

**Summer Training at
Indraprastha Apollo Hospital, Delhi
(April 9– June 2, 2012)**

**By
Noopur Garg**

**Under the guidance of
Dr. Seema Mehta**

**Post Graduate Diploma in Hospital and Health Management
2011-2013**



**Institute of Health Management Research,
Jaipur
2012**

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CERTIFICATE

This is to certify that Noopur Garg has undergone summer training in Indraprastha Apollo Hospital, New Delhi from 9th April to 2nd June, 2012

The candidate carried out all the studies related to summer training herself. Her approach to the studies has been sincere, scientific, and analytical. This summer training in partial fulfillment of the course requirement is recommended for the award of Post Graduate Diploma in Hospital & Health Management.

I wish her success in all future endeavors.

Dr .P. R.Sodani

(Dean Academics and Student Affairs)

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Summer Internship Completion Certificate

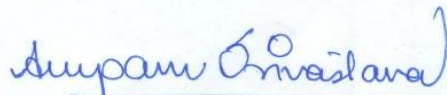
This is to certify that Ms. Nupur Garg, student of Institute of Health Management Research, (IHMR) Jaipur has successfully completed her Summer Internship Program, which is a part of her course curriculum in PGDHM Program, from April 10, 2012 to June 2, 2012, at our Hospital.

During this period she has completed the projects:

- Prolonged stay of patients and its impact on Hospital Services

We wish her success in all her future endeavors.

for **Indraprastha Medical Corporation Limited**
(Indraprastha Apollo Hospitals)



Anupam Srivastava
Dy. Manager – HR

Note: Contents of above mentioned project is confidential in nature and not for public domain.



ACKNOWLEDGEMENT

I would like to express my gratitude towards Brig. S.K. Puri (Dean-Academics and student affairs, IIHMR) and my mentor Dr. Seema Mehta, who guided me about the key areas of focus in my summer internship.

This report would not have been possible without immense support and guidance of Dr. Ritu Rawat, (Senior Medical Superintendent), Dr. Ranu Khan (AMS), Dr. Priti Bansal (AMS), Dr. Namita Anand (AMS), Indraprastha Apollo Hospitals, New Delhi

I would also like to take this opportunity to thank Dr. Sudhir Kumar (CCC), Mrs. Beena Joseph (Senior Executive) and Ms. Ashima Chauhan (Executive) and other members of MS Office who gave her valuable inputs at every step and steered me through to complete this study.

I am thankful to Mr. Anupam Srivastava (Dy. Manager-HR) and other staff of Apollo hospital for the cooperation.

Noopur Garg

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Part I
HOSPITAL PROFILE

AIM OF THE STUDY:

To understand the managerial aspects of the hospital by observing various departments and their functioning.

OBJECTIVES:

- To survey the hospital, its various departments to gather maximum information about their functioning.
- To get acquainted with the hospital functioning by providing assistance in the daily operational management activities of the respective department.

METHOD OF DATA COLLECTION:

Both Quantitative as well as qualitative data was collected for study of hospital functioning.

METHODS:

- Observational studies using informal discussion were conducted.
- Secondary data collection by reviewing the past documents.

APOLLO GROUP PROFILE

MISSION STATEMENT



“Our mission is to bring healthcare of international standards within the reach of every individual. We are committed to the achievement and maintenance of excellence in education, research and healthcare for the benefit of humanity”

Dr. Pratap C Reddy

Founder chairman

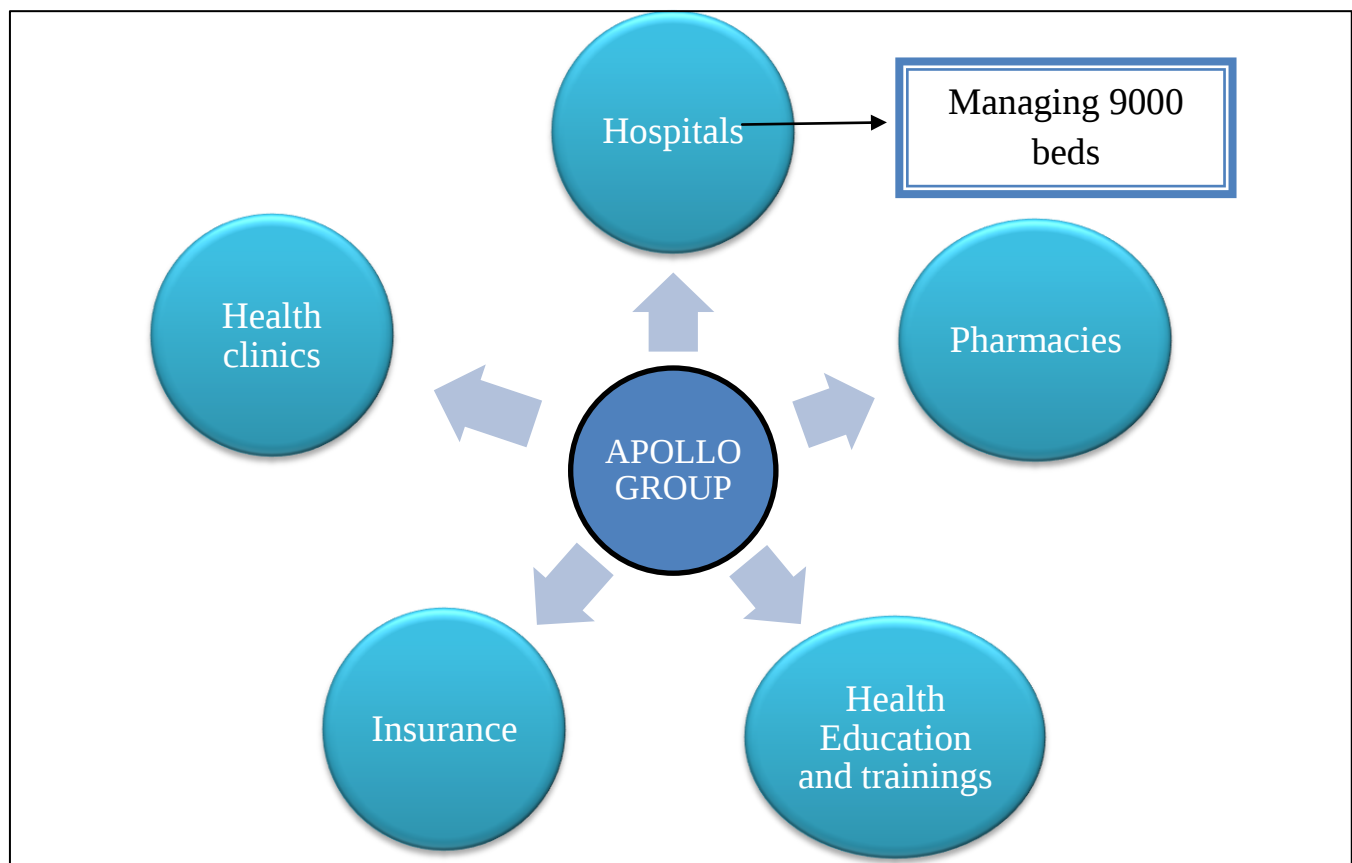
Apollo hospitals group

THE HISTORY OF APOLLO GROUP

- The Apollo hospitals group was started by Dr. Pratap C. Reddy in 1979.
- The group started its first hospital in Chennai in 1983 with initial bed strength of 150.
- With over 53 managed and owned hospitals, the bed strength today stands at over 9000 and Apollo today is **Asia's largest healthcare Corporate Group**.
- Apollo believes in four pillars of philosophy - experience, excellence, expertise and research.

The largest achievement of the Apollo Group has been to take quality health care across and outside India, of touching millions of lives and giving hope to an entire segment of the Indian population who did not have an option beyond limited medical infrastructure

APOLLO GROUP



THE JOURNEY OF APOLLO HOSPITALS

54 locations in India and outside India, over 8500 beds, more than 55,000 employees and serving its millions of patients across the world

**Apollo
Bhuvneshwar
2010**

**Apollo Arragonda
2000**

**Apollo
Vishakapattanam
1999**

**Apollo
Madurai 1997**

**Apollo specialty
Chennai 1993**

**Indraprastha Apollo
Delhi 1996**

**Apollo
Hyderabad 1988**

**Apollo
Chennai 1983**

Apollo Bilaspur 2001

Apollo Colombo 2002

Apollo Ahmadabad 2003

Apollo Dhaka 2005

Apollo Ludhiana 2005

Apollo Agra 2006

Apollo Bangalore 2007

Apollo Kakinada (AP)

Apollo Kolkata

HOSPITAL PROFILE

Indraprastha Apollo Hospital, A JCI Accredited Hospital, situated on Delhi-Mathura road, is one of India's most comprehensive diversified and multi-specialist health care institutions which caters to health care requirements of a large number of people of Delhi.

Personal commitment, care, technical knowledge and expertise along with a clean understanding how to effectively utilize technology, to help people and solve their health problems, are among the major strengths of the hospital.

