

**Summer Placement
In
Max Super Specialty Hospital, Saket
(April 1 to May 31st, 2015)**

- A Time Motion study on clinical pathway of the patients in Emergency Department, Max Super Specialty Hospital, Saket
- A study to analyze the response of the patients and their relatives in relation to the healthcare services of emergency department in a tertiary care hospital

**By
Neha Sardana**

**Under the guidance of
Dr. Arindam Das**

**MBA Hospital and Health Management
2014-2016**

CERTIFICATE

This is to certify that the projects titled 'A time motion study on clinical pathway of patients in emergency department, Max Super Speciality Hospital, Saket' and 'A study to analyze the responses of patients and their relatives in relation to the healthcare services of emergency department in a tertiary care hospital' have been done entirely and submitted by, **Dr. Neha Sardana**, a student of Masters Of Business Administration in Hospital and Health Management-19th Batch from Institute Of Health Management and Research, Jaipur.

The study projects were prepared in the internship period from 1st April, 2015 to 31st May, 2015 at Max Super Speciality Hospital, Saket, Delhi , under my guidance and supervision. This is her original work .

I wish her all success for her future endeavors.



Col. (Dr.) Ashok Kaushik

Dean (Academic & Student Affairs)

IIHMR University, Jaipur



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Associate Professor

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SUMMER TRAINING CERTIFICATE

This is to certify that Dr. NEHA SARDANA of IIHMR, Jaipur Batch-19 of IIHMR University (Jaipur) has successfully completed her Summer Internship during 1st April – 1st June 2015.

The projects undertaken by her in Max Super Speciality Hospital, Saket titled:

1. A Time Motion study on clinical pathway of the patients in Emergency Department, Max Super Speciality Hospital, Saket.
2. A study to analyze the behavior pattern of the patients and their relatives in emergency department of a tertiary care hospital.

The project on evaluation fulfils all the stated criteria and the student's findings are her original work.

I hereby certify her work excellent/good to the best of my knowledge.



Dr. Sandeep Mor
DMS (Deputy Medical Superintendent)
Max Super Specialty Hospital, Saket,
New Delhi

CERTIFICATE GUIDE

This is to certify that the projects entitled "A time motion study on clinical pathway of the patients in emergency department, max superspeciality hospital, saket" and "A study to analyze the behaviour pattern of the patients and their relatives in emergency department of a tertiary care hospital " are the bonafide works of Dr. Neha Sardana done in partial fulfillment part for the summer training in Max Super Speciality Hospital, Saket, has been done under our supervision.

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ACKNOWLEDGEMENT

For a **MANAGEMENT** student, power of knowledge is unattainable unless an element of practical observation and practical performance is added. Undertaking a project is never a one-person job. It always involves help from other person who are either reviewing your work or teaching you new things.

I consider myself to be fortunate for having been provided an opportunity to undergo summer training at MAX SUPER SPECIALITY HOSPITAL, SAKET, NEW DELHI. It is a great pleasure to express my sincere gratitude to **Dr. V. G. R. Shastri (senior consultant in Emergency Department)** for providing me the permission and all the facilities during the course of project.

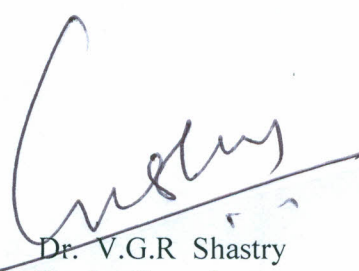
I am also highly grateful to **Mr. Naresh Choudhary (Senior Manager, Operations)** who helped me getting the relevant data related to the project(s). He has been a constant guiding light and source of inspiration for me.

I am highly obliged to **Dr. Sandeep Mor (Deputy Medical Superintendent)** for his keen interests, encouraging appreciation and solemn advice throughout the project. It is because of his constant guidance that this report has attained its final shape.

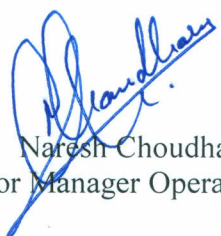
Lastly, I want to express my gratitude to all those who took time out from their busy schedule and cleared my queries. I would also like to thank my family and friends for being a constant support to me.



Dr. Sandeep Mor
(Deputy Medical Superintendent)



Dr. V.G.R. Shastri
(Senior Consultant,
Emergency Department)



Naresh Choudhary
(Senior Manager Operations)

ACKNOWLEDGEMENTS

It is indeed a privilege to have got the opportunity to work in a prestigious organization such as Max Super Speciality Hospital (New Delhi), Saket. My two months training has been nothing short of extensive learning of the co –ordinated working of a hospital. The exposure I have got on the functioning of various clinical and non- clinical departments has been tremendous and has left me with an urge to learn.

I would like to take an opportunity to thank **Dr. Arindam Das** my mentor at IIHMR Jaipur, for his support and guidance , without which this training would not have been possible.

(Col.) Dr. Ashok Kaushik, Dean, academic and student affairs, for his invaluable inputs and guidance for my projects, as he helped me to develop a line of thought for how to shape my project.

Dr. Vijay Pratap Raghuvanshi, IIHMR Jaipur , for his helpful inputs, which helped improve the quality of my work.

My colleague –Eshna Srigyan, at IIHMR Jaipur, for her constant support throughout my training schedule in Max Super Speciality Hospital.

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ACRONYMS / ABBREVIATIONS

CPVC/LPVC- Chlorinated Poly Vinyl chloride/ UnPlasticized Poly Vinyl Chloride

HVAC- Heating, Ventilation and Air – Conditioning

CT- Computed Tomography

MRI- Magnetic Resonance Imaging

PET- Positron Emission Tomography

AERB- Atomic Energy Regulatory Board

PAN- Permanent Account Number

LEED- Leadership in Energy and Environmental Design

CGHC- Central Govt. Health Committee

PPP- Public Private Partnership

CTVS- Cardio Thoracic and Vascular Surgery

HDU- High Dependency Unit

MAS- Minimal Access Surgery

OBSERVATIONAL LEARNING

INTRODUCTION

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

During my summer at Max Super Speciality hospital, Saket, there were numerous learning experiences. These were enhanced due to the projects undertaken at the hospital, which are listed as follows:

- A study to analyze the response of the patients and their relatives in relation to the healthcare services of emergency department in a tertiary care hospital.
- A time motion study on clinical pathway of the patients in emergency department, Max Super Specialty Hospital, Saket.

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

Organization Profile:-

Introduction to Max Super Speciality Hospital , Saket.



Max Super Speciality Hospital, Saket , is one of the premier names in health care domain in the world. It is designed by internationally renowned architect Mr. Richard Wood and constructed in accordance with globally accepted standards for hospitals. It is located in the South Delhi, approximately 15 kms away from New Delhi Railway Station and 12 kms away from the Domestic Airport. It is also easily accessible from all the satellite townships of NCR, Delhi.

Max Super Specialty Hospital is a 540 bedded Hospital and is a part of Max India Limited which is a public limited company founded in 1985 by its current chairman, Analjit Singh. Max Super Specialty Hospital under the name Max Healthcare commenced operations in 2001 with the intention to provide comprehensive and world-class healthcare services in India.

Max Super Specialty Hospital is divided into two blocks, namely the East Block and the West Block. The East Block mainly provides world class cardiovascular care with a service focus and creates unparalleled standards of medical and service excellence. It is committed to pursuing independent as well as collaborative research in all aspects of cardiology, cardiothoracic and vascular surgery and other medical specialties. The West Block mainly provides the diagnostic services like radiology and pathology.

Infrastructure of Max Super Specialty Hospital:

- Novartis Rapid Arc Linac

- Thyroid Uptake
- Institute of Allied Medical Services OPD
- Minor OT
- Nuclear Medicine
- Inpatient area
- Radiology Oncology
- Apex coronary care
- ICU
- OT
- IP ward
- HDU
- CATH recovery
- Dialysis Unit
- Bariatric surgery
- Executive office
- Economy ward
- Treatment Room

DATA COLLECTION

- With permission from the Deputy Medical Superintendent Dr. Sandeep Mor, we created a schedule which we have followed in order to observe and learn the functioning of all the departments of the hospital.
- 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.

VISION MISSION MODEL



AWARDS AND ACCREDITATIONS



- Max Super Speciality Hospital, Saket, honoured with the first Global Green OT Accreditation.
- Max Institute of Minimal Access recognized as Centre of Excellence in APAC.
- Max Healthcare is ISO 9001:2000 & ISO 14001:2004 certified organization.
- Medical Quality Performance Standards Surpassed International Benchmarks in Nosocomial infection.
- NABH accredited hospital.
- FICCI award for operational excellence in Healthcare delivery.
- Max Healthcare laboratories have successfully obtained NABL accreditation in the field of medical testing.
- DL Shah National Award on – “Economics of Quality”.
- “Best Managed Healthcare Programme” awarded at the National level at Express Healthcare Excellence Award.
- India’s first fellowship in Emergency Medicine established in conjunction with George Washington University.

Objectives:-

- Satisfying customers need
- Enhancement of quality system
- Effective performance measurement and compliance systems
- Continuous improvement loop

- Engage every employee in quality drive

Hospital Specialities:-

- Aesthetic & Reconstructive surgery
- Audiology & speech therapy
- Cardiac Science
- Dental Care
- Dermatology
- Ear Nose Throat
- Endocrinology & Diabetes
- Eye Care
- Gastroenterology & Endoscopy
- General Surgery
- Internal Medicine
- IVF
- Mental Health and Behavioral Sciences
- MAMBS(Minimal Access, Metabolic & Bariatric Surgery)
- Nephrology
- Neuroscience
- Nutrition & Dietetics
- Obstetrics & Gynecology
- Oncology (Cancer Care)
- Orthopedics and Joint Replacement
- Pediatrics
- Physiotherapy & Rehabilitation
- Podiatry
- Pulmonology
- Urology

Hospital services and amenities:-

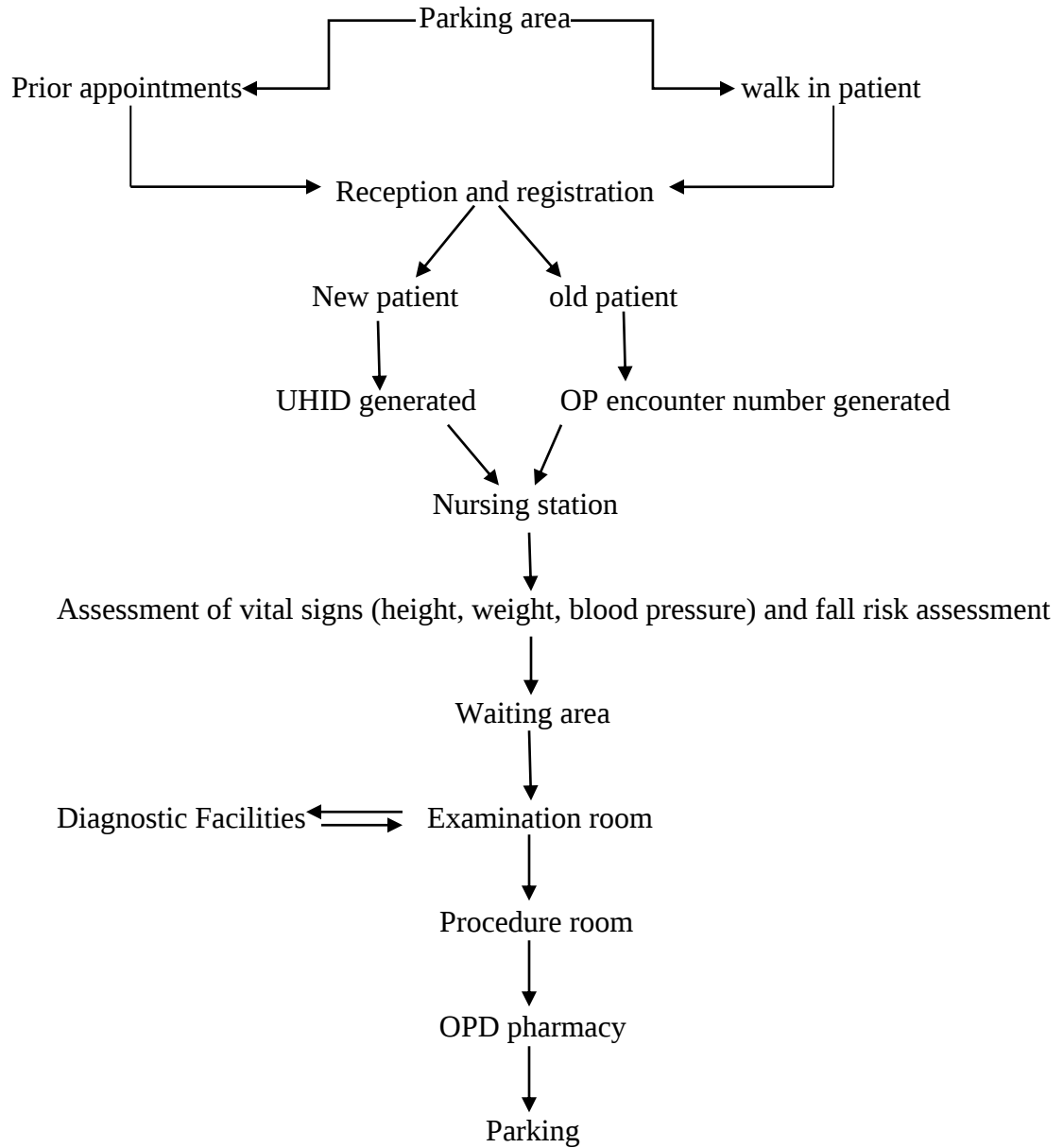
- Blood bank
- 24*7 Max pharmacy
- Regional translators
- Cafeteria
- Waiting lounge
- Prayer room
- Bank/ATM
- Business associates
- TPAs
- Alliance partner

Various Departments of the esteemed organization which has been observed:-

1. OUT PATIENT DEPARTMENT (OPD)

- Each institute of max super specialty hospital has its own OPD area as well as IPD area/day care area wherever applicable.
- Every OPD 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.
- Each OPD waiting area 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 work load 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.

The general process flow that is followed in all the OPD'S is as follows:-



2. IN PATIENT DEPARTMENT (IPD)

- IPD is distributed over five floors (2nd-6th) in the east wing of max hospital including a total number of 201 beds.
- Every bedside has:-
 - Details of consultant nurse and mentor written at the top of every bed.
 - Room equipment checklist-side rails, oxygen, suction.
 - Important instruction.
- The rooms available in IPD have the following structure of beds per room:
 - 6 in 1
 - 4 in 1
 - 2 in 1
 - Single deluxe
 - VIP suite
- Every floor has a central nursing station with
 - Information board covering:
 - Designation and contact numbers of
 - Duty doctor
 - Administration staff
 - Support staff
 - Nurses names with shift timing and designation
 - Crash cart parked next to the nursing station
 - Computer on wheels(cow)-4
 - Cupboards with forms-down time form, investigation track sheet, blood request form, PAC sheet, informed consent, inventory files and registers.
 - Medication rooms-2; pantry-1
 - Records room
 - Biomedical waste disposal

- Process for admission & discharge of new patient to IPD:-
 - IPD receives intimation call from the department from where patient is referred.
 - Duty doctor is informed
 - Room is assigned by the floor mentor
 - Patient is admitted and vitals are checked by the nursing staff
 - Physical assessment is done
 - History is taken
 - Concerned doctor is informed and medications and instructions are entered in computerized patient records system(CPRS), reviewed by IPD pharmacy
 - Patient bill is consolidated at IPD billing
 - Discharge intimation given by doctor and processed by nursing staff
 - Clearance from pharmacy required
 - Discharge process TAT=30 minutes for each cash patient
- Nurse to bed ratio=1:4 or 1:6
- General duty assistants(GDA'S)=2-3 in every shift
- Average length of stay(ALOS) for normal laparoscopic surgeries=2-3 days
- Quality indicators are: patient fall, hyperglycemia, needle stick injury

3. EMERGENCY DEPARTMENT:-

The emergency department of Max Super Speciality Hospital is fully equipped with world class infrastructure, state of art emergency response and management system operating 24×7. The emergency department has a separate dedicated entrance and located at the ground floor, operating for 24 hours a day.

Ambulance - 2 ACLS (with CCTV camera for telemedicine) and 4 BCLS

Response Time:-

- EMO response time < 1 min
- Consultant response time < 60 min
- Code blue response time < 3 min
- Ambulance response time < 10 min

Infrastructure:-

Total 24 bedded

- Triage trolley - 2
- Resuscitation suite – 2
- Urgent care area – 6
- Observation area – 12
- Clinical decision unit – 2
- Doctor Room – 1
- Doctor work station – located at the centre of urgent care area
- Store room – located behind the reception. Medications are filled twice a day and stock of two days is kept in advance for Sunday. Narcotics are also available and kept in safe.
- Hospital Information System (HIS) and CPRS
- Waiting area for patient's attendants is outside the department.

