system and avoid unnecessary waiting time.
- ✓ Attention should be given to appointment patients first.
- ✓ Staff should be courteous and need to be more sensitive towards patients (as patients have come for diagnosis of the disease)
- ✓ Segregation of IPD and emergency patients should be done to avoid patient waiting time of OPD patients.
- ✓ Machine should start early in the morning in order to avoid waiting time
- ✓ Biometric machine should be installed at radiology department (to have a check on incomings and outgoings of the staff members)
- ✓ Workload should be distributed equally among each staff members
- ✓ Worksheet of each staff member should be maintained
- ✓ There should be a check on satisfaction level of each staff member

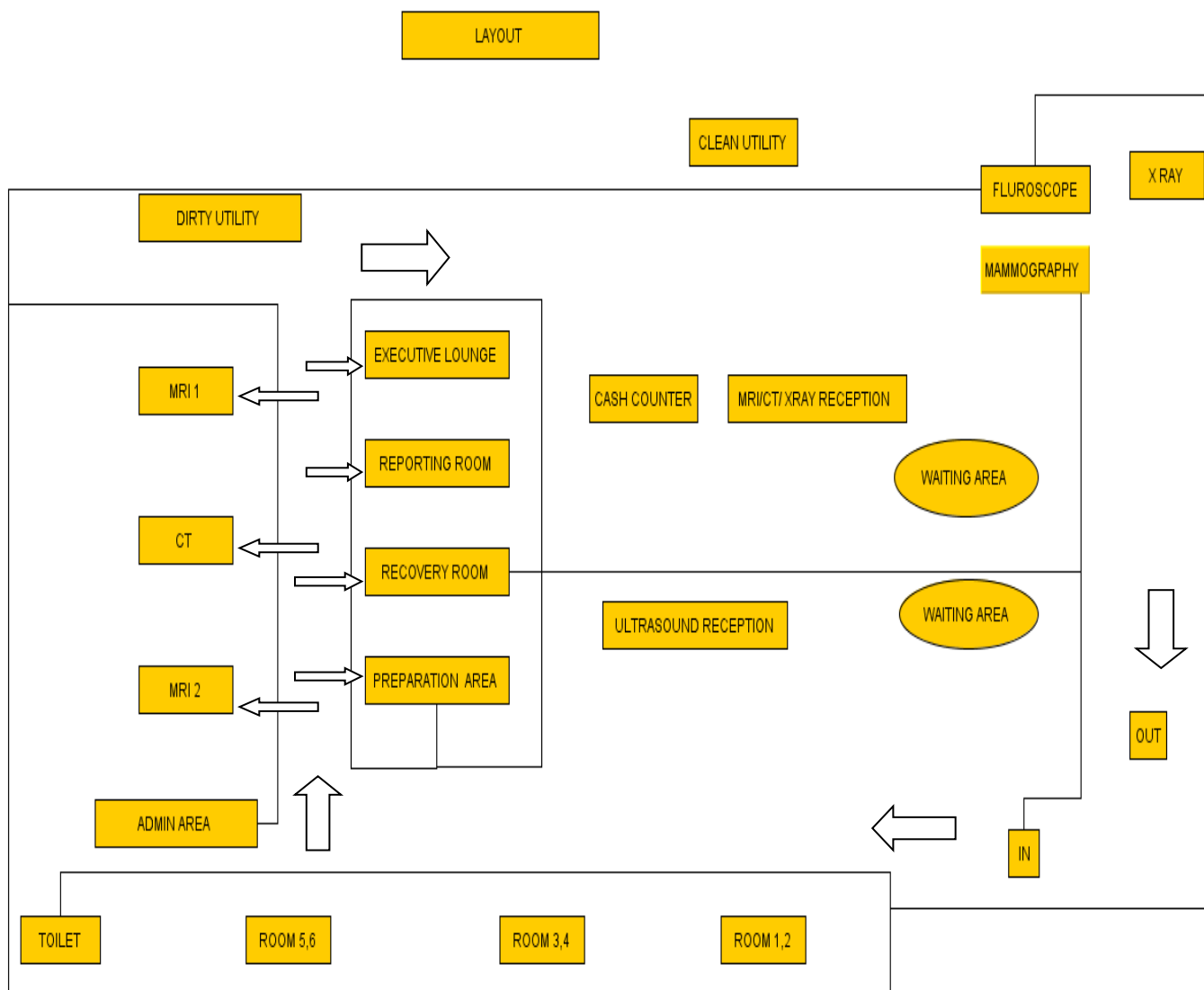
- ✓ Receptionist/nurses/ technicians should be efficient , hardworking , sensitive towards patient and should have good communication skills .
- ✓ There should be a check on duty Rota of each staff member
- ✓ Staff members need to be motivated regularly and need to be explained the importance of good health care service.
- ✓ Staff members should be appreciated if they do extra work
- ✓ A form can be given to each patient at the reception counter (form will contain rating scale 0-10 and patient will carry till he receives the report and then he will submit the form at counter itself). This will help us to have a check on patient satisfaction level
- ✓ Patient should be oriented at the reception counter to bring old films in order to prevent report waiting time.
- ✓ Patient should be given directions properly when the patient is wheeled inside the scan room
- ✓ Patient should be oriented as when they will approximately receive the report
- ✓ Attention should be given to international patients.