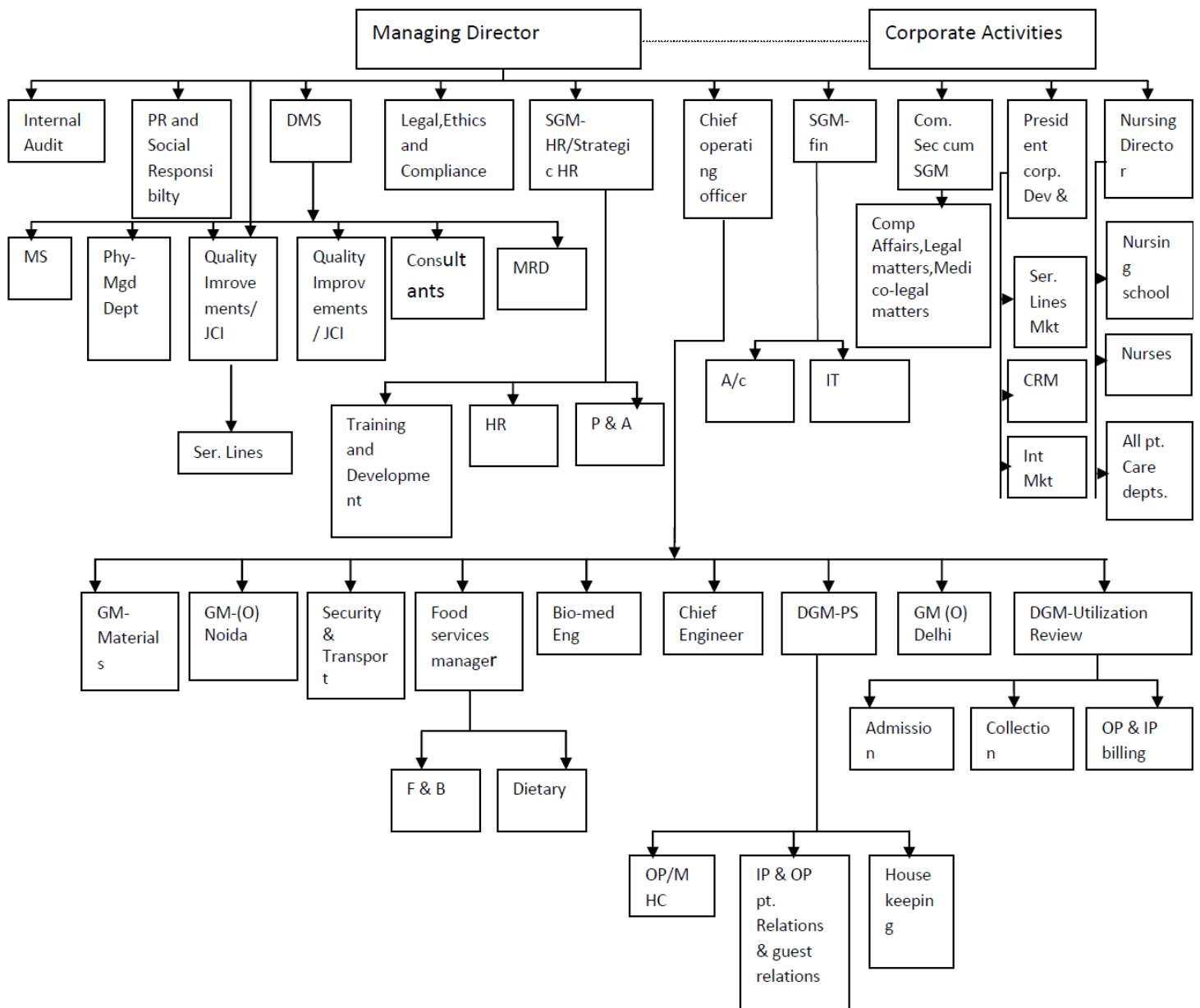
Indraprastha Apollo Hospitals Limited is a 695-bedded multi – specialty tertiary care hospital, with the provision for expansion to 1000 beds in future. A joint venture between the Apollo Hospitals Group and the Government of Delhi, it was founded in 1996. The hospital is equipped with the latest technology and high end medical equipments such as 64 slice CT scan, 3 Tesla MRI, Spect/CT and Hyper baric chamber, Gamma Camera, X-knife and Linear accelerator.

The Hospital is spread over 12 acres of land and has a built-up area of over 600,000 square feet with 2 basement, besides ground plus five floors, with eight elevators and a separate engineering service floor.

Hospital provides Blood Bank services, 24 Hours Accidents & Emergency Services, 24 Hours Ambulance Facility, Operation Theatres for Advance Surgery, Physiotherapy, Cardiology, Clinical Laboratory, Dialysis Unit service, Ultrasound service, Whole body CT scan service, Holter service etc. Indraprastha Apollo Hospitals is also on the panel of CGHS, DGEHS, Haryana Govt, Sikkim Govt, ONGC, BHEL, Oil India, Indian Oil Corporation etc.

Hospital consists of a 6 floor building and is divided into different towers. Different departments and units are present on these towers which are divided accordingly, like, all laboratory services are present on the ground floor and in-patient wards and rooms are present on all the floors except 1st floor which is having all ICUs and OTs. OPD, govt. ICU, govt. wards and several other departments are present on tower3. Hospital also has a family welfare department which encourages family planning in the community.

ORGANOGRAM: Indraprastha Apollo Hospital



Centres of Excellence

- Heart Institute
- Cancer Institute
- Institute of Neurosciences
- Institute of Orthopaedics
- Institute of Gastrosiences
- Transplant Institute
- Emergency
- Nephrology and Urology
- Spine Surgery
- Institute of Preventive Medicine
- Critical Care

APOLLO'S CORPORATE CULTURE

Tender, loving, care (TLC)

T: Team spirit, Total care

L: Loving, leadership & Loyalty to organization

C: Continuous Quality Improvement, Corporate culture, Care & Concern

Medical Structure

- Coordinators
- Sr. Consultants
- Consultants
- Emeritus consultants
- Visiting Consultants
- DNB students
- Residents, Sr. Residents

- Registrar, Sr. Registrars
- Research fellow, Fellows
- Junior consultants
- Associate consultants

Committees at Apollo

1. Accreditation committee
2. Ethical committee
3. Infection control committee
4. OT users committee
5. Clinical audit committee
6. Appraisal committee
7. Transplant Authorisation committee
8. DNB committee
9. CME committee
10. Drug committee
11. Safety committee
12. Code blue committee
13. Training committee

CODES:

There are some codes followed at Apollo which signify an important event. These codes are announced on a Public Announcement System in the entire hospital. The codes are as follows:

CODE BLUE	Individual disaster
CODE GREY	Internal disaster
CODE RED	External disaster
CODE PINK	Infant abduction/baby missing
CODE PURPLE	Likelihood of physical altercation

CODE ORANGE	Indication of deterioration in patient condition
CODE BLACK	Bomb threat

The basic purpose of these codes is to avoid panic and at the same time convey the important information to the hospital staff.

Code Blue:

“Code Blue” is an emergency mode of alerting all medical , nursing , paramedical and allied healthcare services personnel for CPR following emergencies causing sudden collapse of patients, Such as myocardial Infarction, Neurosurgical emergencies, Multiple Trauma Cases.

Code Blue Team:

- Medicine Registrar
- Anesthesia Registrar
- Surgical Registrar
- Nurse Manager
- Staff Nurse

Code Red:

An external disaster is any catastrophe causing injury or illness simultaneously to at least 30 people who are requiring hospital emergency treatment. These include the disasters occurring outside the hospital premises requiring intervention by the hospital example; earthquake, accident and warfare.

- All doctors available must reach emergency triage.
- Preliminary examination and sorting of the patients is to be done in the triage by the emergency medical officer.
- Brief documentations of all the patients should be done.
- First aid should be given to all, with priority to seriously injured.
- Specialty wise referrals are to be made where necessary.

Patient Identifiers:

- Use at least two patient identifiers (room number is not included) whenever taking samples, administering medication or blood samples.
- Inpatient: Patient Name and UHID no.
- Outpatient: Patient name and DOB.
- Emergency admin with no. ID: Unknown 1/2/3 with UHID #

COLOR CODE IN TRIAGE

There is also color code being followed in the emergency department. It is as follows:

Red: Most Urgent

Yellow: Urgent

Green: Non-Urgent

Black: Dead

TELEMEDICINE AT APOLLO

After treatment at Apollo hospital Delhi, patients can continue to consult the doctors through the telemedicine facility. Indraprastha Apollo hospitals also reach out to remote areas through telemedicine so that rural hospitals and medical centres can disperse correct and advanced medical care to patients who have no access to advanced healthcare.

MEDICAL TOURISM IN APOLLO

India profile offers medical tourism in India, in association with the Indraprastha Apollo hospitals. All the travel arrangement to the various Apollo hospitals in India is taken care of. Flight and accommodation arrangements and other travelling needs are also taken care of by the hospital. From the moment the patient arrives to the moment of departure, it is assured that the patient is in safe hands.