Staffing:-

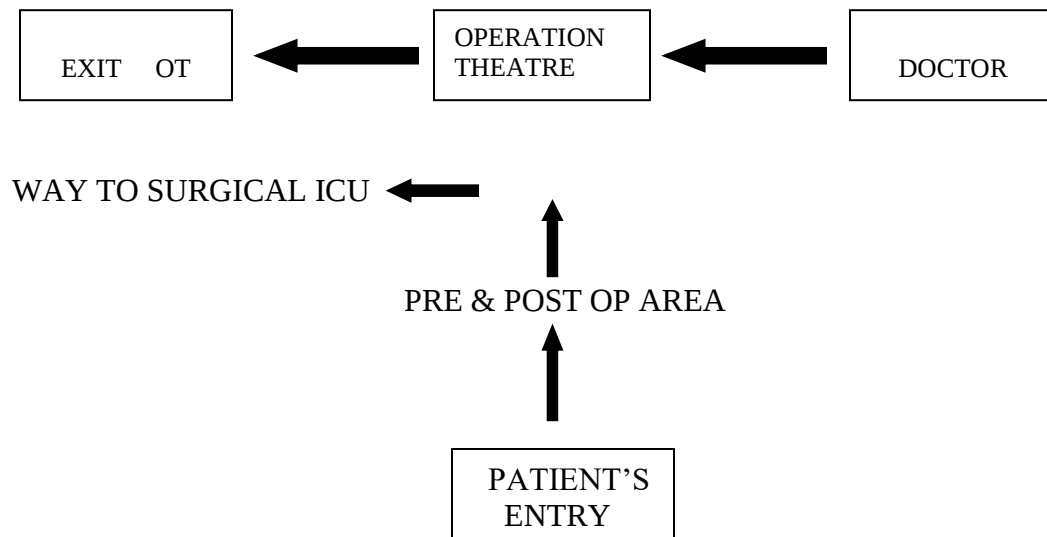
- Senior consultant (Emergency Department)
- Team leader
- Emergency Physician
- Nurses: Male
Female
- Reception
- Paramedical staff for ambulance
- GDA

4. OPERATION THEATRE COMPLEX

Operation theatre complex of east wing is located on 1st floor and 2nd floor. Operation theatre complex has 23 operation theaters assigned to various departments-cardiac, oncology, bariatric, laparoscopic, gynecology, ENT and plastic surgeries are performed in these operation theater complex of west wing is located on 1st floor. It has 7 operation theaters for various departments-orthopedic, neurology and general surgeries are performed here.

Organization of the staff:- The staff of operation theatre is organized into four groups :- anesthetist and surgeon, nursing staff, technician, supportive staff.

OT LAYOUT:



Process flow for planned surgery:

Doctor recommends surgery



Informs co-ordinator



Next day schedule preparation



On the day of surgery:

Co-ordinator



IP-ward for patient preparation
(like surgical site marking, prophylactic antibiotics)



20 minutes before surgery



Patient fetch service team



Patient brought to OT complex (on OT trolley)



Document verification
(patient identification, nursing assessment, CPRS notes)



Pre OP area



Anesthesia induction



Surgical safety checklist



SIGN-IN in OT



SURGERY



Time out before anesthesia



SIGN-OUT of OT



POST OP area (45 min)



Shift out from OT complex

Disinfection of OT:

- In between 2 cases (20 minutes)
- End of the day
- Weekly
- 6 months
- Annually

- Culture swabs are collected weekly to keep a check on OT sterilization.
- There is also a BONE BANK and a mini pantry within OT complex.

Instrument sterilization: After the surgery, preliminary washing of instruments is done by nurses and the instruments are sent to CSSD, sterile instruments are supplied from CSSD to sterilization room in OT complex. There is also 1 TTSU (theatre sterile supply unit) which has 2 autoclaves and in case of emergency sterilization is done in there.

Material management: The OT complex has an individual material store for OT consumables.

Training: Is conducted weekly for nursing staff, GDAs.

5. CATH LAB

Catheterization laboratory or cath lab is an examination room with diagnostic imaging equipment used to visualize the arteries of the heart and the chambers of the heart and treat any stenosis or abnormality found.

Diagnostic procedures performed here are:

- Angiography
- Electrophysiology study
- Cath study

Out of these 3 angiography and cath study is done in cath lab 1 and EPS is done in cath lab 2.

Other procedures are:-

- Percutaneous transluminal coronary angioplasty
- Peripheral transluminal angioplasty
- Radio frequency ablation
- Permanent pacemaker implantation
- Intra cardiac defibrillation
- Cardiac resynchronization therapy defibrillator device
- Cardiac resynchronization therapy pacemaker
- Left and right sided pressure studies
- Closure of some congenital heart defect

Units of cath lab:-

- Cath lab 1
- Cath lab 2
- Technical room
- Observation area
- Technical room
- Store room and utility room
- Observation area
- Instrument washroom

Location: Cath lab is located on the 1st floor with the vicinity area as:-

- Emergency department
- Operation theatre
- Cath recovery
- Coronary care
- CTVS OT
- SICU
- PICU
- MICU

Staffing:

- 9 interventional cardiologists
- 19 nurses
- 9 technicians
- 1 person from store

6. ONCOLOGY DEPARTMENT

Oncology is a branch of medicine that deals with cancer.

Oncology in MAX is concerned with:

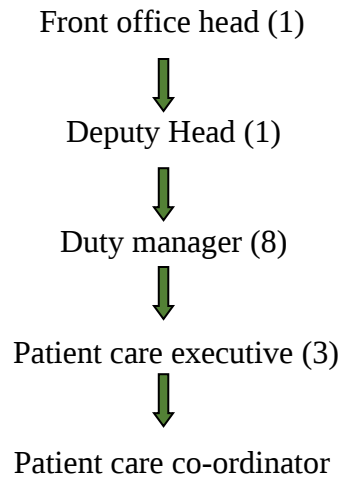
- The diagnosis of any cancer in a person(pathology)
- Therapy (e.g. surgery, chemotherapy, radiotherapy and other modalities)
- Follow-up of cancer patient's after successful treatment.
- Palliative care of cancer patients with terminal malignancies
- Ethical questions surrounding cancer care.

The oncology day ward/day care (ODW) as the word implies, provides care for people who need to receive treatment as day cases and do not require staying in hospital as inpatients. Its main function is to assess and treat the patients who receiving chemotherapy. In the oncology day care 9 beds, 8 recliners, and 4 dummy beds are available. Before commencing chemotherapy, the patient is assessed to make sure that he/she understands and consents to the planned treatment. Blood tests are performed to ensure that their levels are at the required limits. The patient's weight and height needs to be measured as most chemotherapy doses are calculated according to the one's body surface area

7. FRONT OFFICE

Front office is the 1st point of contact between the hospital and its customer

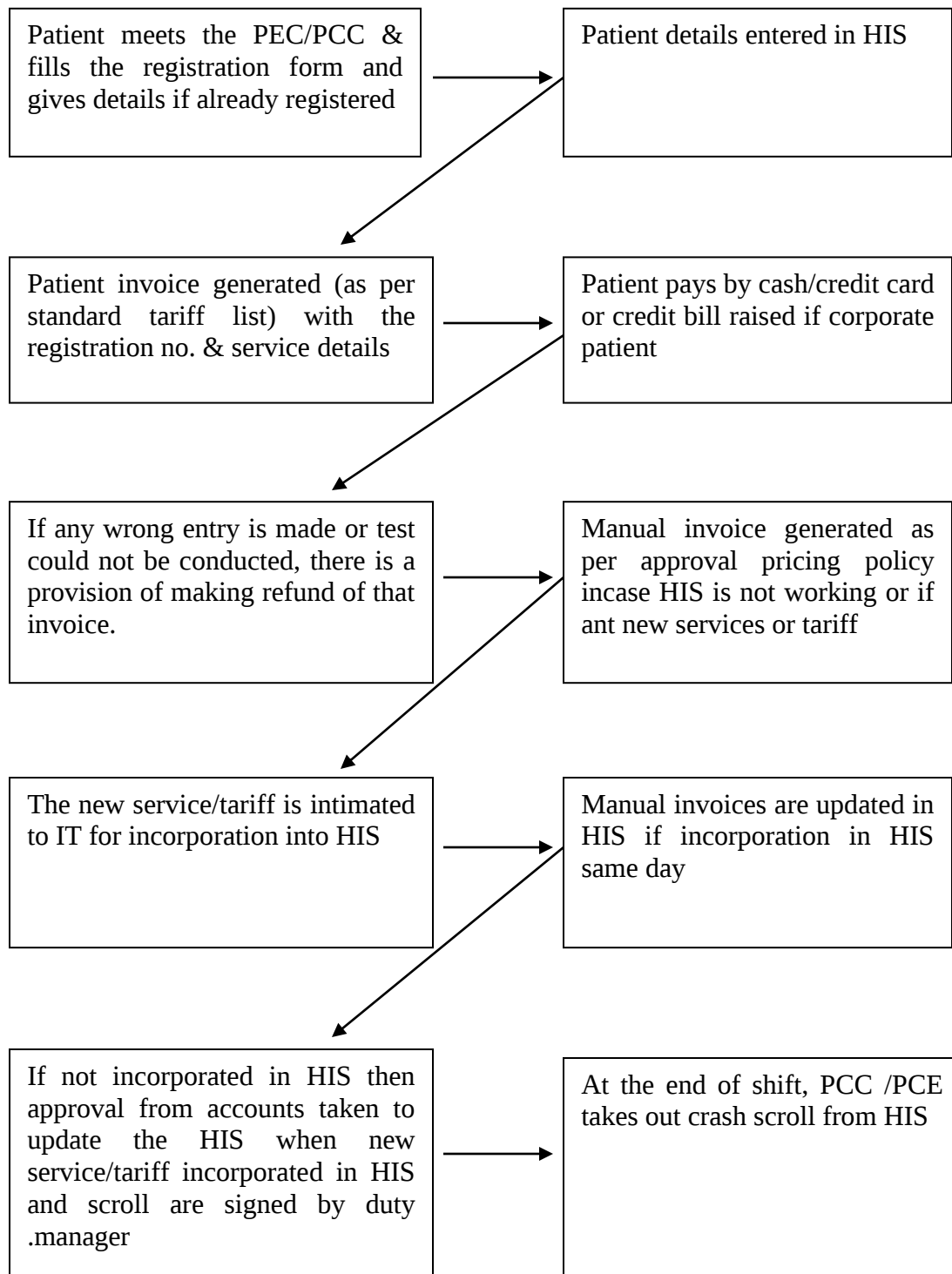
Organization chart of the department

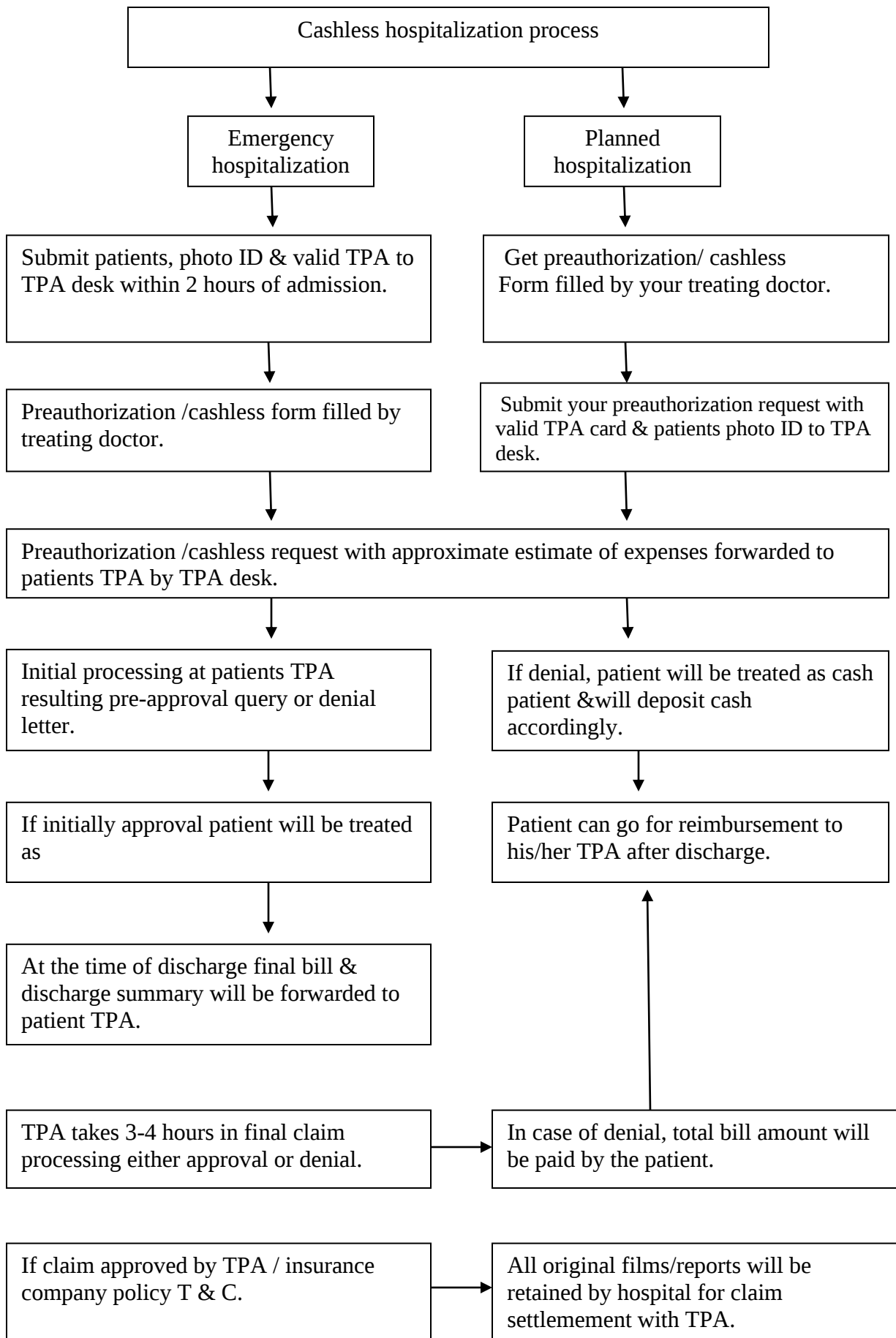


Services provided by the front office

- Inpatient and outpatient registration
- IP admission and discharge
- Medical alert details
- Appointment scheduling
- Doctors schedule summary
- Patient billing (IPD , OPD)
- Insurance management
- Patient visit history
- Medical records movement
- Appointment for diagnostic tests
- Preventive health programme registration and scheduling

Patient registration process:-





8. INTERNATIONAL PATIENT SERVICES (IPS) DEPARTMENT

It takes a lot to be a world-class health care service provider and as per patient registration data, over 11 lac overseas patients have been helped to get back to their normal lifestyle. This, department is situated in East Wing is exclusively dedicated for the services of international patients.

Contact procedure:-

- Patient sends a query and /or reports.
- IPS team consults the relevant consultant and provides diagnosis, proposed treatment and estimate.
- If required, a telephonic meeting may also be arranged.
- Patient confirms if he/she wants to have treatment at max healthcare to provide visa facilitation letter.
- Patient confirms the arrival date and time.
- IPS team, in the meantime , books room, OT etc. for the patient.
- Patient is received at the airport and then, brought to the hospital/guest house/hotel.

Also, another contact procedure is as follows:

- Max hospital conducts free outreach OPD'S in other countries, at least 1-2 per year
- Max hospital also has tie ups with different hospitals in these countries

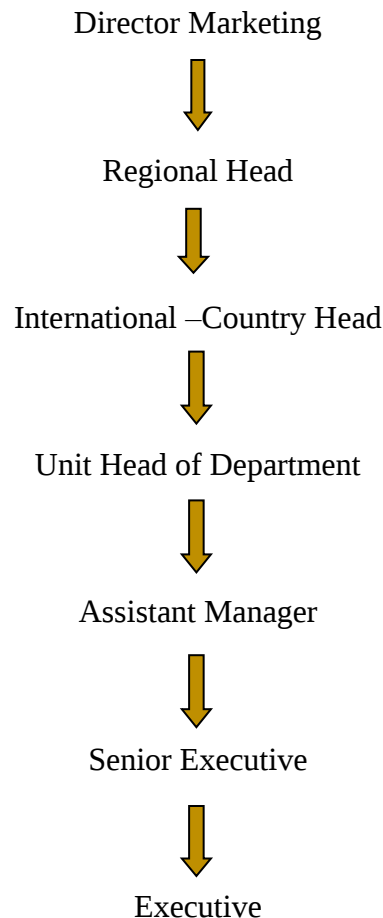
International patients avail treatment in India mainly because these facilities or treatments are not available in their respective countries, and are available at a much cheaper price in India than other countries such as USA, UK or European countries.

The countries from where patients come to seek treatment most commonly are Iraq, African countries (Nigeria, Congo), Oman, Uzbekistan, Afghanistan, Nepal and Bangladesh.

The hospital provides:

- Various regional translators such as Arabic, Persian, Iraqi, Bangladesh and Russian (in house interpreter).
- Assistance in ground transportation such as finding a shuttle, hiring a car or choosing any other mode of transportation within the city.
- Relationship managers, who closely work with over 50 Diplomatic Missions and numerous Expat bodies to ensure that international patients have a comfortable and memorable stay in India.