- ✓ As soon as the report is prepared, SMS can be dropped so that they could collect their report from the reception counter at their convenience time.
- ✓ Proper display of signage of all counters (registration counter, report counter & cash counter).
- ✓ Cancellation cases could be counseled.
- ✓ Make the patient comfortable and counseling should be done if they suffer from suffocation or any other medical problems.
- ✓ There should be more female doctors in Ultrasound (as many patients demanded for female doctor only)
- ✓ In case of oral contrast , it should start early as abdomen CT patient will have to wait for another 2hrs
- ✓ It is seen that patients wait approximately 15 min even after scanning done. Nurses should remove the cannula , soon after the scanning is done
- ✓ Token should be given to each patient when the patient enters the waiting area. This will avoid misplacement of patient files happen at console room . Patient will be aware when their turn will come. Nurse will also be aware as whose turn is for preparation and scanning.

REFERENCES

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LAYOUT OF RADIOLOGY DEPARTMENT



APPOINTMENT CHART FOR ULTRASOUND

ROOMS	USG1	USG2	USG3	USG4	USG5	USG6	USG7	USG8	USG9
									(BIOPSY & EMERGENCY)
7-8AM	PATIENT 1			PATIENT 1					
	PATIENT 2			PATIENT 2					
8-9AM	PATIENT 3	PATIENT 1		PATIENT 3	PATIENT 1	PATIENT 1	PATIENT 1		
	PATIENT 4	PATIENT 2		PATIENT 4			PATIENT 2		
9-10AM	PATIENT 5	PATIENT 3	PATIENT 1	PATIENT 5	PATIENT 2	PATIENT 2	PATIENT 3		
	PATIENT 6	PATIENT 4	PATIENT 2	PATIENT 6			PATIENT 4		
10-11AM	PATIENT 7	PATIENT 5	PATIENT 3	PATIENT 7	PATIENT 3	PATIENT 3	PATIENT 5	PATIENT 1	
	PATIENT 8	PATIENT 6	PATIENT 4	PATIENT 8			PATIENT 6	PATIENT 2	
11-12PM	PATIENT 9	PATIENT 7	PATIENT 5	PATIENT 9	PATIENT 4	PATIENT 4	PATIENT 7	PATIENT 3	
	PATIENT 10	PATIENT 8	PATIENT 6	PATIENT 10			PATIENT 8	PATIENT 4	
12-1PM	PATIENT 11	PATIENT 9	PATIENT 7	PATIENT 11	PATIENT 5	PATIENT 5	PATIENT 9	PATIENT 5	
	PATIENT 12	PATIENT 10	PATIENT 8	PATIENT 12			PATIENT 10	PATIENT 6	
1-2PM	PATIENT 13	PATIENT 11	PATIENT 9	PATIENT 13	PATIENT 6	PATIENT 6	PATIENT 11	PATIENT 7	
LUNCH)								PATIENT 8	

2-3PM	PATIENT 14	PATIENT 12	PATIENT 10	PATIENT 14	PATIENT 7	PATIENT 7	PATIENT 12	PATIENT 9		
	PATIENT 15	PATIENT 13	PATIENT 11	PATIENT 15			PATIENT 13	PATIENT 10		
3-4PM	PATIENT 16	PATIENT 14	PATIENT 12	PATIENT 16	PATIENT 8	PATIENT 8	PATIENT 14	PATIENT 11		
	PATIENT 17	PATIENT 15	PATIENT 13	PATIENT 17			PATIENT 15	PATIENT 12		
4-5PM	PATIENT 18	PATIENT 16	PATIENT 14	PATIENT 18	PATIENT 9	PATIENT 9	PATIENT 16	PATIENT 13		
	PATIENT 19	PATIENT 17	PATIENT 15	PATIENT 19			PATIENT 17	PATIENT 14		
5-6PM	PATIENT 20	PATIENT 18	PATIENT 16	PATIENT 20	PATIENT 10	PATIENT 10	PATIENT 18	PATIENT 15		
	PATIENT 21	PATIENT 19	PATIENT 17	PATIENT 21			PATIENT 19	PATIENT 16		
6-7PM	PATIENT 22	PATIENT 20	PATIENT 18	PATIENT 22						
	PATIENT 23	PATIENT 21	PATIENT 19	PATIENT 23						

FEED BACK FORM**ULTRASOUND/ CT SCAN / MRI (please tick)**

NAME	MRN NO-
PHONE NO-	

DEMOGRAPHIC VARIANCE

KARNATAKA	KERELA
TAMIL NAIDU	ANDHRA PRADESH
WEST BENGAL	ASSAM
BANGLADESH	OTHERS (SPECIFY)

1. Did you find difficulty in finding the a) Cash counter? b) Department?	yes	no
	yes	no
2. How is the physical appearance of our department?	EXCELLENT	VERY GOOD
	GOOD	AVERAGE
3. Did you find receptionist courteous enough while interaction?	10	9
	8	7
	6	5
	4	3
	2	1
4. How much time did u wait still after taking appointment?	30min	1hr
	2hr	3hr
	.>3hr	
5. Was the doctor attentive & caring during his interaction?	EXCELLENT	VERY GOOD
	GOOD	AVERAGE
	POOR	
6. Has the nurse / technician made you feel comfortable enough throughout the process?	10	9
	8	7
	6	5
	4	3
	2	1
7. Do you think cost of our service is reasonable?	yes	no
8. Did you get the report as per the time given?	yes	no
9. Would you like to recommend our service to your friend or colleagues?	yes	no
10. Overall satisfaction level	10	9
	8	7
	6	5
	4	3
	2	1

PLEASE WRITE YOUR SUGGESTIONS HERE-

SIGNATURE