HOSPITAL MANUALS

Green book: Infection control Manual

Red book: Safety Manual

Blue book: ICU manual

Yellow book: Radiation safety manual

For JMS: The Hospital Manual

FIRE SAFETY:

R.A.C.E.

- **Rescue:** Rescue the patients or any person if in immediate danger.
- **Alarm:** Raise alarm.
- **Confine:** Close door and windows to keep the fire contained.
- **Extinguishment/ Evacuation:** Use extinguisher if trained in its use.

GENERAL FINDINGS

CLINICAL SERVICES

OPD DEPARTMENT

Apollo has got 7 centralized OPD wings:

Functions:

Offers a complete facility of health care to the individuals of all ages in accordance with hospital policy.

The scope and complexity of services:

- The medical consultancy and paramedical facilities of different specialties are provided to patients.
- The department acts as an intermediary to admission and interfacing with different department in the hospital.

Quality Indicators:

- Patient seen within scheduled appointment time.
- Turn over time between two patients.
- Patient satisfaction.

Shortcomings observed:

- Poor maintenance of traffic flow of patients.
- High waiting time after patient arrival.

EMERGENCY DEPARTMENT

The EMR department at Apollo is located on the ground floor, facing the main road and has a separate entrance. It has a waiting lounge at its entrance and EMR reception. It has 10 beds.

EMR department is divided into two divisions:

1. Observational: It has 5 beds. Here minute and less severe cases are taken care of; these cases do not require admission and can be discharged within a few hours.

2. Triage: It has 5 beds. Here severe cases are taken care of. This area is well equipped with all kinds of equipments to perform even a minor surgery.

EMR is provided with its own drugs and stores.

Staffing:

EMR Department has;

1. 1 HOD
2. 5 CMO's

Patient to nurse ratio is 1:1 at any time.

The bed charges in EMR are Rs 800 per hr.

DIALYSIS

The Dialysis department was located in the gate no. 4 at ground floor.

Function:

- To provide life saving Dialysis to the patients suffering from Renal Disorders through the expertise of doctors, technicians, nurses and utilization of technology.

The Dialysis Department has 16 beds. There are also 2 beds in HDU for inpatients.

It has:

- Two special Rooms
- Two isolation rooms for hepatitis/ HIV patients

Duration of Dialysis: 4hours

Timings:

7:00 hours to 11:00 hours

12:00 Hours to 16:00 hours

17:00 hours to 21:00 hours

22:00 hours to 2:00 hours

Thirty minutes are dedicated to washing and cleaning of equipments.

Price Per Dialysis: Rs.3200

Staffing:

- 1 doctor per shift in three shifts per day.
- 3-4 housekeeping staff in each shift.
- 4 technicians in each shift
- 3 nurses in each shift

Major Equipments Used

- 16 Haemodialysis machines
- Monitors
- Infusion sets
- Reverse Osmosis Water system

OPERATION THEATRE

Apollo hospital has 16 OT's distributed in three locations namely OT complex 1, OT complex 2 on the first floor and ortho OT complex located on the ground floor next to EMR.

Functions

OT is committed to provide the highest standards of surgical care to the patients

Scope and complexity of services

- Cardiac
- Neuro
- Ophthal
- ENT
- Gynae
- Plastic
- Ortho
- Micro disc
- Laproscopies

- Transplant
- Oncological and other general surgeries

Days and hours of operations:

The OT department is functional from 8:00 hrs to 20:00 hrs six days a week and EMR cases are taken on Sunday.

Quality indicators

- Cases load/ month
- Needle stick injuries
- Same day cancellation/100surgeries
- Unplanned returns to OT/100 surgeries
- Number of recovery room delays/100 surgeries

INTENSIVE CARE UNIT

An intensive care unit is a specialty staffed and equipped separate and self contained section of the hospital for the management of patients with life threatening or potentially life threatening clinical conditions.

Apollo has the following ICUs

- Surgical
- Medical
- Neuro
- Peadiatric
- Stroke
- Coronary Care Unit
- Gastro and liver
- Organ transplant
- Neonatal ICU etc.

It has over 100 ICU beds in total.

SUPPORT SERVICES

RADIOLOGY DEPARTMENT

Administrative Functions:

- Provides complete diagnostic and imaging services of high quality and minimum error
- Has established goals, objectives and standards of performance that is consistent with both the hospitals philosophy of patient care and practice of professional service delivery and match international standards
- Has developed standard operating procedures (SOP)
- Has developed and supported a professional environment which allows each employee to do their best work, feel personally satisfied and reach his and her full potential
- Has system to get regular customer feedback

Services provided:

The radiology department provides large variety of services

1. Common X-rays
2. Fluoroscopy
3. Ultrasound
4. Colour Doppler
5. Fatal medicine unit
6. CT unit
7. CT single slice
8. CT 64 slice
9. MRI 3 tesla
10. Ultrasound and CT guided invasive procedures
11. Nuclear medicine

The equipments:

1. X-ray machine : 4- portable, 2- departmental, 1- Fluoroscopy, 1- MHC
2. Mammography : 1- departmental

3. Ultrasound: 4 – department, 1- portable, 1- MHC,1- fetal medicine
4. CT single slice : 1- departmental
5. CT 64 slice : 1 Departmental
6. MRI 3 TESLA: 1 departmental

Quality Indicators

- Regular review of randomly selected patients
- Daily system check (CT/MRI)
- Daily helium check (MRI)
- Maintenance and calibration scheduled
- Records regarding breakdown and action taken

BLOOD BANK

Goal of the department:

1. To have sufficient blood of all types to support an EMERGENCY, IPD, OPD and OT
2. To maintain highest level of standards in all products and activities following GLP (Good laboratory practices) and GMP (Good Manufacturing Practices)
3. To upgrade Aphaeresis technology and maintain its continuous supply
4. To create ready accessible records of in house eligible donors according to their blood group

Scope and Complexity of services:

- The Department is involved in providing safe blood/blood components to the hospital
- To ensure the safety of blood by following stringent rules
- Storage and distribution of blood
- Department has well established immunohematology laboratory for screening, compatibility testing
- Department provides consultation for all transfusion related requirements of patients

Days and Hours of Operation:

24 hours working 365 days a year

Quality indicators

- Platelet counts is sent to Haematology lab for verification
- Fixed SOP for every procedure
- Equipment calibration
- Chart maintained for temperature monitoring

MEDICAL RECORDS DEPARTMENT**Goal of the department**

To provide efficient storing, maintaining, coding and verification of medical records

Services provided:

- Storing of all the medical records
- Verification of all the records
- Issue of duplicate records
- Receipts and reply of mails
- Preparation and coordination in providing records for court cases and consumer cases
- Maintenance of MTP records
- Maintenance of MLC, birth and death registers
- Coordinating in completion of insurance claims
- Coordinating in completion of insurance claims/certificates
- Census preparation
- Coordination with IT department for backup of scanned records
- Attending court cases
- Coding and indexing of disease as per international classification of diseases

Quality indicators

File completion at MRD after discharge of patients- 99.4%

Accuracy of coding -100%

UTILITY SERVICES

CENTRAL STERILE SUPPLY DEPARTMENT

Function:

Provides steady and effective supply of sterile linen and instruments of various departments in the hospital

Services provided:

The department sterilizes linen and blunt instruments using :

1. Autoclave
2. 36 SR
3. Micro star
4. High speed
5. ETO machine

Days and hours of operations of the department

- 8:00am to 2:00 pm all days of the week
- TSSU functional 24hrs
- Sterile suppliers are dispatched twice a week a day to the wards and according to the requirement and used instruments are collected for cleaning and autoclaving by CSSD staff
- Sterile supply is supplied to the OT and emergency a day prior before 8pm and as and when required
- CSSD and TSSU supplies sterile linen, autoclave instruments to OT complex 1 and 2

BIOMEDICAL ENGINEERING DEPARTMENT

There are more than 200 equipments in Apollo. For maintenance and technical evaluation of equipments at Apollo no annual medical contracts (ANC) or comprehensive medical contracts are maintained. Apollo has its own biomedical engineering department which provided comprehensive, cost effective and effective services. The maintenance round is done every 6months for whole hospital. It checks and orders for equipments and other supplies

HOSPITAL INFORMATION SYSTEM

For maintaining vast pool of information and database, Apollo has its own HMIS for proper efficient services and maintenance of records. The entire hospital is divided into Front Desk Operations (FDO) and Back Desk Operations (BDO).

The FDO deals with direct patients care activities while BDO provides support to these care activities. FDO comprises of In-Patient management module and Out Patient management module.