Staffing:



9. DEPARTMENT OF LAB SERVICES

INTRODUCTION:-

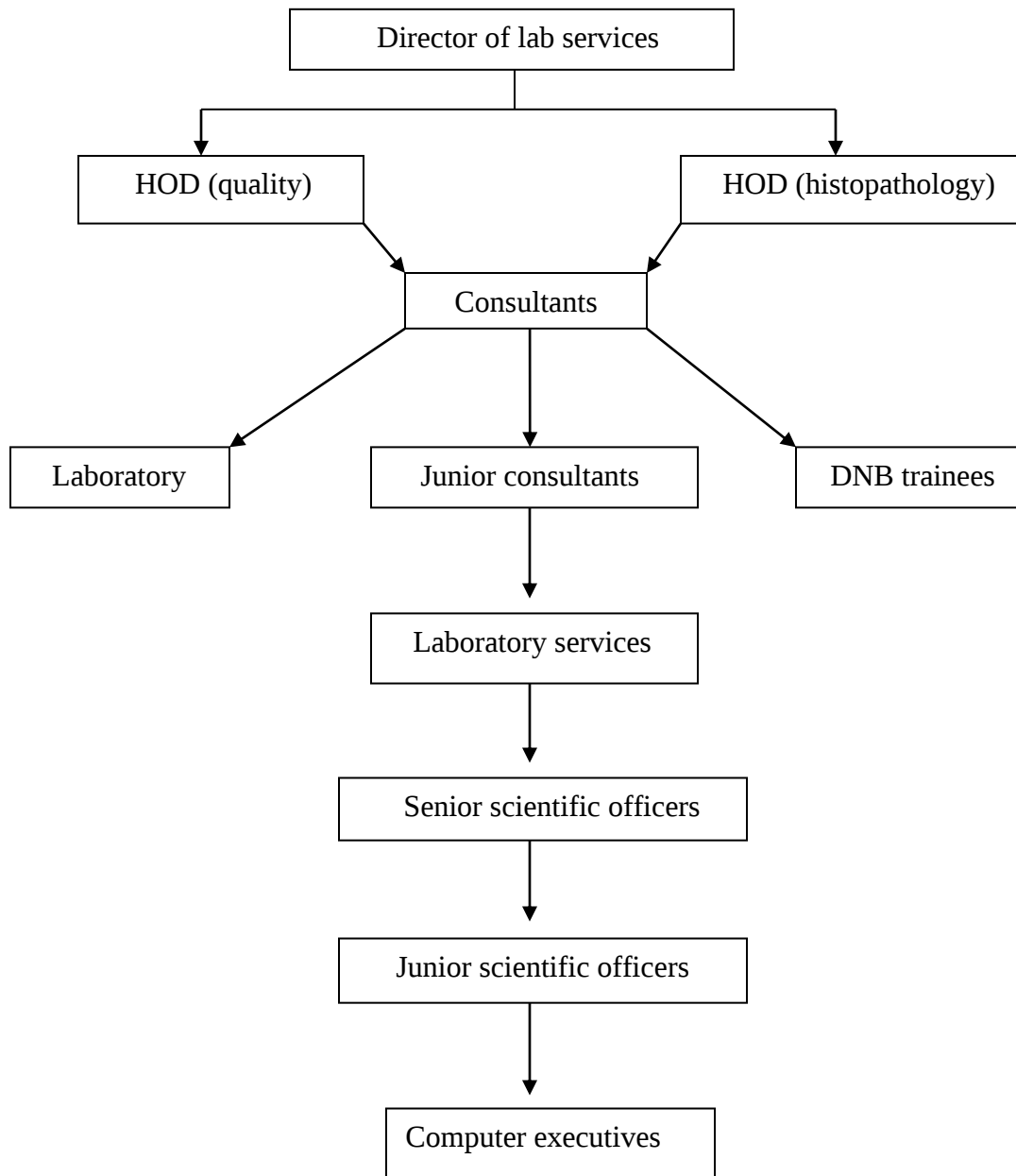
An ISO 9001:200 certified lab, it is open 24 hours a day. It's a high-tech lab with fully automated instrument which are directly interfaced with Hospital Information System and Laboratory Information System. Facility of stat tests (emergency) and sample collection from home is also available.

LABORATORY COMPRISES OF THE FOLLOWING DEPARTMENTS-

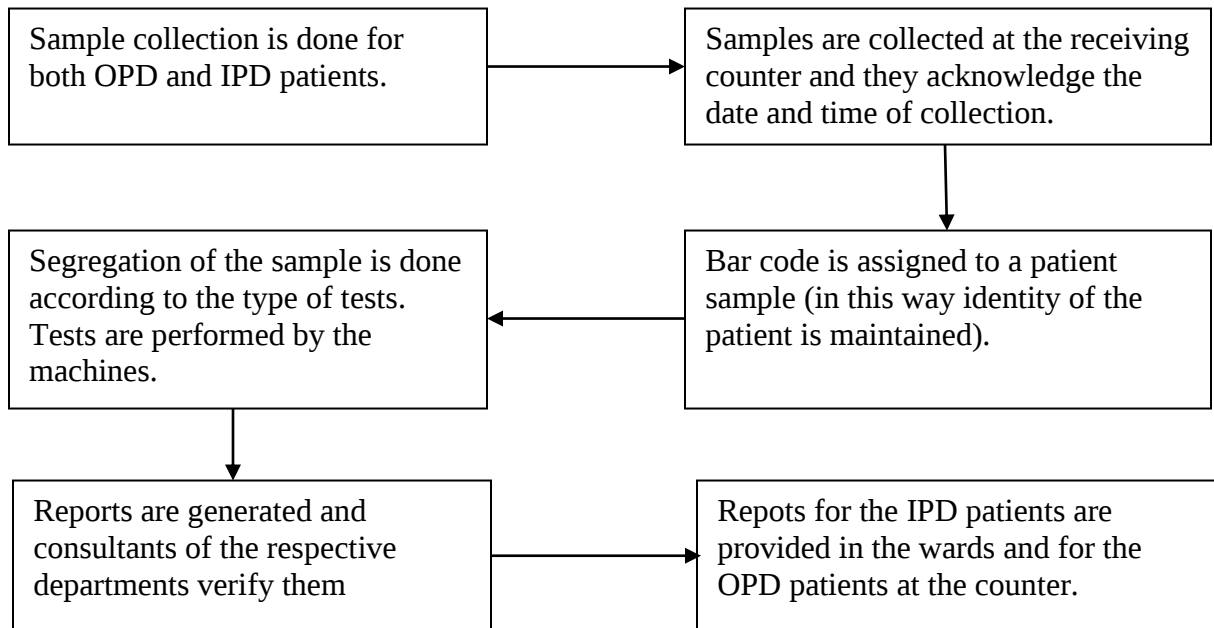
- Biochemistry
- Hematology
- Immunoassay
- Histopathology
- Clinical pathology
- Serology
- Microbiology

HIERARCHY- The department of lab is divided in two departments-

- Lab medicine
- Histopathology



Process flow:-



LABORATORY INFORMATION SYSTEM: It is connected with the hospital information system

- Sample received-red color
- Sample acknowledged-yellow color
- Test done-blue color
- Result verified-green color
- Billing done-pink color

10. RADIOLOGY

The radiology department is divided into 2 sections:

- One section has a reception counter, 4 ultrasound rooms, 1 mammography room, 1 bone densitometry room, reporting room and conference room.
 - The reporting room has computer systems for the doctors to study images and repots and hand-written by the radiologists in the reporting room. These reports are then sent to the typists and final printed reports are delivered to the patients from the dispatch window. The reports for an X-RAY done in

morning till 12pm are dispatched in evening and those done in afternoon are delivered next day morning.

- Second section has reception counter, X-RAY room, MRI room along with a change room and waiting area, interventional radiological suite, fluoroscopy room and CT scan room. There are 2 MRI machines- 1.5 Tesla and 3 Tesla and 2 fixed and 2 portable X-RAY machines.

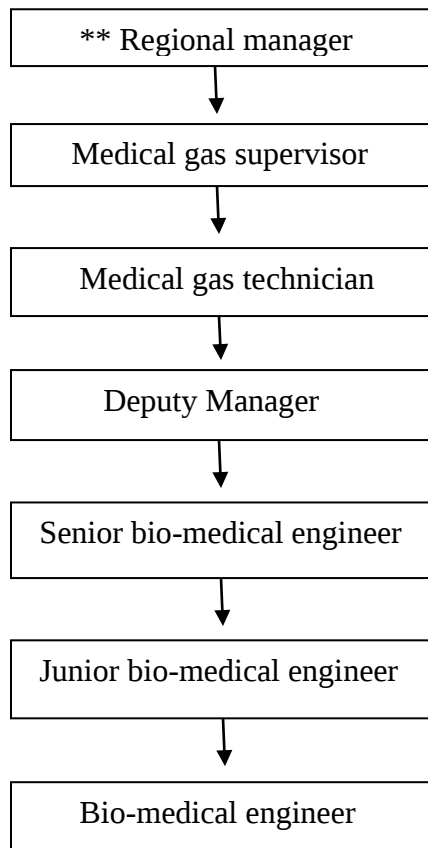
11. BIOMEDICAL ENGINEERING

- The department of biomedical engineering with the purchase, installation & commissioning, training on operating, handling and maintenance of all the medical equipments in all the in-house calibration of equipments.
- Also deals with the in-house calibration of equipments.
- Gas manifolds are also handled by the biomedical department.
- The areas included are:-
 - All wards
 - All operation theaters
 - All ICUs
 - Patient rooms
 - Radiology
 - Triage
 - Blood bank
 - Nuclear medicine
 - Cardiac non-invasive diagnostics
 - Medical gases
 - Medical furniture
 - LINAC

OBJECTIVES:

- To maintain assets list.
- To conduct preventive maintenance for biomedical equipments.
- To ensure timely repair of biomedical equipments medical furniture.
- To conduct calibration /validation of biomedical equipments.
- Preventive maintenance for Medical Gas Equipments.

ORGANISATION CHART



** Showing - Department Head

12. INTENSIVE CARE UNIT (ICUs)

There are 99 beds for ICU in east and south wing and 77 beds in west wing. Every ICU is specialized like CTVS Adult- 17 beds, CTVS pediatric -9 beds, Medical ICU, Surgical ICU, oncology Medical ICU and Surgical ICU, Respiratory ICU, Pediatric ICU, Neonatal ICU.

Every ICU has an Isolation Room apart from oncology Medical ICU. The beds types include alpha beds, nimbus beds, excel beds and normal beds. Every cubicle has a monitor, oxygen pipelines, vacuum line, a computer on wheels (COW) and 22 electric sockets. Ventilators are available on demand. The ICUs have syringe pumps.

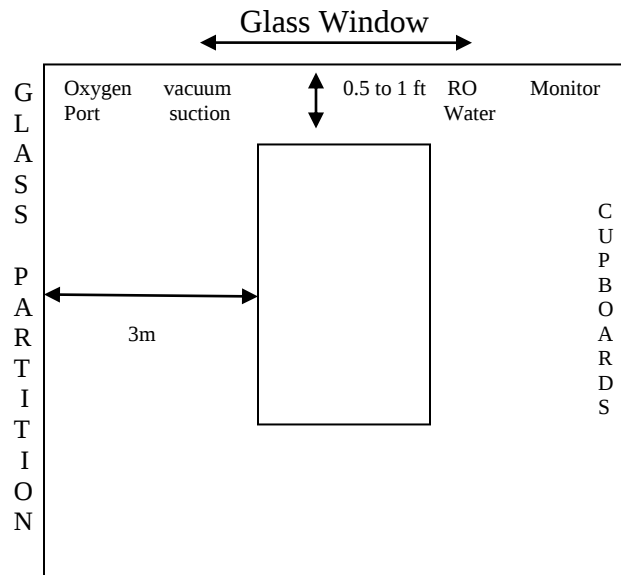
Areas :- nursing station, dirty utility room, medication storage room, washroom, clean utility room and pantry.

Nurse: bed ratio is maintained as 1:2 normally and 1:1 for critically ill and ventilator supported patients. 2 duty doctors are available in each shift. Visits by consultants and physiotherapists are made as per requirement.

The material is managed by 2 rounds per day the ICU GDA to and from CSSD.

LAYOUT of IUC Cubicle:-

(22 sockets)



13. HOUSE KEEPING DEPARTMENT

House keeping department is responsible for three main processes:

❖ Infrastructure Cleaning – It includes-

- Exterior cleaning-Cleaning of Parking area, main entrance road, ramp area, glasses, biomedical waste collection area, rooftop/terrace.
- Interior cleaning-Cleaning of Hospital entrance, lobby, OPD, emergency department, radiology department, ICU, OT, dialysis area, waiting lounge, elevators, IPD, discharge room, isolation ward, washroom.

❖ General and Biomedical Waste Handling

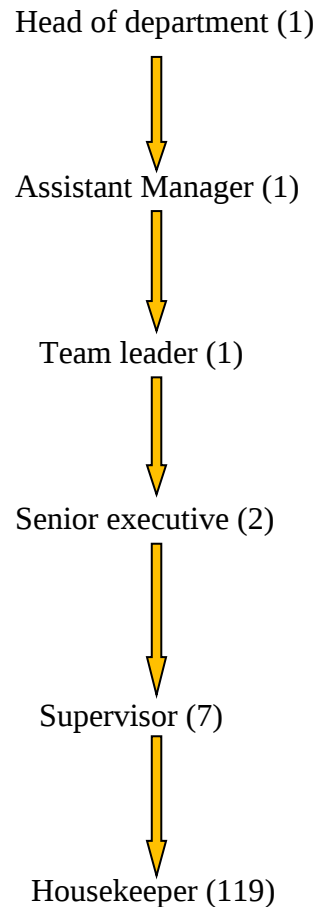
- Waste collection Process-
Waste is segregated in different colors of bags and bins namely Red, Blue, Black, Yellow and White Puncture Proof boxes. Black is for general waste. Blue is for plastic waste. Red is for infected cotton materials. Yellow is for anatomical waste. White puncture proof box is for sharps.
- Waste Treatment and Disposal process-
Waste is collected from the source of all the areas and kept in Dirty Utility Room with the bags sealed. Bags are labeled according to the area and date and taken to the biomedical waste collection area with the help of trolleys. Vendor then collect and weighs all the waste. The same is recorded in register which is signed by housekeeping staff, security and the vendor.

❖ Linen and Uniform Management

- Linen Management-
It ensures optimum availability of fresh linen and patient dress in all patient areas. List of linen required is received from nursing and requirement is checked by linen in-charge. Existing stock is checked. If required, indents are placed for the procurement. The fresh linen is exchanged against soiled which is then discarded.
- Uniform management-

Employees are provided with three sets of uniform. At a time one set is used, second is in linen room and the third set is in the laundry.

Hierarchy:



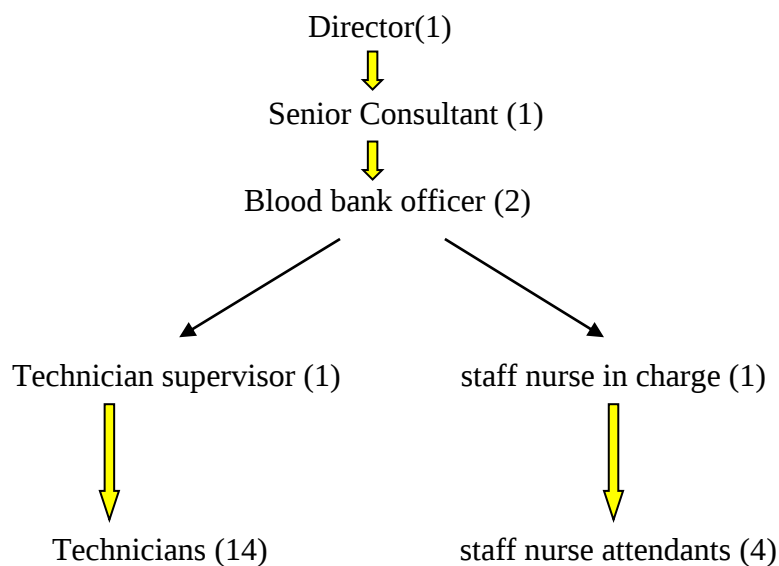
14. BLOOD BANK:

Max Super Speciality Hospital has its own blood bank. All blood groups are available. But it is preferred that patient arranges blood through his relatives or any friend and should give replacement. It receives 30-40 units of blood per day on an average. It maintains a stock of 250 units/day of each blood group.

Blood bank consist of:-

- ❖ Reception area
- ❖ Donation area
- ❖ Apheresis room
- ❖ Component room
- ❖ Transfusion Transmitted Infection(TTI) room
- ❖ Storage area
- ❖ Issue counter

Hierarchy:



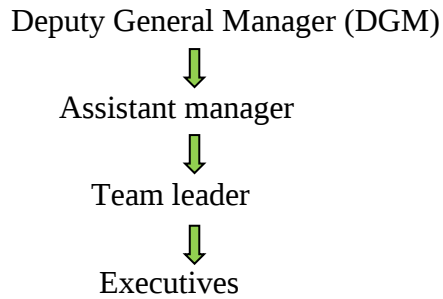
15. FOOD AND BEVERAGES DEPARTMENT:

Food and beverages department deals with the supply of food to the patients sometimes to the patient's attendants and also during the various conferences and meeting in the organization.

Although food and beverages department at the max hospital is outsourced to the Sodexo food services but controlling power is with max employee.

This department is located on the Service floor MSSH West Block.

Organization chart:



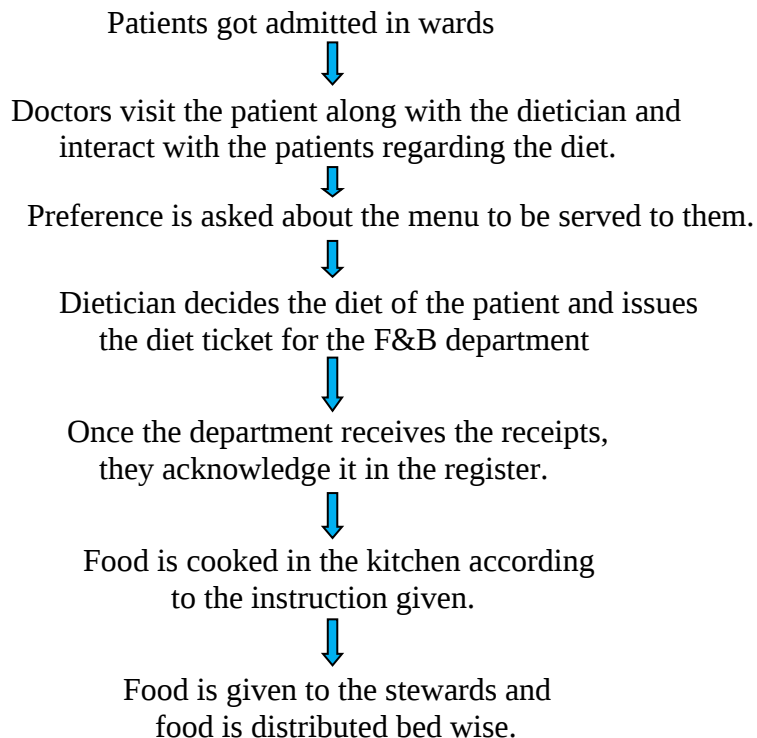
The department consist of 1 head chef from max, 26 chefs from Sodexo (from which max hospital has outsourced this department), 72 stewards from Sodexo.

Max chef keeps check on quality of food provided to the patients.

Other than Sodexo, there are various other food outlets which are as follows:-

- Sagar ratna
- Subway
- Café coffee day
- Quality express

Process flow:-



If patient does not like the food, dietician goes to the patient for asking preferences so that the patient's needs can be met.