FOOD AND DIETARY SERVICES

The food and dietary services of IPD patients as well as the staff is managed by food and beverages department. This department is divided into 4 sub departments:

- Food Production
- Patient Food Services
- Non Patient Food Services
- Kitchen Steward

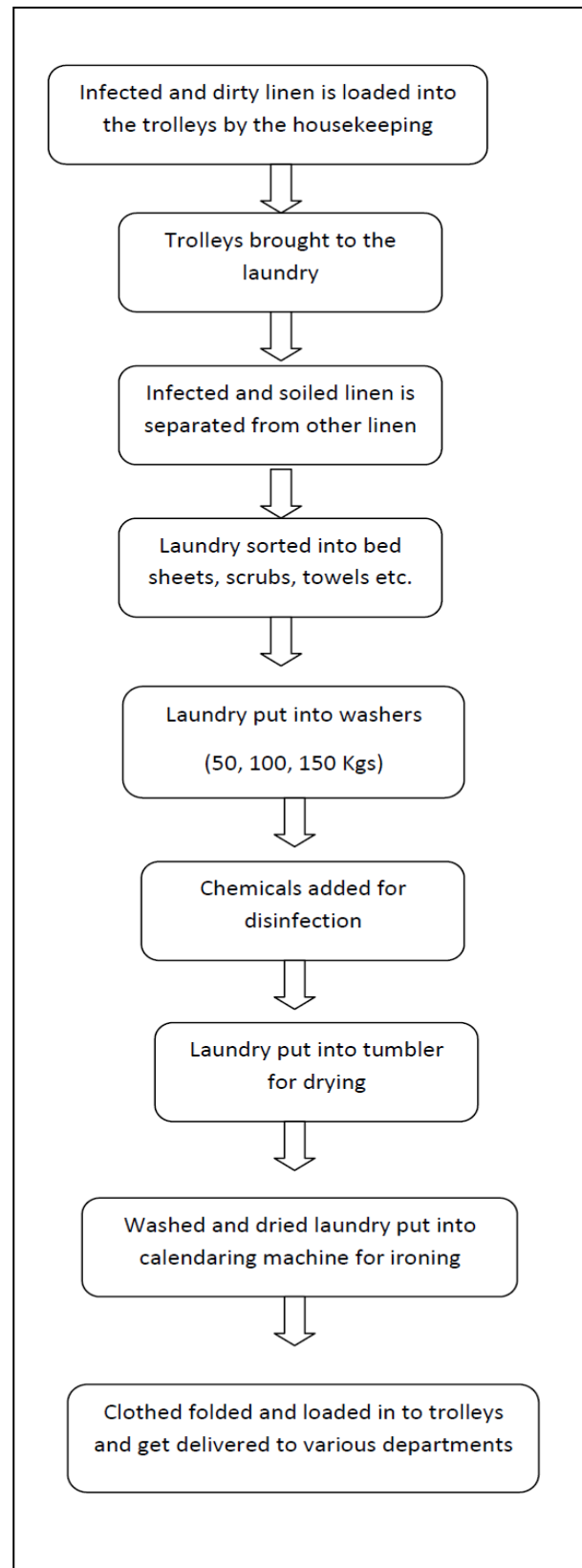
The department proficiently delivers to more than 4000 meals daily. To provide efficiently timely and hygienic environment department has a team which includes:

- Deputy In charge
- Assistant Manager
- Executive
- Chief (Operation In Charge)
- Administrative Officer

LAUNDRY

Laundry service is one of the most important departments which provide fresh linen to the whole hospital. It has a major role in maintaining hygiene environment and role in infection control. The staffs of laundry department are a mix of contract labour and IMCL workers. The process flow as follows:

Flow chart of Laundry Department Functioning



MORTUARY

Mortuary is a place where dead bodies are kept before they are claimed by the relative of the patients or handed over to the police in the medico legal cases. It is located into the basement with a capacity of keeping 6 dead bodies at a given time. The security guards posted at the nearby control room are responsible for releasing the body to the concerned person. No autopsy is performed in the hospital.



ADMINISTRATIVE SERVICES

MEDICAL SUPERINTENDANT OFFICE

Medical superintendant comes next to the Director Medical Services in hospital Administration hierarchy and has the responsibility of managing hospital medical operations and clinical team. MS is head of all bodies managing patient and medical staff.

Team and departments managed by MS office are as following:

- Emergencies
- Clinical care coordinators
- Medical operations
- Junior medical staff
- Paramedical staff
- Legal issues

For proper management and smooth functioning of these departments and managing bodies, there are twelve employees appointed in MS office who work as per MS orders.

Junior Medical Staff

Junior medical staff reports to the MS for administrative purposes and MS takes care of:

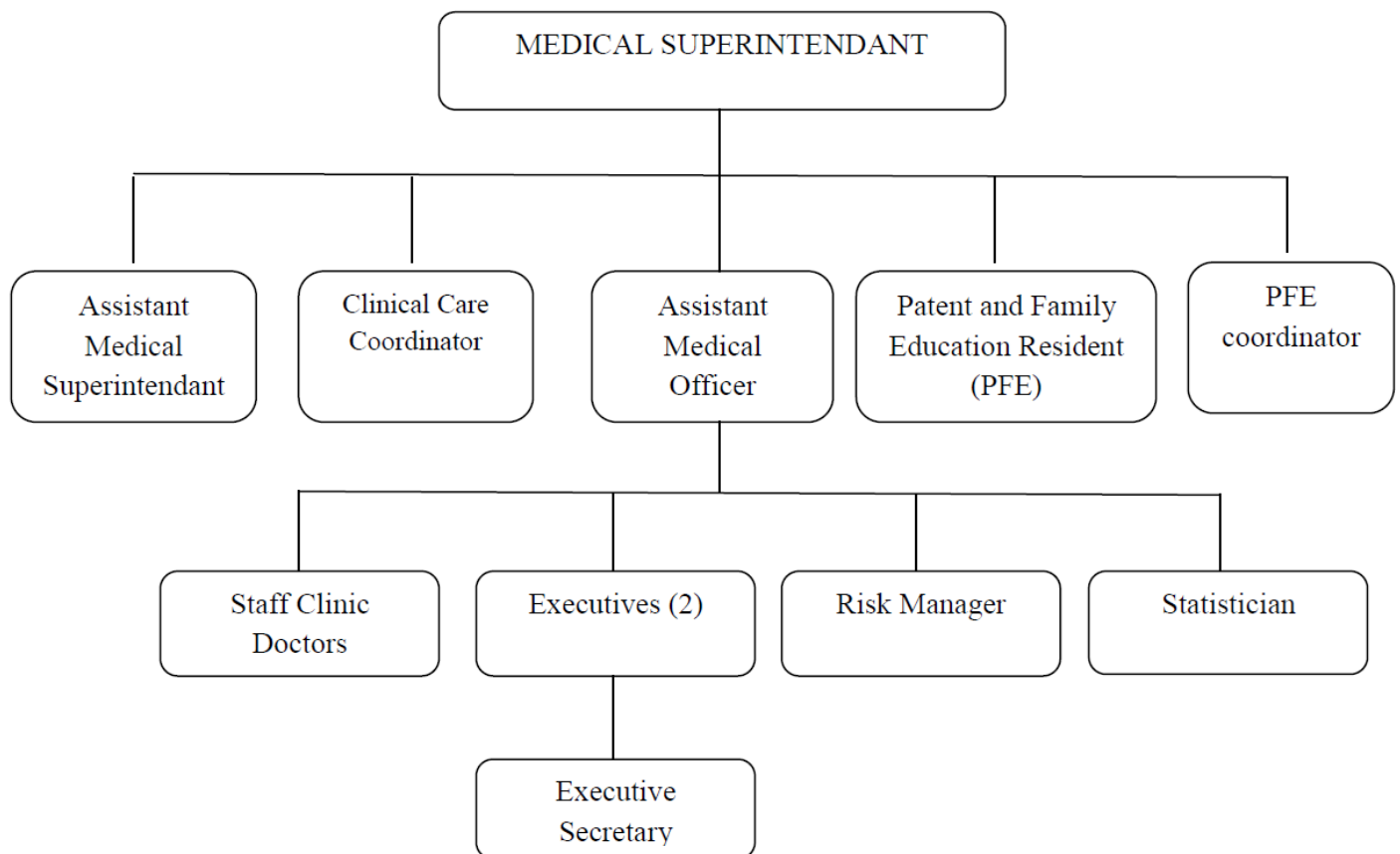
1. Recruitment and maintaining of JMS records
2. Orientation of JMS, done by providing induction classes
3. Training: as Apollo is JCI Accredited there is continuous training of JMS
4. Managing JMS work schedule

Other than senior consultants, all other medical staff is managed by the MS.

- Junior medical staff comprises of:
- Associate consultant
- Senior resident

- Junior consultants
- Residents
- Fellows
- Research fellows
- Senior consultant
- Emergency Medical Officer
- Registrars
- Intensivists
- Clinical Care Coordinators

Organogram of MS Office:

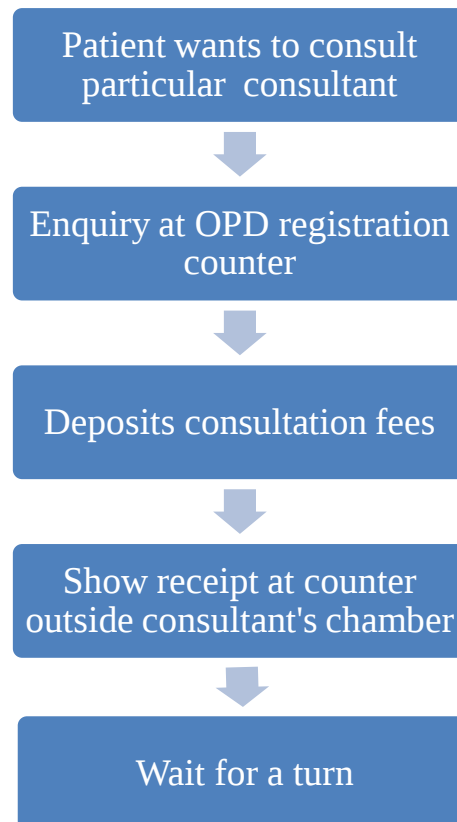


FINANCE DEPARTMENT

The main activities carried out by the finance department are:

- I.P.D Billing
- O.P.D. Billing
- Recovery of bill of insured patients
- Recovery of bill from patients who have not paid

O.P.D. Billing



I.P.D. Billing:

The billing procedure is carried out at I.P.D. billing desk and filed in each patient's file. At the end of the treatment, the bill has to be settled and only on producing of the receipt slip, the patient can be discharged from the hospital.

RECOVERY OF UNPAID BILLS:

Sometimes the patient is unable to pay the bill in time. These patients sign an undertaking stating the time by which they will level the bills. Such patients are followed up through reminders telephonically.

MATERIALS MANAGEMENT DEPARTMENT

Involves activities that control the transmission of physical through the value chain:

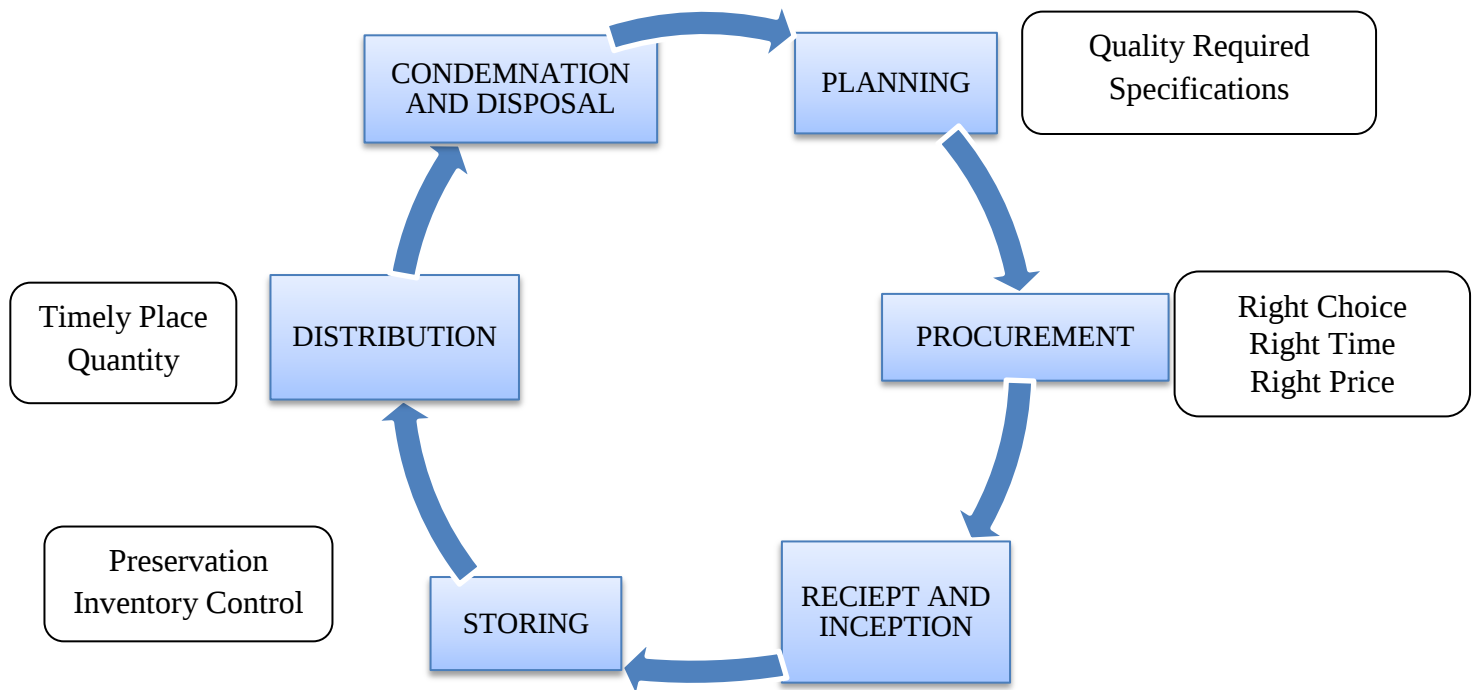
PROCUREMENT → PRODUCTION → DISTRIBUTION

Core Activities of the materials department:

It involves planning, review and control of:

- Demand Forecasting
- Procurement
- Budgeting and materials planning
- Receipt and inception
- Storage
- Inventory Control
- Issuing and Distribution
- Consumption
- Maintenance
- Condemnation and Disposal
- Pilferage

MATERIALS CYCLE:

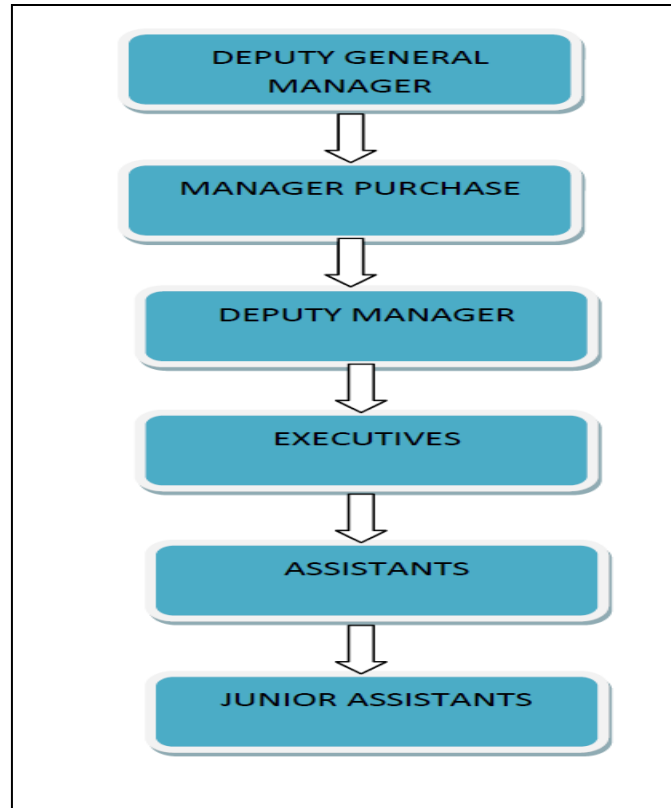


TYPES OF STORES IN THE HOSPITAL:

1. Main Store:
 - a. Printing and stationary store
 - b. Housekeeping Store
2. Food And Beverages
3. Engineering
4. Cath-Lab
5. OT
6. Central Records
7. Nephrology

The materials department reports to MD. It has 33 staff employees.

Hierarchy of the material department



MARKETING DEPARTMENT

Indraprastha Apollo hospitals run many promotional activities to market its services and aim to cover larger segments under various plans.

Apollo has developed strategies to target several markets inside as well as outside India :

- Delhi and NCR
- Rajasthan
- Uttar Pradesh
- Madhya Pradesh
- Haryana
- Punjab
- Uttaranchal

- Himachal Pradesh
- Jammu and Kashmir

Outside India :

- Afghanistan
- Uzbekistan
- Many countries of south Africa
- Russia
- Pakistan
- Mauritius

HUMAN RESOURCE DEPARTMEN

Functions of the HRD are:

1. RECRUITMENT AND SELECTION:

As the turnover rate for nurses and junior medical staff is very high at Apollo, the recruitment and selection is a continuous process. Walk –in interviews are conducted for the nurses every Thursday and Saturday. The interview is conducted by the HR Representative and HOD of the concerned Department. Similarly, the junior Medical Staff is recruited by the MS.

Establishment Office- JCI places emphasis on Staff Qualification. Thus the personal files are maintained in this section with qualification papers of all the staff.

2. CONTRACT LABOUR

Apollo outsources some of its services, namely:

- Housekeeping
- Security
- Food and Beverages
- Laundry

- Transport

This section of the HRD looks after the working, payment and grievances of these contract Laborers.