Different menu offered are-

- Indian menu
- Afghani menu for middle east patients
- Continental menu

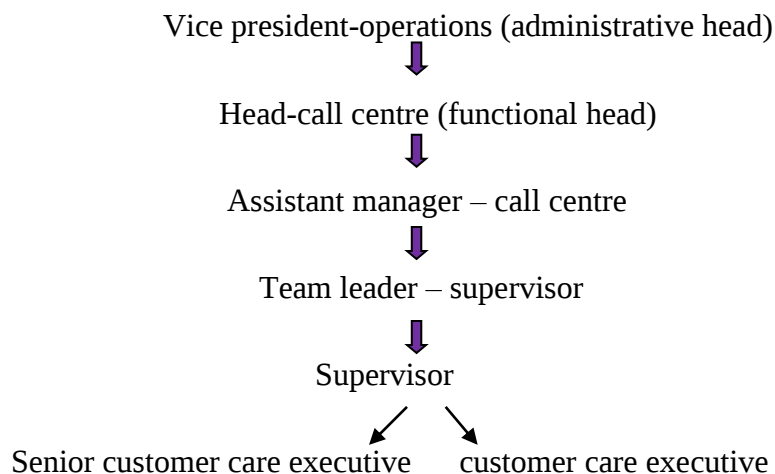
16. CALL CENTRE:-

Call centre of Max hospital, Saket operates at 24*7. It is centralized patient contact centre for saket. It can be used as an information centre for all customers.

Call Centre deals with:

- Doctor's appointment
- Health check ups
- Radiology and diagnostic appointments
- Patient's information
- Doctor's information
- Employee's information
- Speciality information
- Other department information
- It handles internal emergency e.g. Blue code

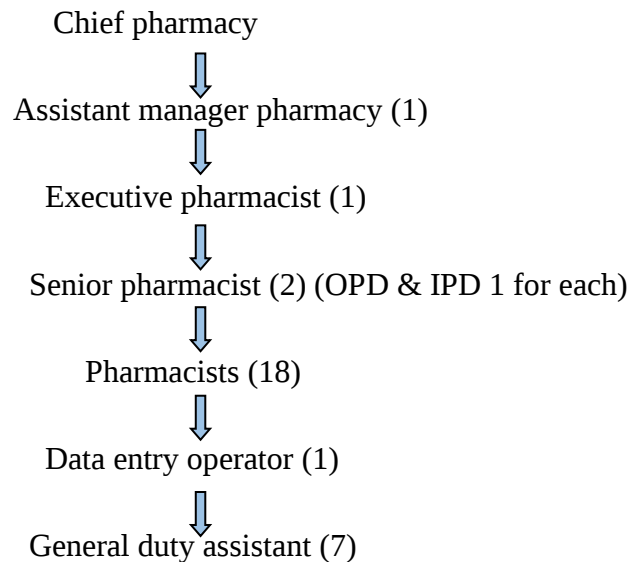
Organization chart:



17. PHARMACY:-

Centralized Pharmacy Store (CPS) of Max Healthcare is in Okhla, New Delhi from where the drugs are delivered to IPD and OPD stores of the hospital on demand. Role of CPS is storage & distribution of drugs and negotiation with vendors.

Hierarchy:-



OPD PHARMACY

The OPD pharmacy is open 24*7 and anyone can purchase medicine on doctor's prescription. All medicines are given along with billing and the medicine is explained to the patient according to doses. All medicines except OTC are given on the prescription.

IPD PHARMACY

Max hospital runs inpatient pharmacy which works 24*7 throughout the year. It is located in the Basement-1 of the building.

PROCUREMENT OF DRUGS IN THE PHARMACY:-

- Auto indent is generated by Central pharmacy store at Okhla on weekly basis according to pharmacy's EOQ analysis.
- This indent is checked briefly by the pharmacist in the pharmacy store and alterations are done if required

- The order is delivered by CPS next day to the pharmacy store. In an urgent need, it can be procured from the local vendor also.

Distribution of drugs from IPD Pharmacy

- For Nursing Stations
 - Requisition from different wards is sent by nurse through HIS on a fixed day of week.
 - Next day, Drugs are dispensed in paper envelop and printout of the indent is stapled on it.
 - Then the drug is sent physically by the GDA to respective nursing station.
 - However, in case of emergency indent is generated and drugs is delivered at the same time.
- For Patients
 - In the pharmacy no cash transaction take place and no relative has to go there.
 - Any drug required by the patient, Indent is generated with IP (inpatient) no. of the patient by nurse to the pharmacy.
 - Drugs are dispensed in paper envelop and printout of the indent is stapled on it.
 - Then the drug is sent physically by the GDA to respective nursing station.
 - This transaction is picked up through the HIS by the Billing Department directly according to the IP no. and added to bill of the patients.

Inventory management: 7 days

Turn over:- Drugs which have date of expiry within coming 3 months are sent back to the vendors through central pharmacy. They use the drugs on the basis of first comes first out.

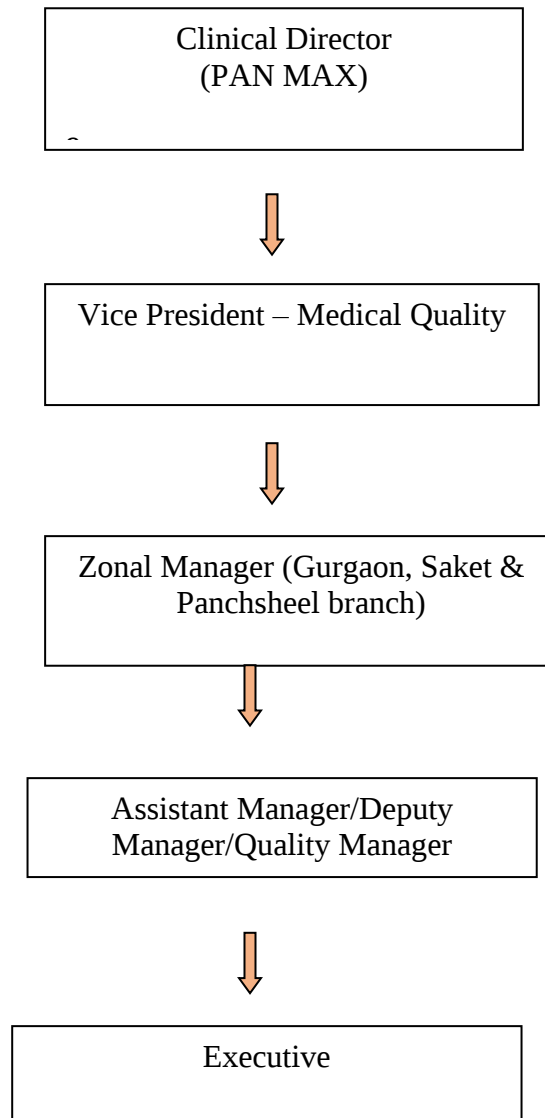
Inventory measurement parameters are:-

- ABC Class
 - A items : 7 days
 - B items : 10 days
 - C items : 15 days
- EOQ – (Economic Order Quantity)
- LEAD TIME – Time from ordering to delivery of drugs

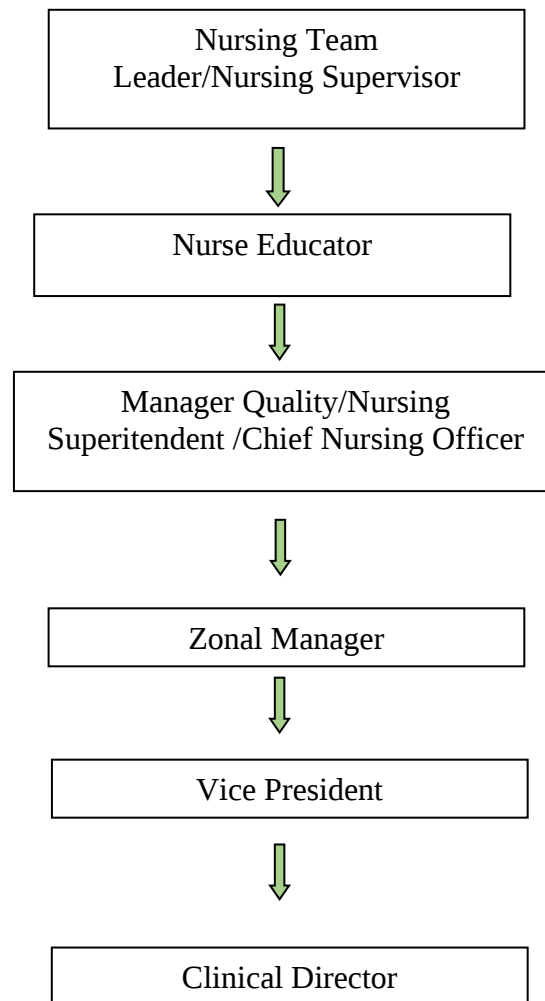
- VED – Vital Essential Desirable (According to move of drugs)
- BULK MEDICINE

18. MEDICAL QUALITY DEPARTMENT:-

Organogram of the department:-



Flow of reporting the Quality Team:-



The different indicators of medical quality are:-

- ❖ Falls
- ❖ Nosocomial infections
- ❖ Phlebitis
- ❖ Medication errors
- ❖ Near miss(incidents might have occurred)
- ❖ Needle stick injury
- ❖ Pressure sores
- ❖ Hypoglycemia
- ❖ Adverse drug reactions

- ❖ Blood transfusion related errors
- ❖ Infection outbreak
- ❖ Notifiable diseases
- ❖ Sentinel events – wrong patients, wrong side, foreign body left inside cavity.
- ❖ Code blue – Rapid Response Team(RRT)
- ❖ Mortality – data categorized by area, speciality, age
- ❖ Other adverse events
- ❖ Readmission within 14 days of discharge/Return to Emergency within 7 days
- ❖ Return to OT within 7 days
- ❖ Return to ICU within 7 days

19. NURSING QUALITY DEPARTMENT

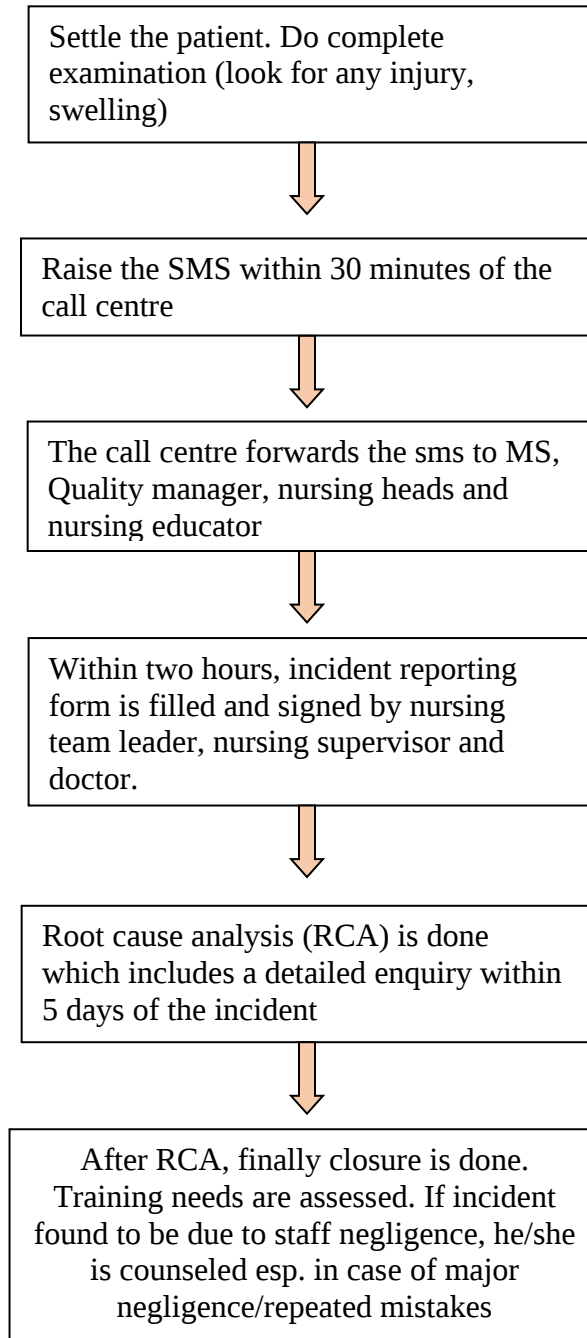
There are a total of seven indicators of nursing quality:-

- ❖ Patient falls
- ❖ Medication error :- is of four types:-
 - ✓ Prescription error – mistake of doctors
 - ✓ Dispensing error – mistake of pharmacist
 - ✓ Administration error – mistake of nurses
 - ✓ Documentation error – mistake of nurses where they fail to document after administration of medicines
- ❖ Pressure sores:- outside-inside pressure sores:-

Outside pressure sores means those acquired before the admission while inside pressure sores means those acquired post admission. There are special wound care nurses who look after pressure sore dressings and work jointly with plastic surgeon's team.
- ❖ Hypoglycemia – Random blood sugar level falling below 60 mg/dl has to be informed. It is called negligence if nurse doesn't inform doctor or fails to recheck the blood sugar.
- ❖ Needle stick injury.
- ❖ Health care associated infection is of four types:-

- ✓ CAUTI-Catheter Associated Urinary Tract Infection
 - ✓ CLABSI-Central Line associated Blood Stream Infection
 - ✓ SSI-Surgical Site Infection
- ❖ Phlebitis – It is defined as inflammation of vein which has different signs and symptoms like redness, swelling, pain and inflammation. A phlebitis checklist is maintained.

Flow of reporting as adverse event (e.g. fall)



20. CENTRAL STERILE SUPPLY DEPARTMENT (CSSD) :-

The objective of establishing a CSSD is to make reliably sterilized articles available at the required time and place for any agreed purpose in the hospital as economically as possible, having regard to the need to conserve the time of users.

The department is centralized for the hospital and situated in an area of 1500 sq. feet in basement 1 of east wing. The aim is to bring down microbial count from 10^6 to 10^{-6} which is the minimum acceptable sterility assurance level, to ensure sterilization.

Areas:-

- Receiving area and contamination area
- Instrument and gauze packaging area
- Sterile zone and sterile storage zone
- Separate room for linen
- Issue counter

List of equipments:-

- Ultrasonic cleaner – 1
- Washer Disinfectant – 5
- Plasma Sterilizer – 1
- Ethylene Oxide(ETO) – 1
- Automatic drier – 1
- Autoclave – 3
- Process challenging device – 1
- Water jet – 2
- Air jet – 2

21. HUMAN RESOURCE MANAGEMENT DEPARTMENT:-

The human resource management is a function which is held overall responsibility of implementing strategies and policies relating to the management of individuals (i.e. the human resource).

Functions:

- Development of HR strategies, policies
- Manpower planning
- Hiring, Promotions
- Salary Determination
- Performance appraisal
- Employee resignation
- Consultation and advisory services to management and employees
- Provide benefits – Health care insurance, disability insurance, retirement as per company, Leave policy, training opportunities and training plan.

22. SECURITY AND SAFETY:-

The security department is an eye and ear of every organization acting as a liaison between management and staff. The control room of security Department is located on Basement-1 of east block, Max hospital, saket.

Functions of security Department :- The security department performs four main functions as discussed below.

❖ Security management:-

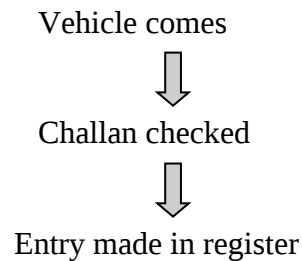
- Selection of people (guards and supervisors)
- Deploying of security staff to different floors and departments
- Checking of people entering hospital
- Turnout and grooming of security staff
- Training of security staff

- MLC handling
- Dispute handling

❖ Material management:-

It includes management of both incoming and outgoing materials.

- Flow for incoming materials :- The incoming materials are received either from a company or a contractor to Max. The process flow is as under:-



- Flow for outgoing materials:-

Two types of gate pass are issued which are:-

- Returnable gate pass (RGP) issued when something sent for repair/modification and has to come back to Max. Is of two types- company RGP and contractor RGP
- Non-returnable gate pass (NRGP) issued when material sold as scrap and doesn't come back to organization. Is of two types- company NRGP and contractor NRGP.

❖ Disaster management:-

- There are six emergency codes:-
 - Red – Fire
 - Black – Bomb threat
 - Blue – Cardiac arrest
 - Yellow – External disaster like earthquake
 - Violet – Violent patient
 - Pink – Missing patient

The SOP's and disaster management plans are prepared by the security department. Fire management system includes smoke detectors, sprinklers fitted on ceiling and fire shafts in all corridors.

Walkies talkies are an important source of communication.

Other disasters include floods, water logging, terrorist attacks.

❖ Valet management:-

- Helps to optimally utilize the parking space.
- Within a time frame of maximum 7 minutes, vehicle is handed over to customer when asked for in porch.



**A Time Motion study on clinical pathway of the patients
in Emergency Department, Max Super Speciality
Hospital, Saket**

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6.1 Patients sent to OPD

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INTRODUCTION

1.0 Emergency Department

The Emergency Department is the crucial interface between the emergency medical services and the hospital.¹

An Emergency Medical Service (EMS) can be defined as "a comprehensive system which provides the arrangements of personnel, facilities and equipment for the effective, coordinated and timely delivery of health and safety services to victims of sudden illness or injury." ²

As reflected in the year-on-year increase in the patient numbers, emergency departments are increasingly being selected as the route of primary access to the healthcare system.¹

1.1 Types of care provided in Emergency Department

Emergency department provides three types of care to the patients:

- **Emergency Care** - Emergency care is the primary and original mission of the Emergency Department. It is concerned with the seriously ill or injured patients who require immediate stabilizing treatment.
- **Unscheduled urgent care** – It is used to treat an acute problem or the acute exacerbation of a chronic health problem. Its importance is felt because there is inadequate capacity in other parts of the health care system.
- **Safety net care** – It is the care provided to the vulnerable populations who experience barriers that prevent them from accessing care from other parts of the health care system.³

1.2 Role of Emergency Department

- Emergency Department plays an important public health role during emergencies by providing access to immediate care during sudden cases of injury or any kind of illness.