3. TIME OFFICE

This section issues identity cards to the member of the hospital

4. TRAINING AND DEVELOPMENT CELL

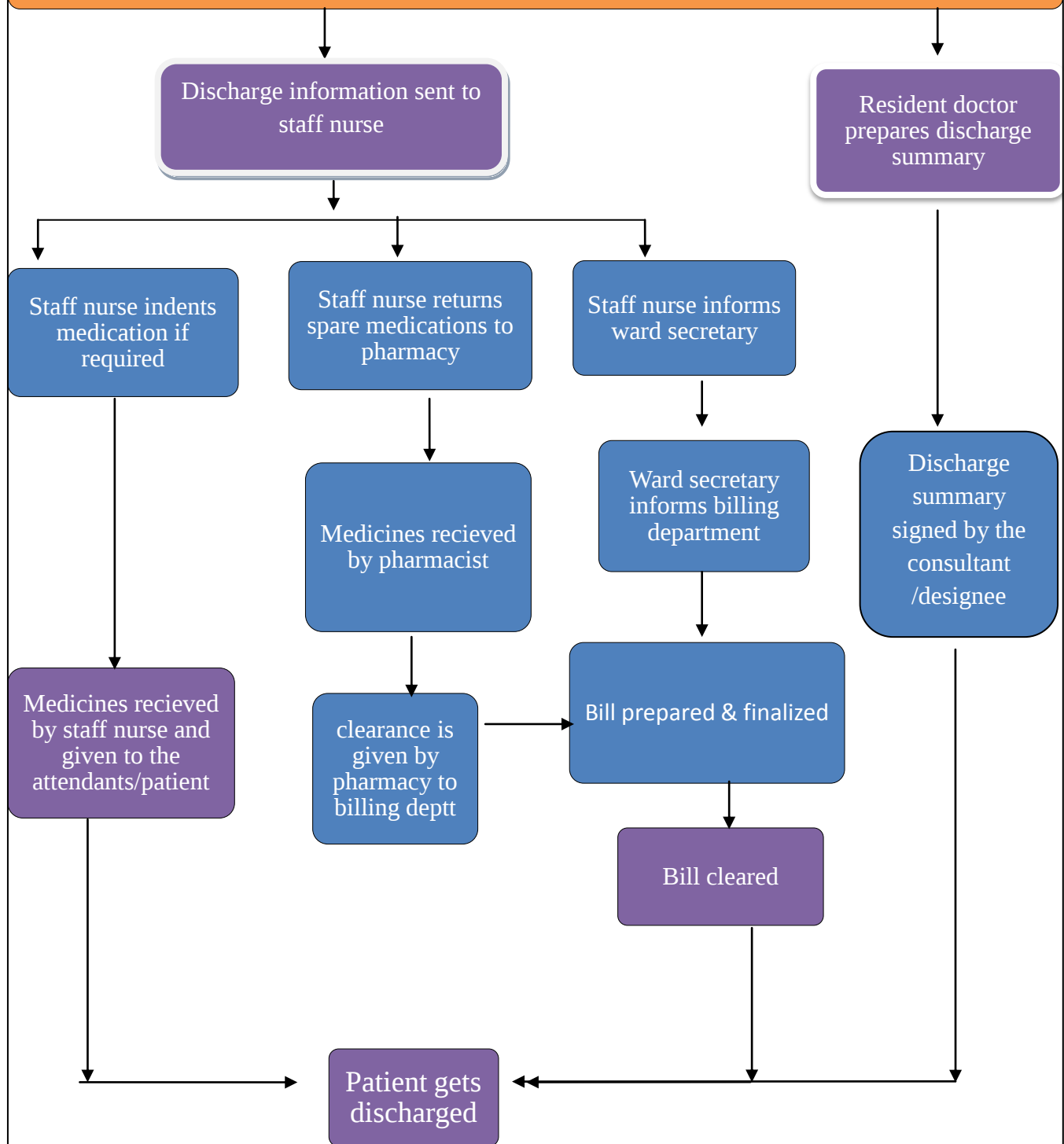
JCI emphasizes a continuous development of the staff, thus training is an ongoing process at Apollo.

Apart from Training, this cell is also involved in other HR Activities, namely:

- VOICE OF THE EMPLOYEE : Conducted monthly, this survey studies the satisfaction levels of the employees
- REWARD AND RECOGNITION: At every Department are placed the WOW cards. These can be filled by any patient who feels that any of the member of the Apollo Staff has done their job extremely well to help the patient
- INDUCTION: As mentioned earlier, recruitment is a continuous process. Each Wednesday, an induction program is conducted by the cell. The newly joined employees are oriented to the Apollo group, HR policies, and fire safety plan for Apollo, the infection control program, functioning of the blood bank.

Discharge process

Consultant Recommends discharge to the patient



PROJECT WORK

AIM: The aim of the project is to study and analyze the prolonged stay of patients in the hospital.

EXECUTIVE SUMMARY

The study shows the analysis of major factors and clinical characteristics of patients which may contribute towards their prolonged stay in the hospital. It also reveals the effect of prolonged stay of patients on the hospital and its services.

In particular, long-stay patients may consume a disproportionate amount of hospital resources. If even minor improvements could be made in their treatment and discharge, it might be of major benefit in efforts to optimize use of hospital resources. This study includes all adult long-stay patients with a medical or surgical diagnosis in Indraprastha Apollo hospital (*adult* meaning 18 or older who were staying in the hospital for more than 15 days). Renal and liver transplant ICU patients were excluded in the study.

Major characteristics of the patient which can contribute in their prolonged stay in the hospital are discussed below:

Sociodemographic: age of the patient, gender, national or international, city to which the patient belongs (whether the patient belongs to same city or not), these all characteristics can affect the length of stay of patients in the hospital.

Diagnosis: the kind of illness to which the patient was suffering from can also have a major contribution in prolonging their stay.

Treatment: Certain treatment factors that were available in the hospital patient records were thought to potentially influence length of stay. These included *rehabilitation care*, *ventilatory support*, *dialysis*, and *PEG tube* (Percutaneous Endoscopic Gastrostomy) insertion etc.

The data for the study was collected by doing face to face interview with patient, attendants, nurses and other concerned persons. Basic demographic and clinical characteristic of the patient was collected from patient's file. The major reasons behind the prolonged stay of the patient were asked to charge nurses, attendants and some of the Critical care coordinator of the respective floors / unit and then the data is analyzed for the same.

Conclusion which can be drawn from the study is that amongst all 83 patients, 41% belongs to age group 56-75years having the highest length of stay. According to the study, medical patients who were suffering from any neurological impairment were having the highest length of stay. Almost 50.6% of the patients were staying in the hospital because they needed complex patient care and 6% required critical care, they were kept at ICU and remaining 43.6% were there due to other reasons.

INTRODUCTION

Prolonged stay of a patient in the hospital can hinder hospital services and cost cutting measures in many ways. Several factors are there which contributes towards the longer stay of patients in the hospital; it may be a medical reason or a non medical. This study aims to find out and analyze those factors which contribute to their stay. In this study, patients who had been staying in the hospital for 15days or more than 15 days were considered to be “long stay” patients.

When the length of stay of patients increases, both patients and hospitals are at a disadvantage: patients, because they may suffer detrimental effects by being hospitalized; and hospitals, because their resources are not available for other, more appropriately hospitalized patients. Although some patients do require hospital care for an extended period of time, some patients are in need of an alternate level of care and are awaiting discharge.

In the domain of capacity, reducing the length of stay (LOS) of existing patients in a hospital unit is one of the essential ways to help reduce wait lists. However, the quality of the care and the needs of the patients must also be respected. Patients should not be discharged early unless medically advised. The purpose of this report is to outline the factors that are associated with prolonged stay of patients and providing recommendations to optimize patient length of stay in order to most effectively use resources without sacrificing quality.

Factors that can contribute towards the long stay

The literature on hospital long-stay patients indicated that a variety of factors—Sociodemographic, illness, and treatment—were related to long lengths of stay. Characteristics that were supported by the literature were separated into three groups: Sociodemographic, illness and treatment.

Sociodemographic

Sociodemographic factors include age, gender; places (National / International) to which patients belong that can affect the length of stay as they prefer not to travel to avoid any complications. Living arrangement of patients and level of care and support of family also put the patient at higher risk of prolonged stay.

Diagnosis:

The patient is categorized as a long staying patient according to the type of illness and level of severity of the disease the patient is suffering. For example, neurological as well as an organ transplant patients tend to stay more as they need more complex care even after the surgery. The determination of whether a patient is medical or surgical is based on the patient's presenting diagnosis.