- All the patients in the emergency department should be assessed and triaged by a qualified and experienced medical and paramedical staff and should provide appropriate level of care to the patients.
- Emergency Department provides 24 × 7 healthcare services to the patients.
- Emergency Department is considered as a gateway for inpatients admissions.⁴

2.0 Purpose

To ensure patients coming to emergency are properly triaged and undergo an immediate and effective treatment care in a timely manner.

3.0 Aim

A Time Motion study on clinical pathway of the patients in emergency department.

4.0 Objective

- To study the clinical pathway of patients in emergency department and delay in procedure if any.
- To identify the root cause of the delay in the process and the service delivery system.
- To analyze the collected information and suggest recommendations for the same.
- To determine the no of cases failing out of the standard turnaround time.

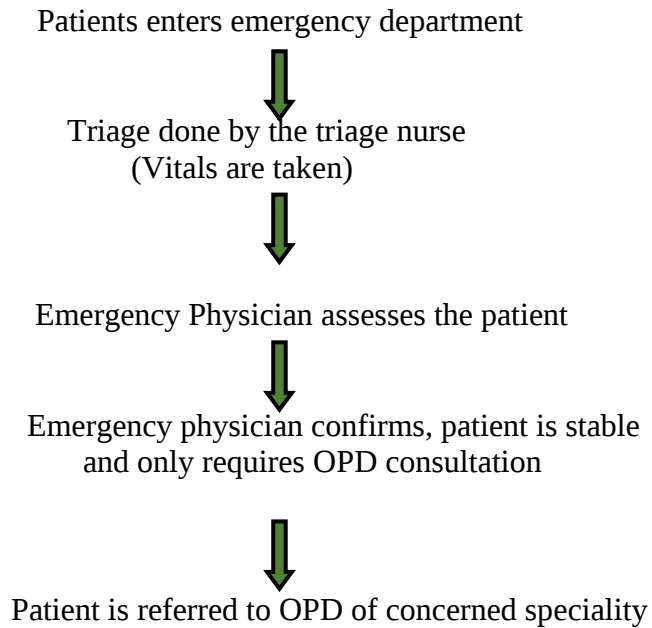
5.0 Rationale of the study

Accident and Emergency services are the vital component of the hospital services because injury is always unexpected and unplanned and if not treated urgently can result in damage, deformity and death. The patients entering an emergency department can be saved only if they arrive at the right time, at the right place, receives the right treatment and right resources. This study is being conducted to see whether the patients who are in actual need of the emergency care are getting treated properly on time or not. If not then one should streamline the process so that we can made services available to them without any delay.

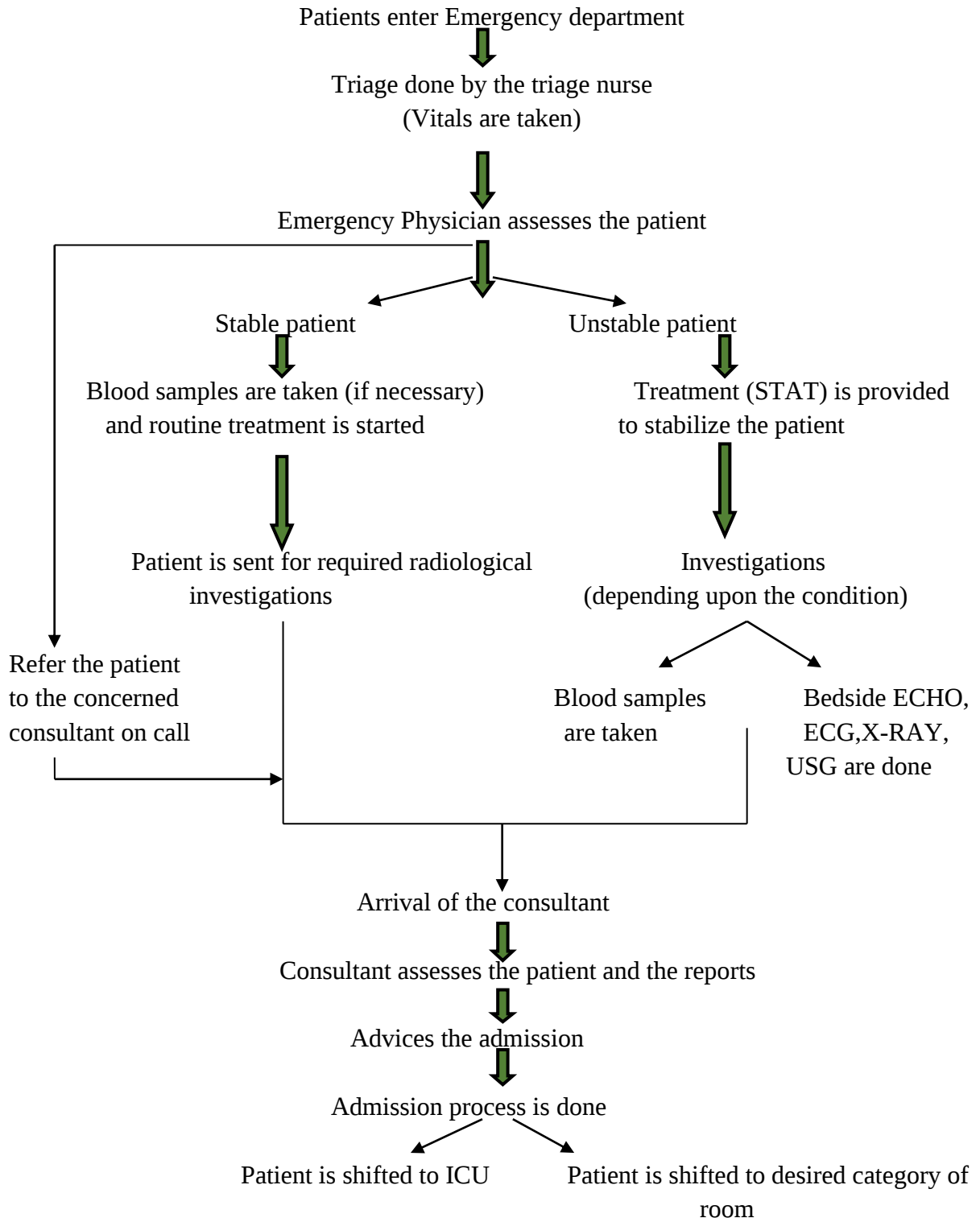
6.0 PROCESS FLOW:-

Clinical pathway of patients in Emergency Department

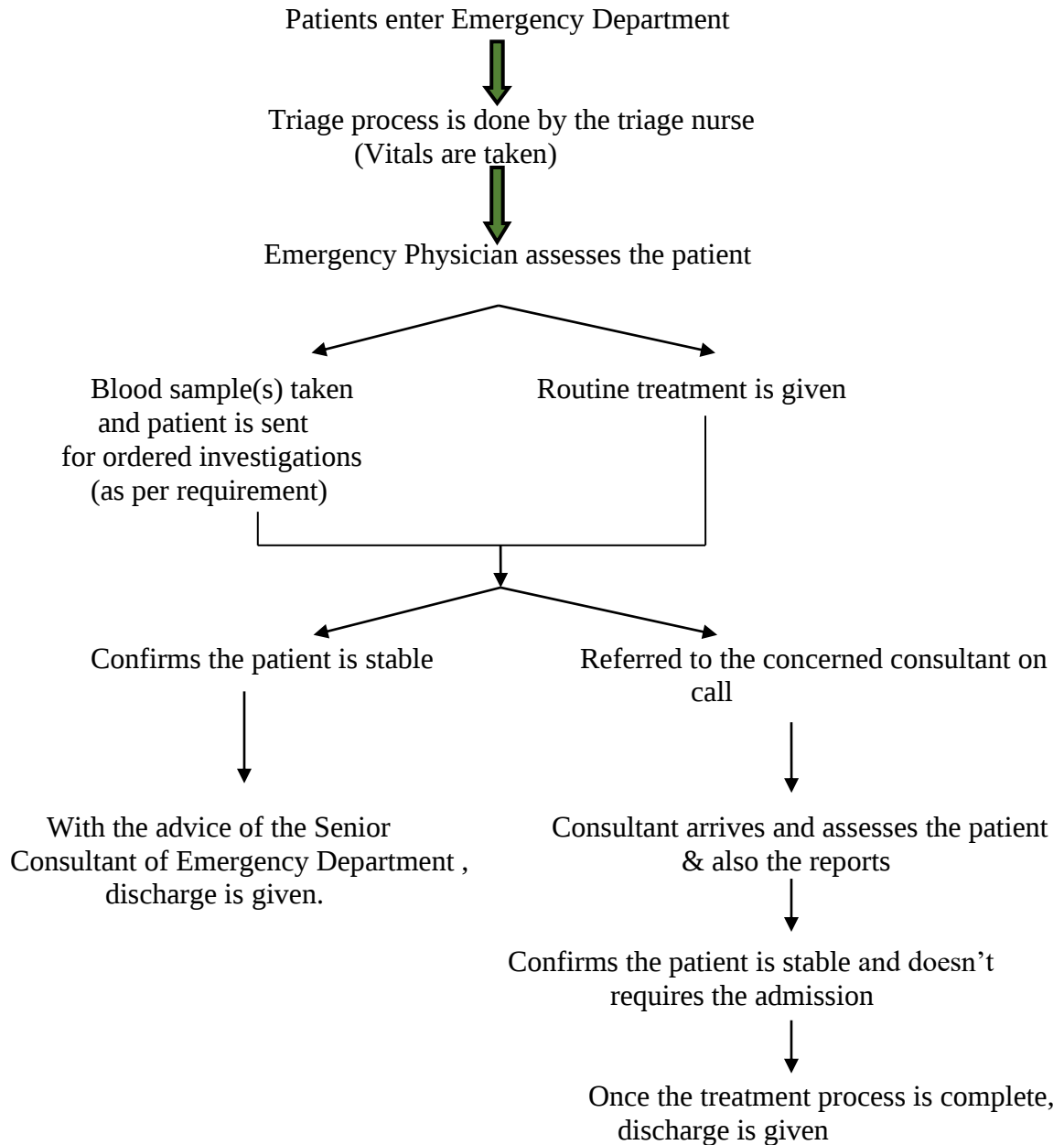
6.1 OPD :-

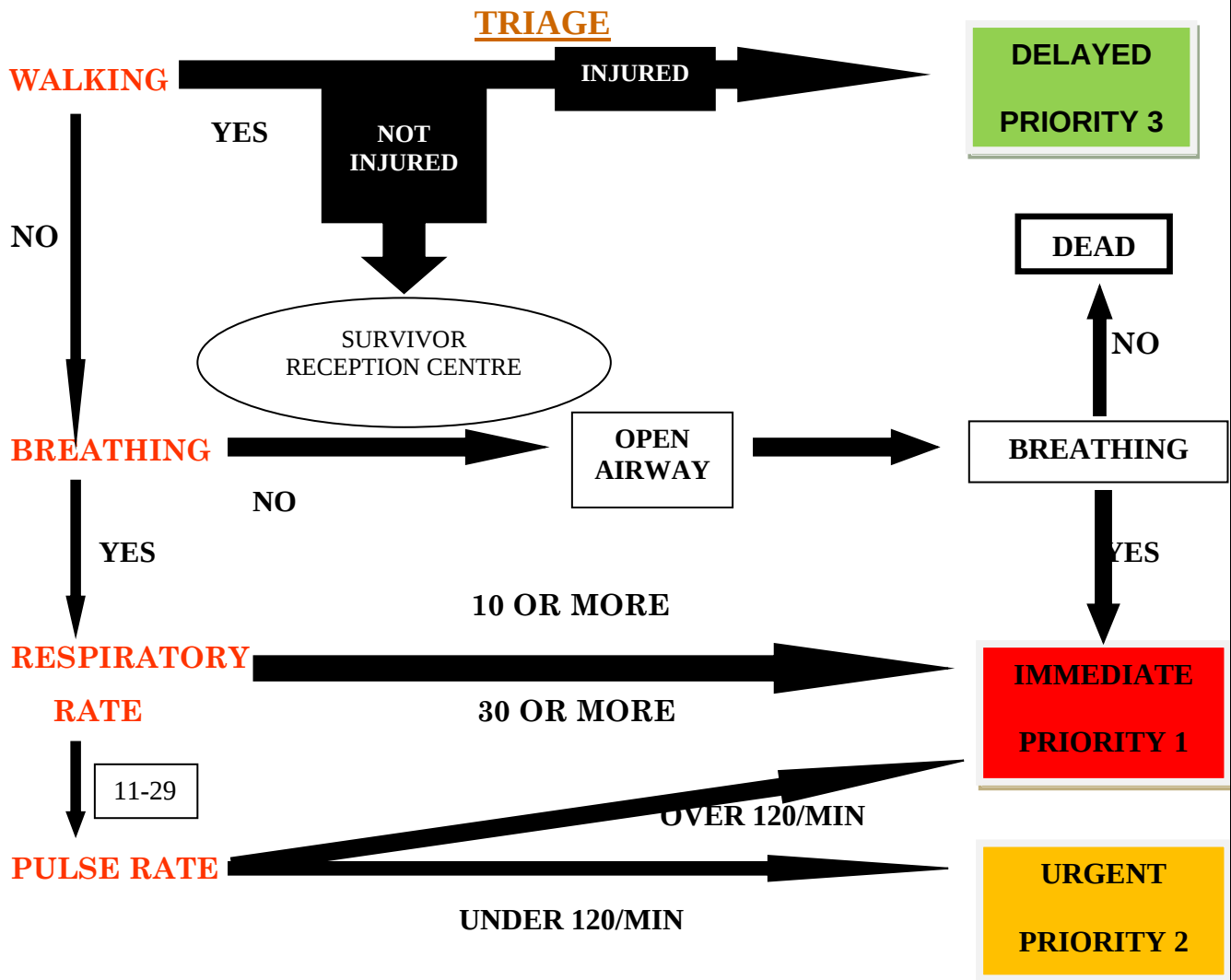


6.2 ADMISSION:-



6.3 DISCHARGE:-





7.0 ROUTINE TRIAGE POLICY OF HOSPITAL

PRIORITY	CRITERIA	TIMELINE
1.	1. Any compromise in airway breathing and circulation. 2. In case of cardiac arrest. 3. Unconscious patients. 4. Patients with chest pain. 5. Patients with acute stroke. 6. Paediatric patients (age<18 years).	IMMEDIATE
2.	1. Patients with compromised airway, breathing and circulation. 2. Patients with acute pain due to any reason. 3. Patients who require diagnosis of potential threat.	10 MINUTES
3.	1. Patients who do not have compromised airway, breathing and circulation. 2. Ambulatory patients who require outpatient treatment for minor illness.	20 MINUTES

8.0 REVIEW OF LITERATURE

- Study conducted by Azzopardi et al(2011) at the accident and emergency department at Mater Dei Hospital, Malta, with the objectives to determine whether waiting times are prolonged, and if prolonged, at which station(s) bottlenecks occur most often in terms of duration. The study was conducted from 25th august 2008 to 1st September 2008. The key data recorded in the study included patient characteristics, waiting times at various emergency department process stages like time of arrival, triage time, check-up done by emergency physician, various investigations performed, specialist consultations and follow up until admitted, discharged, or referred to another hospital area. A sample of 1779 patients was collected. Priorities were assigned accordingly out of which:-21% to priority 1(immediate attention required), 21% to priority 2(within 10 minutes) ,priority 3(within 20 minutes). All data collected was split up by time of arrival into four time groups: 0200-0800, 0800-1400, 1400 2000, 2000-0200. The median waiting time for all patients was 92 minutes and the median length of stay from registration to admittance/discharge was 208 minutes. Results showed the percentage failure rate of patients to be admitted/discharged and leave the emergency department after 4 hours, which is the stated target in the UK guidelines:- 30.3% of priority 1 patients, 86.3% of priority 2 patients and 76.8% of priority 3 patients. The conclusion of the study was that there was no delay for the patients in the triage area and in the initial check-up by the emergency physician, there was a significant waiting time of approximately 1 hour for the patients to be taken for radiological investigations (XRAY, CT scan, MRI) and for the arrival of the consulting doctor for the referred cases, delays in getting transferred to the desired ward due to non-availability of beds.⁵
- Emergency department crowding in the United States has become so severe that the Institute of Medicine calls it a “national epidemic.” Patients who do arrive in the emergency department have faced increasingly long average wait times and emergency department visit lengths over the past decade Horwitz et al (February 2010), with the purpose to describe hospital level performance on emergency

department wait time and visit length. A retrospective cross-sectional study including a sample of 35,849 patients. Various parameters included were- emergency department's median proportion of patients seen by a physician within the time recommended at triage, and emergency department's median proportion of patients dispositioned within 4 or 6 hours. Results were divided into two categories:-

- 1) **Hospital wait time performance:** - 82.7% of the variation in wait time was due to within-hospital (patient-level) variation.
- 2) **Hospital length of visit performance:** - The median emergency department length of visit was 4.3 hours for admitted patients and 2.3 hours for discharged patients.

It was found that hospital emergency departments perform fairly poorly in keeping emergency department visits for admitted patients within 4 or 6 hours. Numerous studies have shown improved wait time or length of visit after improvements in emergency department throughout, including changes in triage, registration, work assignment, laboratory testing, staffing, physical plan. Perhaps most important is “output”: the availability of inpatient beds into which to move patients. To achieve improvements in their performance, hospitals would have to focus attention on a wide range of institutional practices involving triage, registration, patient flow, physical environment, laboratory testing, admission processes and policies, workload assignment, staffing and others.

Because these measures are correlated with patient outcomes such as leaving before being seen, satisfaction, receipt of recommended care, adverse events and in-hospital length of stay, improving performance in wait time and visit length could have a large impact on quality of care for all patients seen in the Emergency Department.⁶

- The National Medical Journal of India in 2001 stated that India being the second most populous country with a population of 1.2 billion, the rate of various infectious and non-communicable lifestyle oriented diseases are rapidly increasing. Even increasing urbanization has also lead to an increase in road traffic accidents and traumatic injuries. The creation of emergency department (ED) and the availability of trained emergency physicians (EPs) have been a benevolence factor to such menace .In EDs,

care by trained EPs is critical to the outcome of such patients. Triage sorting of patients and allocation of treatment according to the priorities which are defined to maximize the number of survivors, is an important concept in the initial assessment of acutely ill patients. The goal is to place a patient at the right level of care at the right time. A physician trained in various life support measures such as advanced cardiac life support (ACLS), advanced trauma life support (ATLS) and paediatric advanced life support (PALS) increases the level of care provided to an acutely ill patient.⁹

- Emergency department overcrowding is a common problem. Despite a widespread belief that low hospital bed availability contributes to emergency department overcrowding Forster et al (February 2003). The objectives of the study were: To identify the effect of hospital occupancy on emergency department length of stay for admitted patients and patient disposition. This was an observational study design, patients presenting to the emergency department between April 1993 and June 1999 were included in the study. Outcome measures included daily emergency department length of stay for admitted patients, daily consultation rate, and daily admission rate. Results showed that the average hospital occupancy was 89.7%.

On average 155 patients visited the emergency department daily; 21% were referred to hospital physicians and 19% were admitted. The median emergency department length of stay for admitted patients was 5 hours 54 minutes. Daily emergency department length of stay for admitted patients increased 18 minutes when there was an absolute increase in occupancy of 10%. The emergency department length of stay appeared to increase extensively when hospital occupancy exceeded a threshold of 90%. Consultation and admission rates were not influenced by hospital occupancy. Conclusions: Increased hospital occupancy is strongly associated with emergency department length of stay for admitted patients. Increasing hospital bed availability might reduce emergency department overcrowding.⁷

- A study was conducted with the objective to determine the interaction and waiting times of patients in Barbados Queen Elizabeth Hospital Accident and Emergency

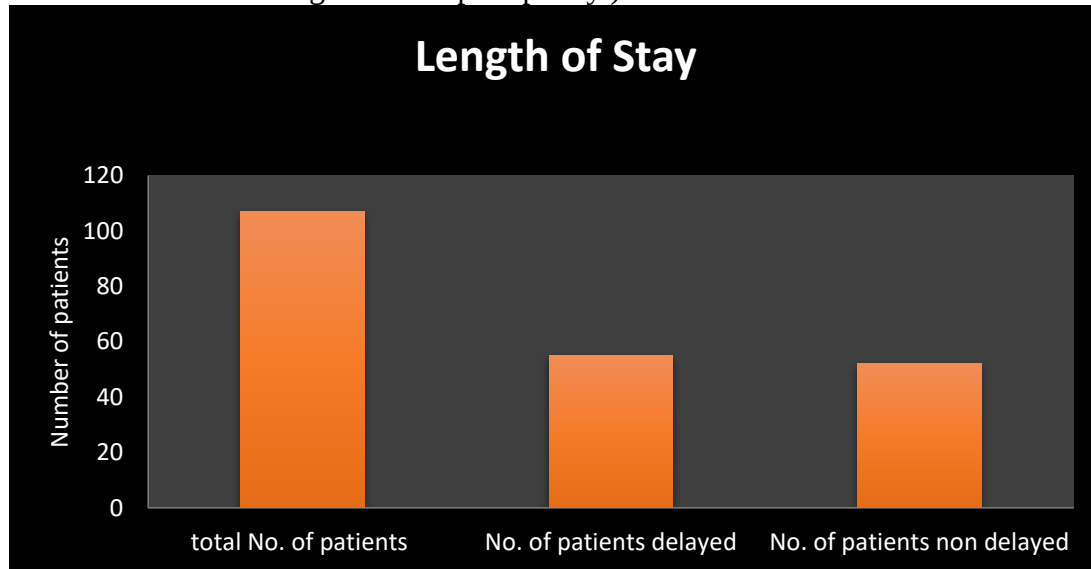
Department (A&E), identify their determinants, and compare them to international benchmarks. The interaction time at each station and the wait time between each station was determined and the following variables were calculated: length of stay (LOS)—time from arrival to final disposition: discharged, admitted, or left without treatment (LWT) (defined as leaving before being brought into a cubicle); total interaction time (the time the patient was under care and treatment); total waiting time; for patients who were referred, waiting time between referral and being seen by specialist. During the patient care process at A&E, the average patient waited for long periods of time for each interaction but, the actual interaction times were short. Of the total median LOS of 302 minutes, 13 minutes (4.3%) was interaction time and the rest was waiting time. The only area where accident and emergency department performs better is in the registration process, which takes 1–2 minutes, the mean laboratory turnaround time in the accident and emergency of 236 minutes is far above the benchmark recommendation of 30 minutes and the typical laboratory turnaround time in the US of 60 minutes. Attention to reducing the turnaround time would significantly improve overall accident and emergency department length of stay. A large variation in the waiting time after discharge was noted in this study and some were very long. Because the emergency physician performs all discharge formalities, including discharge instructions, letters, and prescriptions, the discharged patient requiring this paperwork must wait until the emergency physician is free to do it, contributing to congestion and increasing the length of stay. The main contributors to this longer length of stay include waiting for specialist review, laboratory results, inpatient beds, or waiting after discharge. This study has shown that accident and emergency department is not meeting recommended benchmarks for timeliness in emergency department's or even the timeliness of US hospitals where studies have been done. A major portion of the patients' stay in accident and emergency department was due to the waiting times at various stages, particularly waiting for laboratory results, waiting to reach a cubicle, waiting in the cubicle to see the consulting doctor, and waiting in accident and emergency trolley after admission. All these waiting times have to be improved considerably to enhance the services provided by accident and emergency department.⁸

9.0 Research Methodology

- **Study Design** - Descriptive study.
- **Study Area** - Emergency Department, Max Super Speciality Hospital, Saket, New Delhi.
- **Study Duration** - 3rd April,2015 to 2nd May,2015
- **Study Subjects** – Patients coming to emergency department.
- **Sample Size** – A sample of 107 patients were selected from emergency department.
- **Sampling Technique** – Convenient sampling
- **Study time** – 9am to 6pm
- **Inclusion Criteria** – Patients who have come to emergency department and have been admitted or discharged through emergency.
- **Exclusion Criteria** – Patients who have been referred to outpatient department(OPD) through emergency department.
- **Data Collection Method** –
 - **Primary Data**- by observation of patients
 - **Secondary Data**- review of records

10.0 Data Analysis and Interpretation

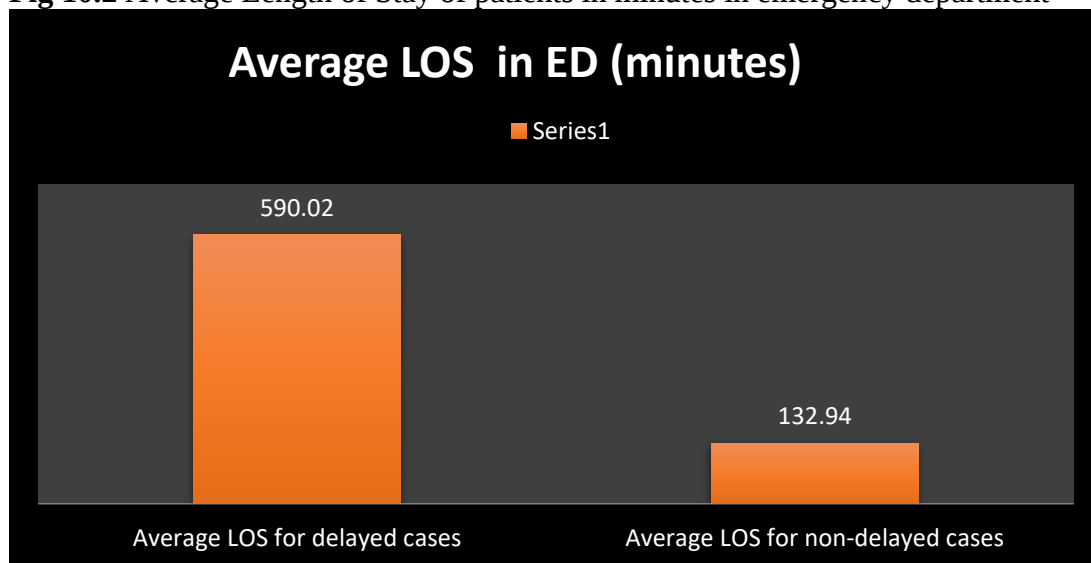
Fig 10.1 Patient's Length of stay (LOS) in Emergency Department (Std. LOS=240min i.e 4 hours according to the hospital policy.)



Inference:-

Out of 107 patients, 55 patients (51.41%) were having longer length of stay i.e more than 240 minutes.

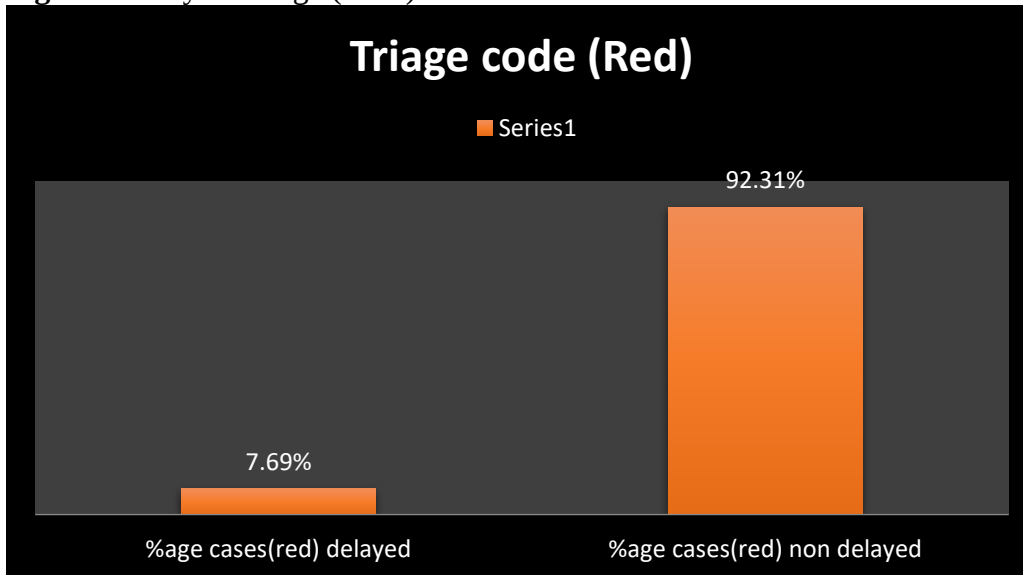
Fig 10.2 Average Length of Stay of patients in minutes in emergency department



Inference:-

Average Length of stay for the delayed cases was approximately 590 minutes whereas for the non delayed cases it was approximately 133. minutes.

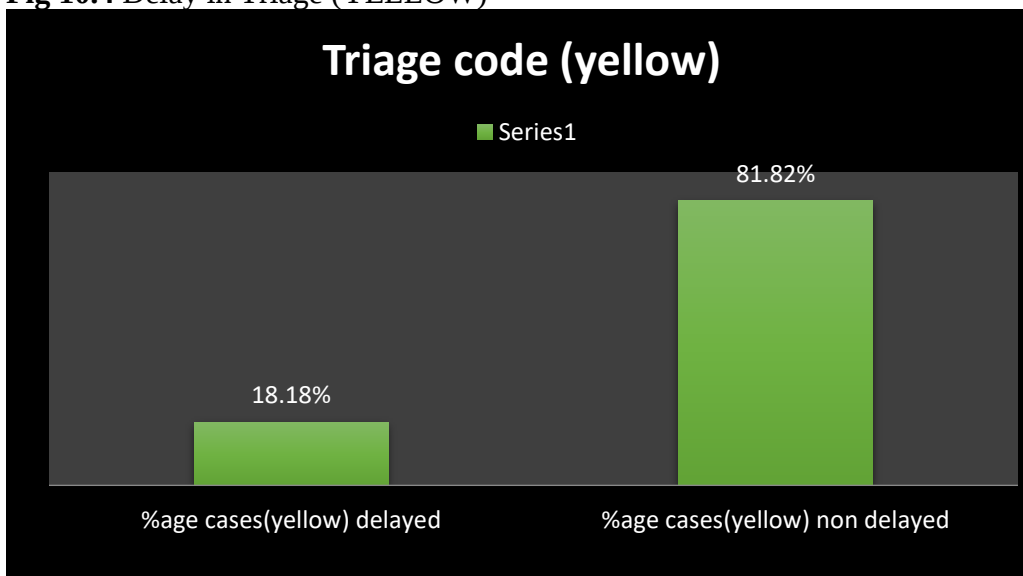
Fig 10.3 Delay in Triage (RED)



Inferences:-

The above graph shows that out of total cases only 7.69% of the cases had delay in triage process(red).

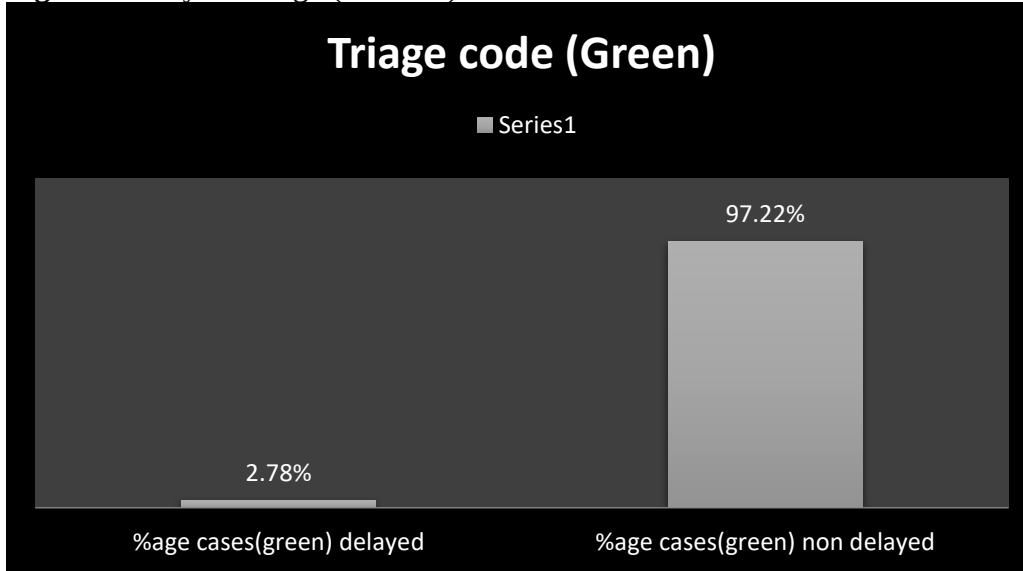
Fig 10.4 Delay in Triage (YELLOW)



Inference:-

The above graph shows that only 18% of the cases have delay in triage process of yellow category.

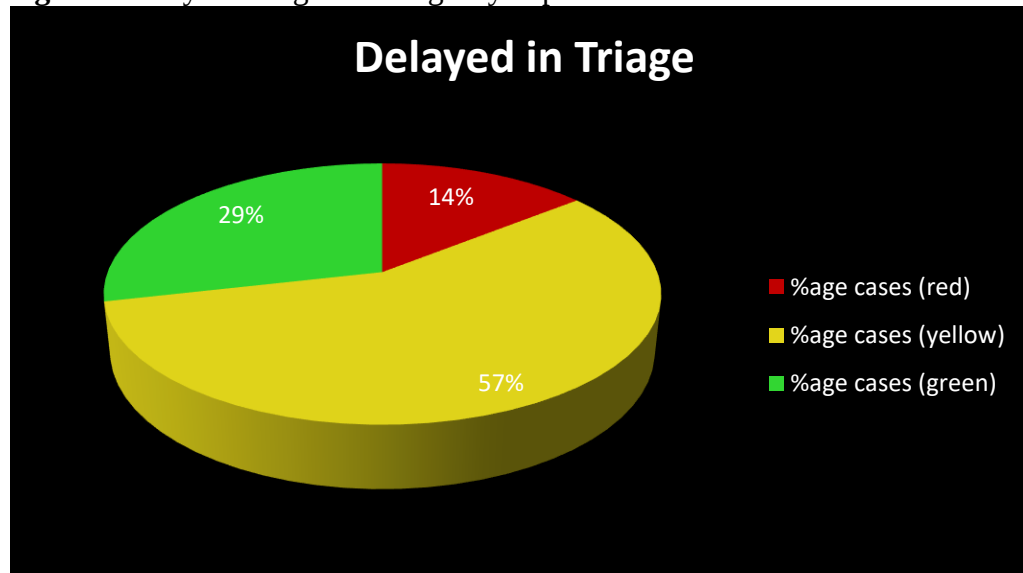
Fig 10.5 Delay in Triage (GREEN)



Inference:-

The above graph shows that only 3%(approximately) cases had delay in the triage process (green) in emergency department.