Treatment

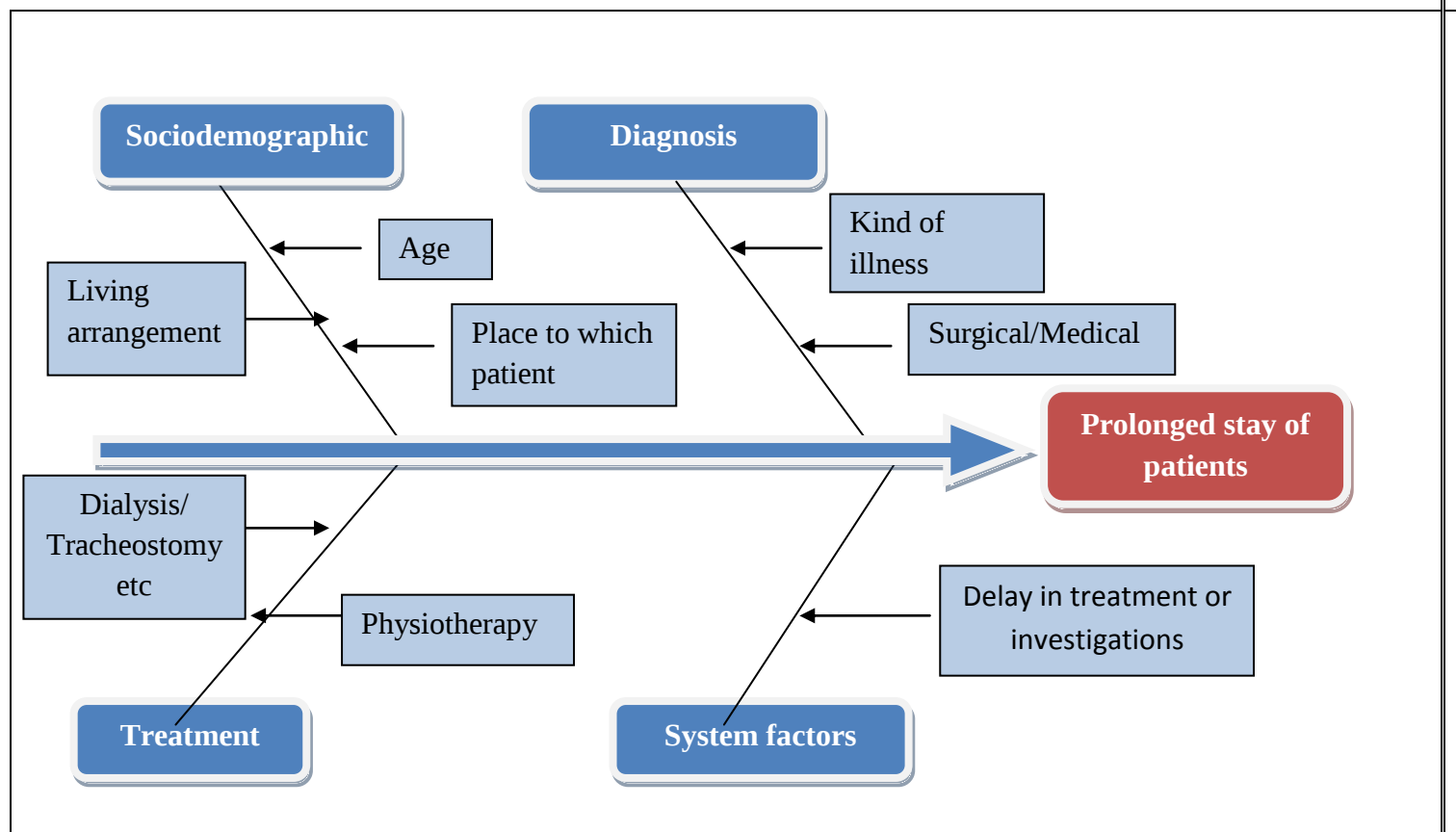
Certain treatment factors are thought to potentially influence length of stay. These included rehabilitation care, ventilator support, dialysis, and tracheotomy etc. Patients who required profound care, who needed more help with activities of daily living, such as eating, dressing, walking and bathing, or who were incontinent were also at risk of prolong hospitalizations.

Further information was collected regarding any other reason behind the prolonged stay of patients in the hospital. This study is concerned about the prolonged stay of patients because it affects hospital resources, revenue and services in many ways.

One of the arguments for transferring long-stay patients, who are in no need of critical care, out of acute care hospital is that of cost. Long-stay patients consume few of the diagnostic and other high technology resources in the hospital; if they were to be discharged and replaced by patients whose acute care needs are more intense, more of revenue can be generated.

People with dual disabilities and complex needs are particularly likely to experience prolonged stay. The stays were lengthened by other characteristics also, such as patients required rehabilitation care, nursing care etc.

**PROBABLE FACTORS AND CHARACTERISTICS OF THE PATIENTS THAT CAN CONTRIBUTE
TOWARDS PROLONGED STAY OF PATIENTS**



Source of information:

DeCoster Carolyn and Kozyrskyj Anita, September 2000 Long-Stay Patients in Winnipeg Acute Care Hospitals (Manitoba Centre for Health Policy and Evaluation)

OBJECTIVE

- ✚ To study the prolonged stay of patients on the basis of their demographic and clinical factors.

SUB-OBJECTIVES:

- To study the factors contributing towards the prolonged stay of patients.
- To provide suitable recommendations to optimize the length of stay of patients.

REVIEW OF LITERATURE

- **Y. Arabi *et al*** in his study on prolonged stay in the intensive care unit: Predictors and impact on resource utilization found that patients with prolonged ICU stay form a small proportion of ICU patients yet they consume a significant proportion of resources. A 50% reduction in ICU days by this small group of long stay patients result in a 25% of reduction in overall ICU days. Such a reduction will have major impact in following ways:

Logistic/Operational: More patients can be admitted and cared of at ICU with available resources, lead-time for admission in the ICU will be reduced, more elective surgeries can be performed.

Qualitative: This will ensure a more optimal utilization of scarce resources for providing quality care to the ICU patients really in need of it.

Financial: Decrease in ICU LOS will reduce the cost per patient in the ICU.

- **M.P. Quinn *et al*** in a study on Influence of prolonged hospitalization on overall bed occupancy found that the overall mean age of those admitted was 56.8 years. There was a significant increase in the average age as length of hospitalization was prolonged, from 54.2 years for those staying <10 days to 77.6 years in those with prolonged stay of 4100 days. Women were at increased risk of very prolonged stay compared with men. The risk of a long-stay admission was significantly increased in patients with stroke, kidney disease, fracture, dementia or degenerative neurological disease.

The author concludes that improving efficiency and productivity within the NHS is an important goal. Much recent policy is directed at reducing hospital length of stay and acute admissions in an effort to optimize the use of beds.

- **Gauri Angadi and Roy Chen** in their study on the optimization of patient Length of stay at Bridgepoint Hospital stated that wait times for medical services are a major concern for patients. One strategy to reduce waiting lists is to optimize the patient length of stay. One of the major ways of reducing wait lists is by freeing up resources. Patients who no longer need treatment should be discharged. Hospital

management and medical staff must ensure that patients receive the best possible care however it is vital to discharge patients who can no longer benefit from healthcare services in order to provide the same high quality care to others in need.

It was concluded that by introducing new roles, new policies and new low level tools to the 7 West team, it is possible to help optimize patient length of stay.

- **Carolyn DeCoster, Anita Kozyrskyj** in their study on long stay patients at Manitoba centre of health policy and evaluation stated that characteristics that were supported by the literature, and were also available in the data for analysis were:

Sociodemographic: age at the time of separation from hospital, gender, neighbourhood income level, living alone, living at home pre-admission, living in Winnipeg;

Illness: major diagnostic group, major procedure group (for surgical patients), cognitive impairment, co morbidity, in hospital fall, and for patients who went to a PCH or chronic care facility, level of care;

Treatment: rehabilitation care, ventilatory support, dialysis, and PEG tube (Percutaneous Endoscopic Gastrostomy) insertion;

Health care system: hospital of stay, stay in a geriatric unit, and destination at separation.

The study further concluded that the therapies like PEG tube insertion and dialysis were found to contribute significantly to a longer hospital stay. Both of these therapies may indicate individuals who are too unstable to be discharged from an acute care hospital. Invasive therapies like these may prolong life but compromise any opportunity for independence. Patients who require rehabilitation therapy would stay in hospital longer. It shows that older patients are at higher risk of cognitive and functional declines when hospitalized in a busy acute-care medical ward.

RESEARCH METHODOLOGY

1.	Study area	General wards, Semi-private rooms, Private rooms, at Indraprastha Apollo Hospital, New Delhi
2.	Target Population	Patients staying for more than 15 days in the hospital excluding Neonatal ICU and pediatric in patients.
3.	Duration of study	20 th April 2012 to 22 nd May 2012
4.	Sample Size	83 Patients out of total long stay patients present in the hospital
5.	Sampling technique	Purposive sampling (Non probability sampling)
6.	Tool and technique used	Technique: Face to face interaction Tool: Semi structured Questionnaire

RESULTS & FINDINGS

DATA ANALYSIS:

Gender Profile:

Overall 83 patients in the hospital found to be “long stay” excluding neonatal ICU, pediatric wards and Renal transplant ICU. Amongst those 83 patients, 57 (68.6%) of them were males and 26 (31.3%) were females. The given data shows that females tend to had more average length of stay than males.

Row Labels	Average Length of stay (Days)
F	126
M	86

Table 1: Average length of stay for males and females

Age:

Amongst all 83 patients’ highest number of patients i.e.34 patients fall in the age group of 56-75years. That shows that patient’s demographic factors play a crucial role in prolonging their stay at hospital.