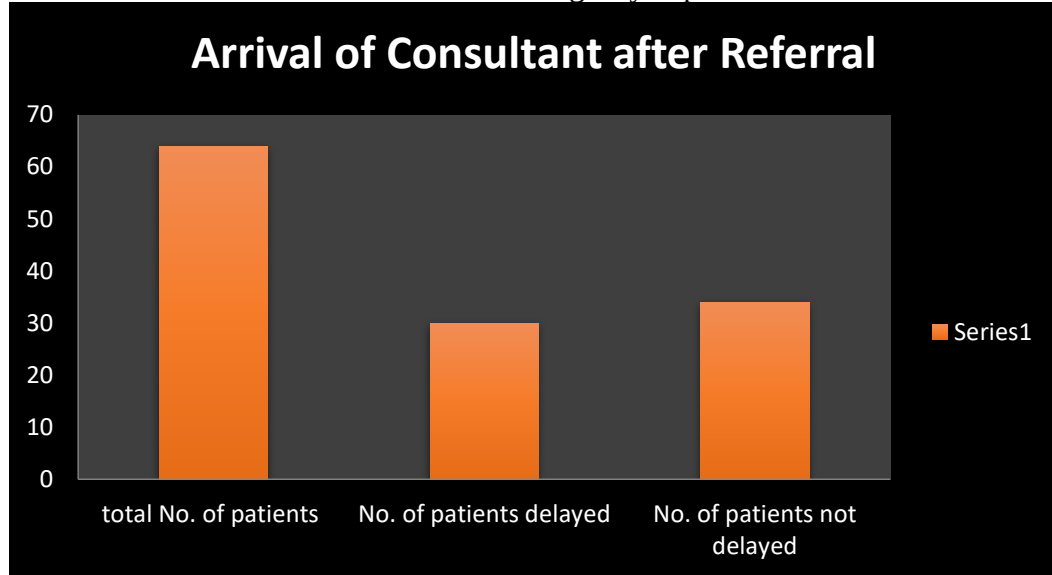
Fig 10.6 Delay in Triage in emergency department



Inference:-

Out of 107 patients, maximum delay in triage was found in yellow category (57%) followed by green (29%) and red (14%).

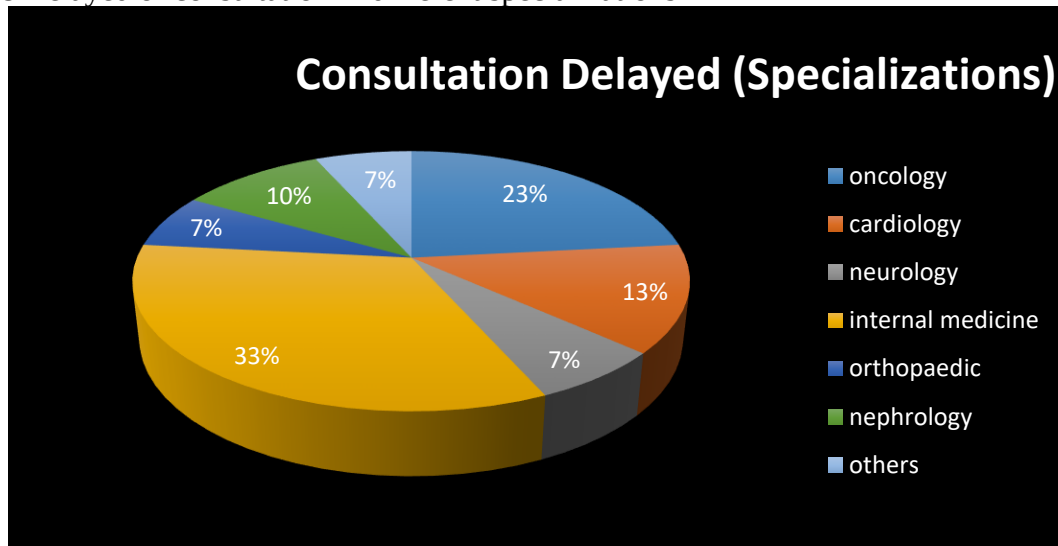
Fig 10.7 Arrival of consultant after referral in emergency department



Inference:-

Out of 64 patients who were referred for consultation, 30 patients were delayed due to late arrival of the consultant.

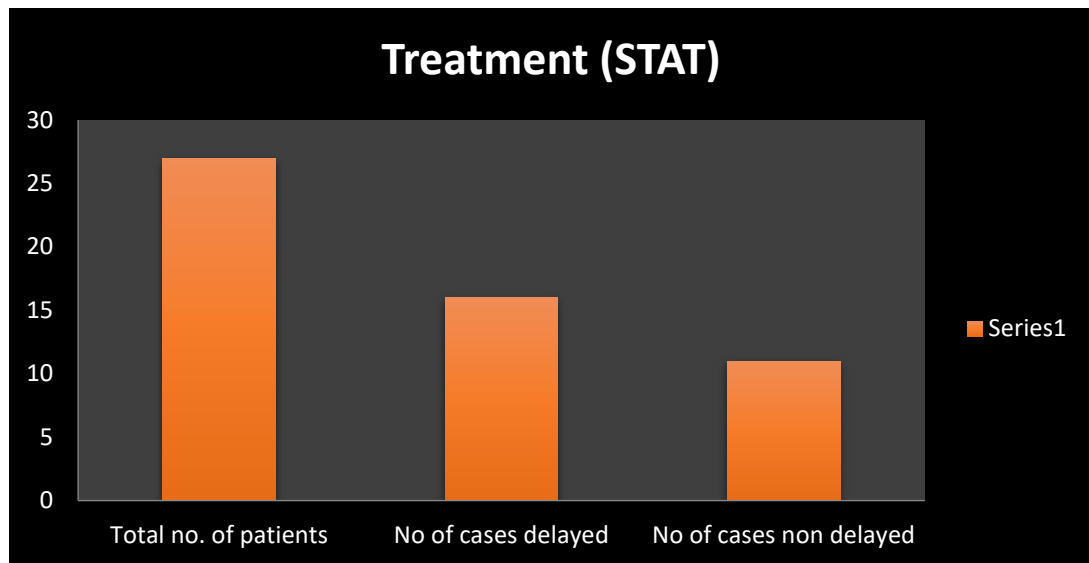
Fig 10.8 Delayed of consultation in different specializations



Inference:-

A maximum delay in arrival of the consultant was seen in the internal medicine with 33%, followed by oncology (23%) and cardiology(13%).

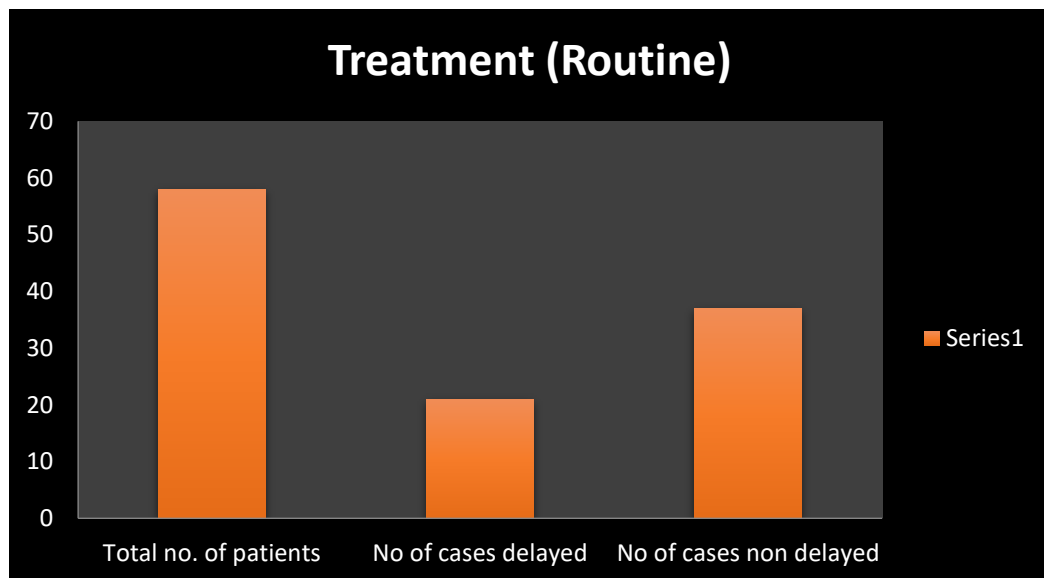
Fig 10.9 Treatment (within 15minutes)



Inference:-

Out of 27 patients for treatment (STAT), 59% of the cases were delayed due to non-availability of the drugs.

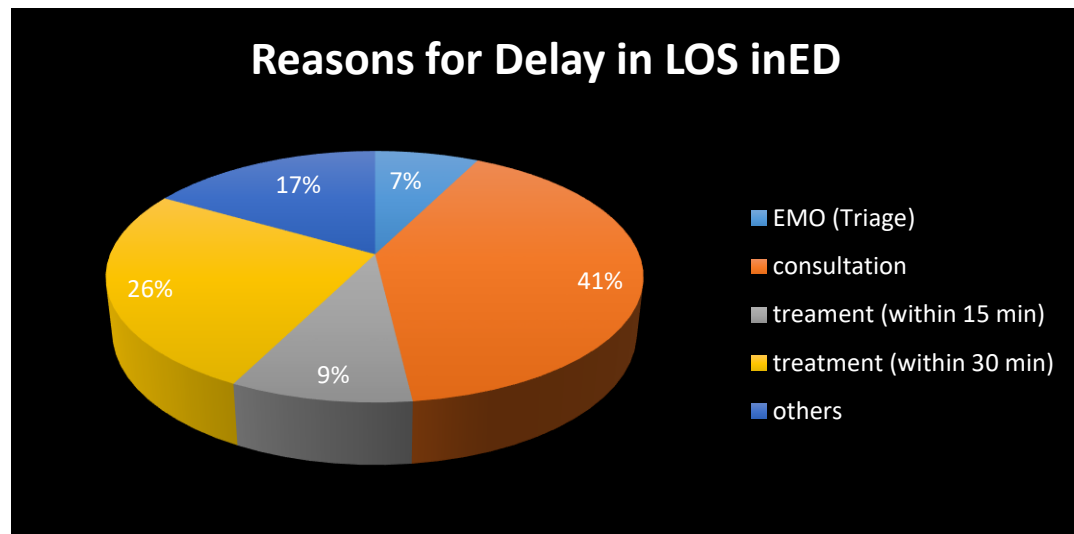
Fig 10.10 Treatment (routine) within 15 minutes



Inference:-

Out of 58 patients, only 36% of the cases were delayed for the routine treatment in emergency department.

Fig 10.



Inference:-

The major reason for delay in length of stay of the patients in emergency department was due to the late arrival of the consultant followed by delay in routine treatment .

11.0 INTERPRETATION:-

Emergency services are said to be the face of any hospital setup. The reputation of a hospital often depends upon the quality and promptness of its emergency medical services. The aim of this study is to analyze the clinical pathway of the patients in emergency department and delay in procedure if any. 107 patients were taken as sample subjects. Out of these 107 patients, it was found out that 55 cases had longer length of stay in emergency with an average of 590 minutes. Ideally, the standard length of stay in emergency should be of maximum 240 minutes. The major reasons for such longer stay in emergency department were delay in arrival of consultants of various specialties mainly internal medicine followed by oncology and cardiology, time taken in routine treatment process and delay in shifting the patients to wards or ICU.

The Triage process in emergency department is considered to be of utmost importance. One of the result of this study also showed that maximum delay is taking place in triage process of yellow category followed by green. The triage process of red being least concern of delay.

12.0 FINDINGS:-

1. Triage area is too small to handle 3-4 emergencies simultaneously.
2. Delay in arrival of consultants of various specialties like internal medicine, oncology etc.
3. A delay in stat and routine treatment process in emergency department was seen.
4. Delay in shifting of patients to wards mainly due to non- availability of beds and lack of co-ordination between supporting staff.
5. No follow up of the pending work is done by the staff.
6. Miscommunication between staff members related to emergency department.

13.0 Ethical Considerations:-

- Patient confidentiality and privacy was maintained throughout the study.
- Prior to collection of data an informal consent was taken.

14.0 Recommendations:-

1. Separate area should be given for triaging to accommodate more patient's trolleys at a time.
2. A white board should be maintained where status of the patients can be updated regularly in emergency department.
3. Extra stock of medicines should be maintained for urgent conditions to minimize the delay in the treatment process.
4. In emergency department, not more than 1 attendant should be allowed in order to avoid traffic in the passage.
5. Proper sign boards should be displayed from the main entrance for emergency department.
6. Parking of vehicles should not be allowed outside the emergency area in order to avoid the blockage of passage.
7. Since the staff in emergency department is under constant stress, meditation session should be conducted once a week to improve their productivity.

15.0 References:-

1. Christ M et al. Modern Triage in the emergency department. *Deutsches Arzteblatt International*. 2010; 107(50), 892-898.
2. Al-shaqsi S. Models of International Emergency Medicine Service (EMS) systems. *Oman Medical Journal*. 2010; 25(4): 320-323.
3. Heisler E.J et al. Hospital – based emergency department: background and policy considerations. *Congressional research service*. 2014; 1-40.
4. Quality Assurance Division, Haryana State Health Resource Centre, Government of Haryana. Guidelines for Accident and Emergency Department of District Hospital.
5. Azzopardi M, Cauchi M, Cutajar K, Ellul R, Azzopardi CM, Grech V. A time and motion study of patients presenting at the accident and emergency department at Mater Dei Hospital 2011, 4:42 ,(Internet:- <http://www.biomedcentral.com/1756-0500/4/421>)
6. Sørup et al Evaluation of emergency department-a systemic review on performance and quality-in-care measures *Scandinavian Journal of Trauma, Resuscitation and Emergency Medicine* 2013, 21:62, (internet:- <http://www.sjtrem.com/content/21/1/62>).
7. Forster A, Stiell I, Wells G, Lee A.J., Walraven CV, The Effect of Hospital Occupancy on Emergency Department Length of Stay and Patient Disposition, *ACAD EMERG MED* d February 2003, Vol. 10, No. 2, (Internet:- www.aemj.org).
8. Banerjea K, Carter AO, Waiting and interaction times for patients in a developing country accident and emergency department *Emerg Med J* 2006;23:286–290.
9. *The National Medical Journal of India*: Vol. 14; No.5; 2001.
10. Garg RH. Who killed Rambhor?: The state of emergency medical services in India. 2012 ; *Journal of Emergencies Trauma and Shock*; 5(1): 49–54.
11. Rand Corporation. The evolving roles of emergency departments. 2013. (Internet:- www.rand.org)
12. Tashkandy MA et al. Reasons for delay in inpatient admission at an emergency department. 2008 ; 20(1).
13. Eatock J et al. Meeting the four-hour deadline in an A&E department. 2009 ; 2(4).



A study to analyze the response of the patients and their relatives in relation to the healthcare services of emergency department in a tertiary care hospital.

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1.0 INTRODUCTION

In today's time the core principle "quality will not just be restricted to clinical aspects of care, but include ... the entire patient experience". There is great concern regarding the rise in occupational violence in the emergency department.

Patient satisfaction "is to provide patient-centered care creating a culture that accepts people for, who they are and where, they are in life cycle, by meeting their needs at that point, with the health systems mission to care for the body, mind and spirit of the patients."

When patient's needs or perceived wants are not met, verbal abuse and violent outbursts can occur. These actions are directed toward those individuals in the immediate area.

Several recent publications have cited nine primary expectations of health care consumers:

- Provision of information, including keeping the family informed
- Accessibility to a wide variety of services
- Good discharge planning
- A caring and compassionate approach
- Provision of adequate time to be heard
- Quality and timely care
- Involvement in decision making
- Respect for privacy
- Adequate pain management.

All hospital presentations, including presentations to ED, are emotionally stressful and consumer's characteristics such as anxiety, fear and hopelessness can be exacerbated by the unfamiliar and seemingly chaotic hospital environment. Further, the diagnosis, prognosis, treatment and health outcome of the hospitalization can contribute to intense feelings of frustration, loss of control and grief. Understanding the risk factors and precipitators of violence within Emergency Departments is an important step in minimizing its occurrence.

Reasons for Patients Aggressiveness:-

- Delays due to billing procedure
- Delaying in shifting to ICU
- Delays from nursing staff
- Doctor's behavior was not good
- Shortage of General duty assistants (GDA)
- Delay in discharge process
- Shortage of housekeeping staff
- Delay in admission
- Delaying in calling consultant
- Accessory facilities like food was not served on time
- Delay in getting investigations done

Various principles of patient satisfaction can be categorized as under :-

- **Quality of care**
- **Managing anxiety, fear and pain :-** Patients are highly anxious, so in order to create an exceptional patient experience, we need to focus on preventing or lessening the anxiety of patients and families.
- **Better communication**
- **Personal attention**
- **Staff accountability**

2.0 AIM:-

A study to analyze the response of the patients and their relatives in relation to the healthcare services of emergency department in a tertiary care hospital.

3.0 OBJECTIVES:-

- 3.1 To analyze the level of satisfaction among the patients and their relatives in emergency department.
- 3.2 To find out the root causes of the lack of satisfaction amongst the patients and their relatives .
- 3.3 To analyze the responses of the patients and their relatives when they are dissatisfied.

4.0 RATIONALE OF THE STUDY:-

- Around the world, the Emergency department has been identified as an area within the health care sector with the highest reports of violence. Anyone who is confronted with stress can become violent. Early stress behaviors such as rapid speech, increased speaking volume, boasting of prior violence or frequent alteration of body position can be clues that the individual is very agitated. The need of the study is to identify the concerned areas of dissatisfaction which leads to such behavior pattern, so that some measures can be taken for improvement.

5.0 LITERATURE REVIEW:-

- Anger encounters between patients (and/or their escorts) and the medical staff is vastly prevalent in emergency departments. Almost every day medical staff members need to cope with anger directed towards them by the same people for whom they are expected to provide treatment and care. Arik et al in 2012 in a study on “Encountering Anger in the Emergency Department: Identification, Evaluations and Responses of Staff Members to Anger Displays” concluded that (1)Permanent guidelines should be built in to the hospital policies to deal with anger incidents in the ED.(2)The staff recognizes anger at varying levels and responds accordingly.(3)The level of danger staff

feels after encountering anger is a catalyst in the staff's response of giving in or calling security when they encounter anger.(4) Calling security is influenced by fear, frustration, and anger. Limiting this response would depend on attending to the staff needs for security and a legitimate way to voice anger and frustration.

- A cross-sectional study done by Soleimanpour et al in 2011 on "Emergency department patient satisfaction survey in Imam Reza hospital , Tabriz , Iran" stated that in order to provide optimal ED services and win patient's satisfaction, research-based interventions are needed in areas such as clinical care processes, nursing services, staff behavior and treatment of patients, physical environment and waiting time. To make these improvements, institutionalizing quality management in health services is a must, and using its feedback in a systematic way can enhance efficiency and patient satisfaction with the ED. Five hundred patients were taken as sample size using quota sampling. The satisfaction questionnaire of the Press Ganey Institute was used with little modification done in it. The questionnaires were given to the patients after they agreed to complete them. Findings indicated that 34.9% of the clients showed very high general satisfaction with regard to ED performance. Further analysis of the data showed that 13.5% had low satisfaction. In total, 86.5% of the clients rated their satisfaction as above average.
- In a cross-sectional study done by Moghadam et al in 2014, it was found out that physicians and nurses actions as well as the entire method of reception and discharge process are the major affecting factors which determines the satisfaction level among emergency patients. The total sample size of 100 patients in emergency department were selected based on the simple random sampling method. The study also showed other five factors, important in

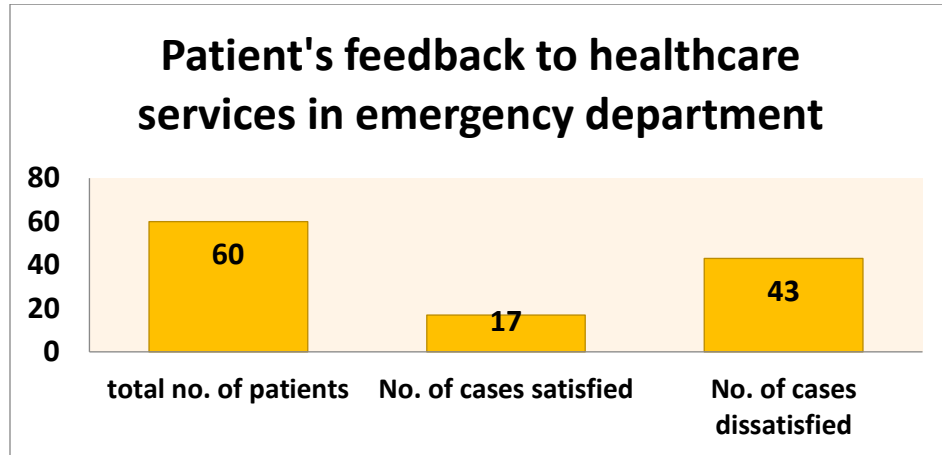
determining the patient satisfaction level which were:- (i) doctor competency; (ii) provision of information; (iii) quality of care; (iv) waiting time; and (v) hospital. Therefore, to improve the patient satisfaction, one should pay attention in improving the qualities of these factors.

6.0 RESEARCH METHODOLOGY:-

- **Study Design** - Descriptive study.
- **Study Area** - Emergency Department, Max Super Speciality Hospital, Saket, New Delhi.
- **Study Duration** – 18th May, 2015 to 25th May, 2015
- **Study Subjects** – Patients coming to emergency department.
- **Sample Size** – A sample of 60 subjects was selected from emergency department.
- **Sampling Technique** – Convenient sampling
- **Study time** – 9am to 6pm
- **Inclusion Criteria** – Patients and their relatives who had come to emergency department and were referred for admission.
- **Exclusion Criteria** –
 - Patients who were referred to OPD through emergency department.
 - Psychiatric patients and their relatives.
- **Data Collection Method** –
 - **Primary Data-**
 - Data was collected through the questionnaires filled by the patients and their relatives.
 - The collection of data was based on the observation of the responses shown by the patients and their relatives in relation to the healthcare services provided to the patients in emergency department.

7.0 DATA ANALYSIS & INTERPRETATION:-

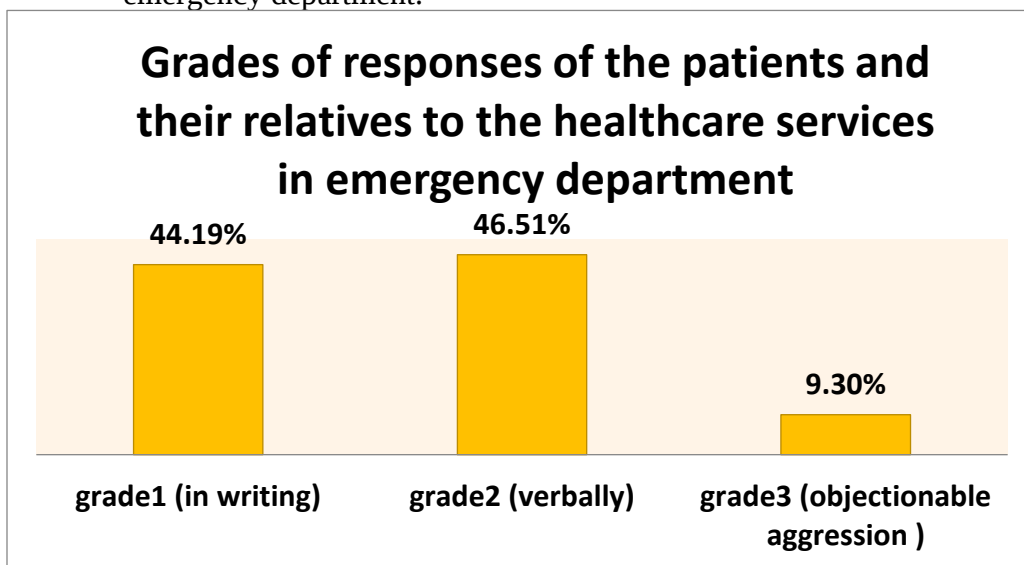
Fig 7.1 Patient's feedback to healthcare services in Emergency Department(ED)



Interpretation:-

The above graph shows that out of 60 patients, 43 cases were dissatisfied by the emergency healthcare services. The major reasons for such dissatisfaction were ignorance in emergency reception area, non-availability of the beds and delay in the

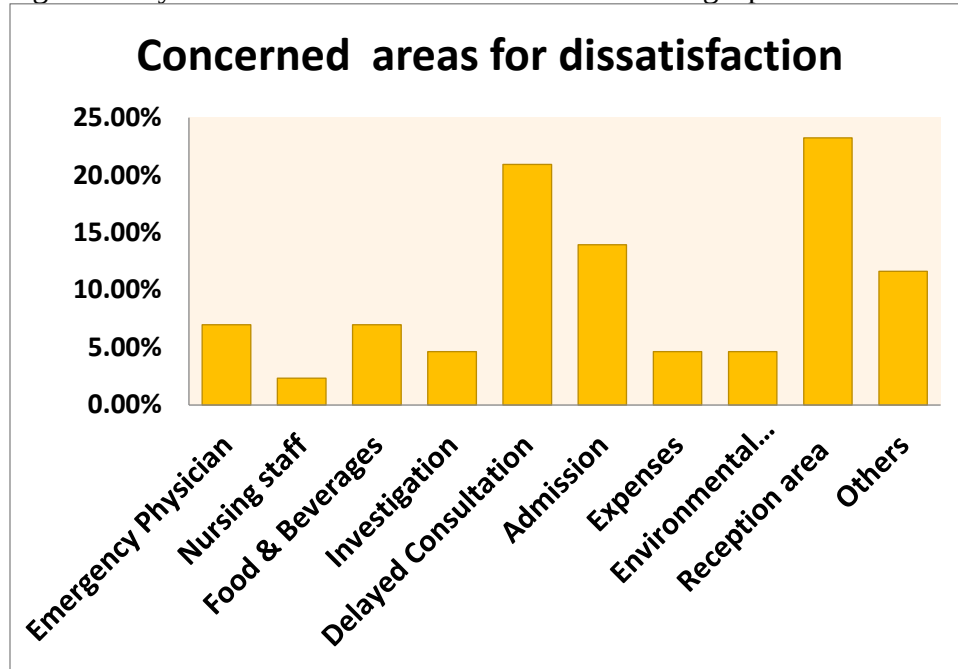
Fig 7.2 Grades of responses of patients and their relatives to dissatisfaction in emergency department.



Interpretation:-

The above graph shows that out of total 43 dissatisfied cases, the maximum number of cases expressed their dissatisfaction verbally, while others showed their dissatisfaction in writing and only few cases expressed the objectionable aggression.

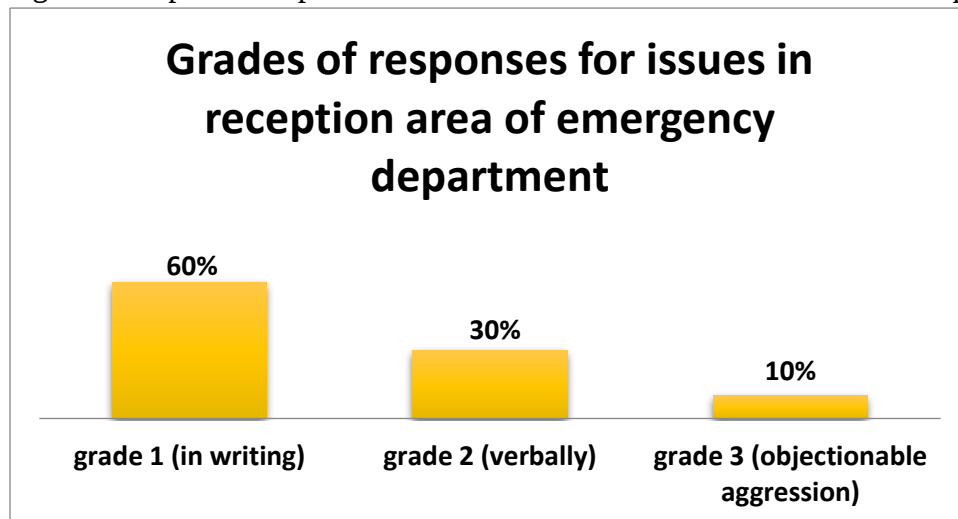
Fig 7.3 Key concerned areas for dissatisfaction amongst patients and their relatives.



Interpretation:-

The above graph shows issue in reception area(23%) as the most concerned issue in emergency department followed by delay in consultation (21%), whereas the area of least concern was issues related to nursing staff(2%).

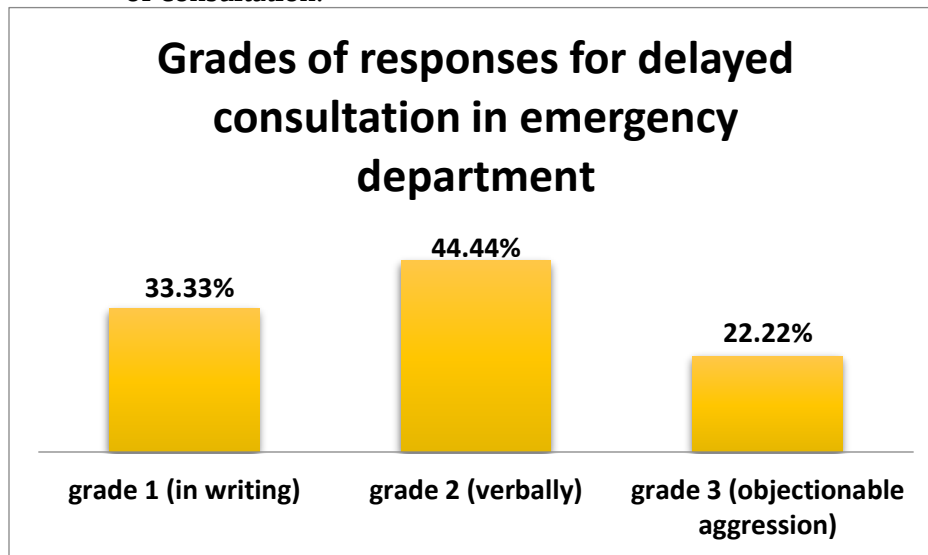
Fig 7.4 Responses of patients and their relatives to dissatisfaction in reception area.



Interpretation:-

The above graph shows that out of total 10 cases who were dissatisfied in the reception area, maximum number of cases expressed their dissatisfaction in writing (60%) while others expressed verbally and very few showed objectionable aggression. The common issues were ignorance by front desk in-charge, miscommunication between staff and patients.

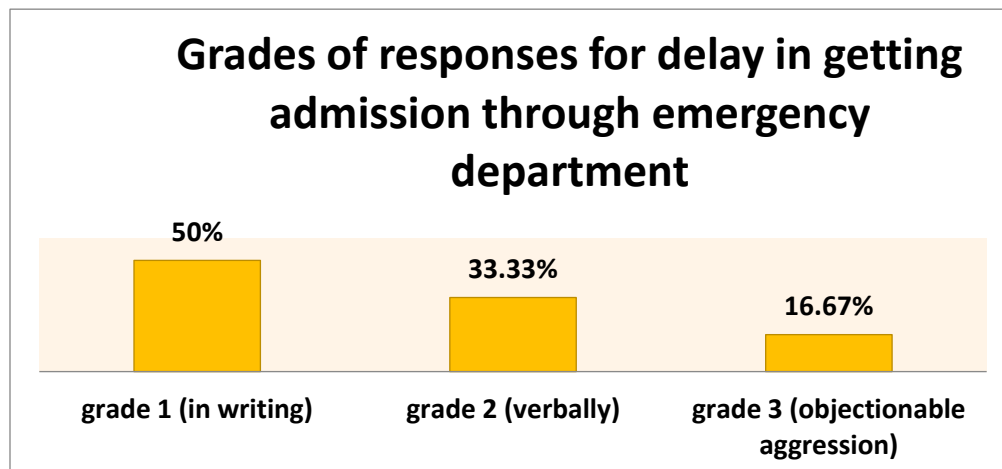
Fig 7.5 The response of patients and their relatives to dissatisfaction for delay in arrival of consultation.



Interpretation:-

The result in the above graph shows that out of 9 cases who were dissatisfied with the delayed consultation, the maximum number of cases expressed their dissatisfaction verbally (44.4%) while others expressed in writing (33.3%) for the delayed arrival of consultants and very few expressed objectionable behavior.

Fig 7.6 Behavior pattern of patients and their relatives in response to dissatisfaction for delay in admission.



Interpretation:-

The result of the above graph shows that out of 6 cases who showed dissatisfaction because of delay in getting admission, maximum number of cases expressed their dissatisfaction in writing (50%) while others expressed verbally (33.3%) for the issues related to delay in getting admission and few showed objectionable aggression.

7.1 Data analysis to find the association between satisfaction and sex of the respondents.

Bivariate analysis was carried out to see the association between satisfaction and sex of the respondents. It was emerged out from the analysis that nearly $1/4^{\text{th}}$ (24%) of female respondents were satisfied whereas 31% of the males were satisfied. However, the chi square test did not show any significant association.

8.0 FINDINGS:-

The main issues causing dissatisfaction by the healthcare provider can be grouped into two categories:- Clinical services and Support centric services.

<u>Clinical Services</u>	<u>Support Centric Services</u>
• The delay was observed in the arrival of consultant after referral. • Delay in routine treatment process. • Routine investigations are not done in a timely manner.	• Ignorance, miscommunication and inappropriate attitude by the front desk staff were the major concern for patient dissatisfaction. • Delays in getting admission or shifting to wards/ICUs mainly due to non-availability of beds. • Improper explanation about the expected expenditure before any procedure or admission by the front desk staffs. • Wrong billings by the front desk staff also increased dissatisfaction amongst patients. • Lack of co-ordination among General duty assistants (GDAs). • Due to lack of communication between nurses and the Food & Beverages department, there was delay in food and beverages services. • Shortage of human resource (mainly supporting staffs).

9.0 RECOMMENDATIONS:-

9.1 Counsel the patients and their relatives regarding the problems of the patients.

9.2 Effort should be made in shortening the wait time interval and improving the patient's perception about waiting time in the emergency department.

9.3 Provision of more information and explanation to the patients should be there.

9.4 Periodic training should be conducted to improve the interpersonal and communication skills of the front desk staff members in the emergency department.

9.5 Magazines, brochures and pamphlets related to healthcare should be kept in emergency department for patient and their relative awareness.

10.0 REFERENCES:-

- 10.1 Keely, B.R. (2002). Recognition and prevention of hospital violence. Dimensions of Critical Care Nursing, 21, 236–241.
- 10.2 Morrison IJ. Abuse of emergency department workers: an inherent career risk or a barometer of the evolving health care system? Canadian Medical Association Journal. 1999;161(10): 1262-1263.
- 10.3 Kao LW, Moore GP. The violent patient: clinical management, use of physical and chemical restraints, and medicolegal concerns. Emerg Med Pract 1999;1(6):1-24.
- 10.4 Saines JC. Violence and aggression in A&E: recommendations for action. Accid Emerg Nurs 1999;7:8-12.
- 10.5 Arik C et al. Encountering Anger in the Emergency Department: Identification, Evaluations and Responses of Staff Members to Anger Displays. 2012; Emergency Medicine International.12;(5).
- 10.6 Soleimanpour et al. “Emergency department patient satisfaction survey in Imam Reza hospital , Tabriz , Iran”. 2011; 4(2).
- 10.7 Moghadam et al. Effective Factors on Patients’ Satisfaction with Emergency Care Services using Factor Analysis: A Cross Sectional Study. 2014; J Clin Diagn Res; 8(11).

11.0 ANNEXURE

FEEDBACK FORM

PATIENT NAME:

DATE:

MAX ID:

GENDER:

1) The services in the emergency department has made you feel:-

a) Satisfied ☐

b) Dissatisfied ☐

2) Kindly tick the concerned area for your dissatisfaction (tick one):-

a) Medical attendance by doctor ☐

b) Nursing pattern and attitude of the nurse ☐

c) Accessory facilities like food and other assistance ☐

d) Delay in getting investigations done ☐

e) Delay in getting consultants on the advice ☐

f) Delay in getting admission ☐

g) Regarding the expenditure ☐

h) Environmental cleanliness ☐

i) Issues at reception area in emergency ☐

j) Others ☐

Specify

3) Suggestions to rectify the same (30-40 words):-

NOT TO BE FILLED BY PATIENT

4) If you are dissatisfied then to what extent:-

a) Shows dissatisfaction in writing (Grade I) ☐

b) Shows dissatisfaction verbally (Grade II) ☐

c) Shows objectionable aggression (Grade III) ☐