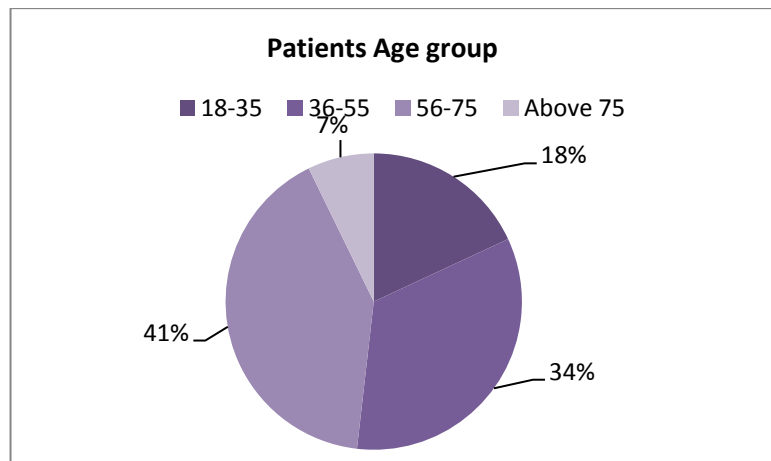


Figure 1: Percentage of patients belonging to each age group

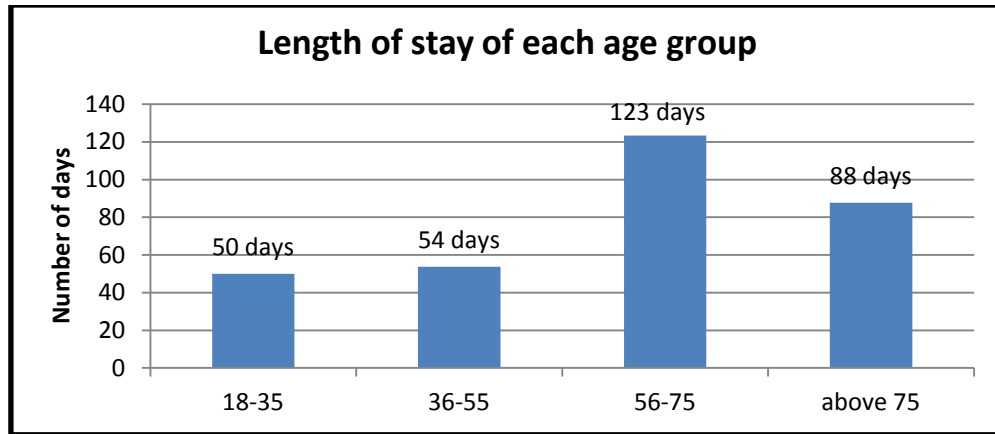


Figure 2: Average length of stay for all age groups of long stay patients.

Above graph shows that elderly patients with age group 56-75 and above 75 had the highest length of stay amongst all long stay patients.

Place to which patient belongs:

Among 67 national patients, 35 patients were local who belong to New Delhi only and remaining 32 patients were from other cities.

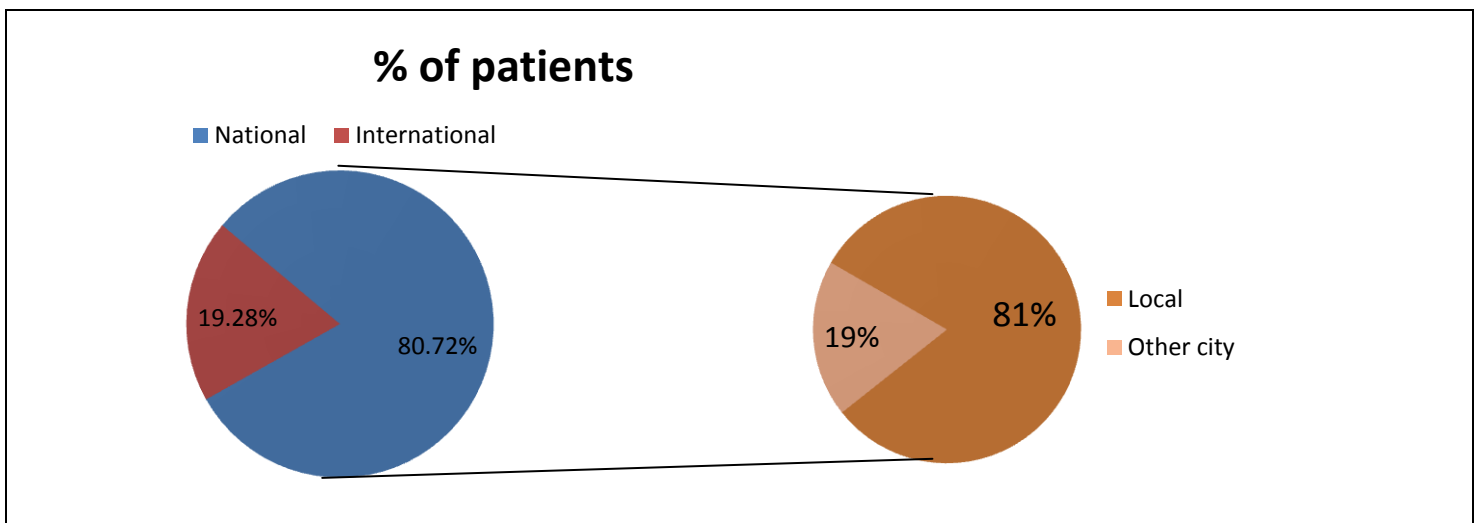


Figure 3: Percentage Distribution of patients on the basis of their place of residence

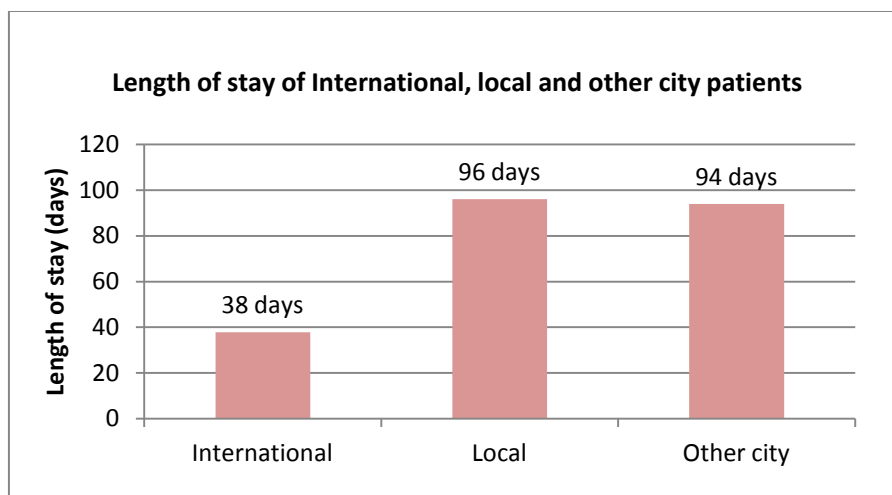


Figure 4: Average length of stay of long stay patients according to their place of residence.

Above graph shows that local patients means patients who are residing in New Delhi and NCR region had highest average length of stay amongst all the long stay patients in the hospital.

Specialty of running treatment:

Amongst whole sample of data, largest number of long stay patients came under neuroscience department except patients belonging to other specialties.

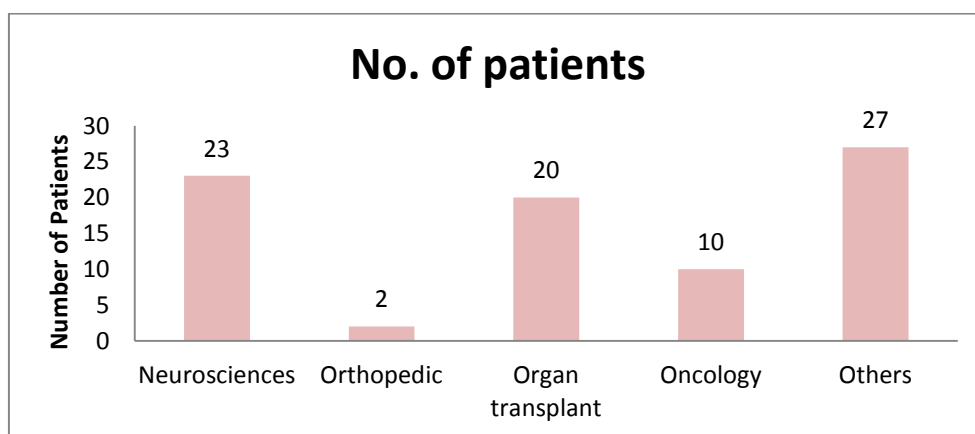


Figure 5: Number of patients belonging to different clinical specialty

Surgical/Medical:

The number of patients who had gone through a surgery was 21 and remaining 30 were medical patients.

From the analyzed data it is inferred that medical category of patients with highest long stay patients fall under neurosciences and in surgical category, the highest percent of patients are of organ transplant.

Distribution of medical and surgical patients:

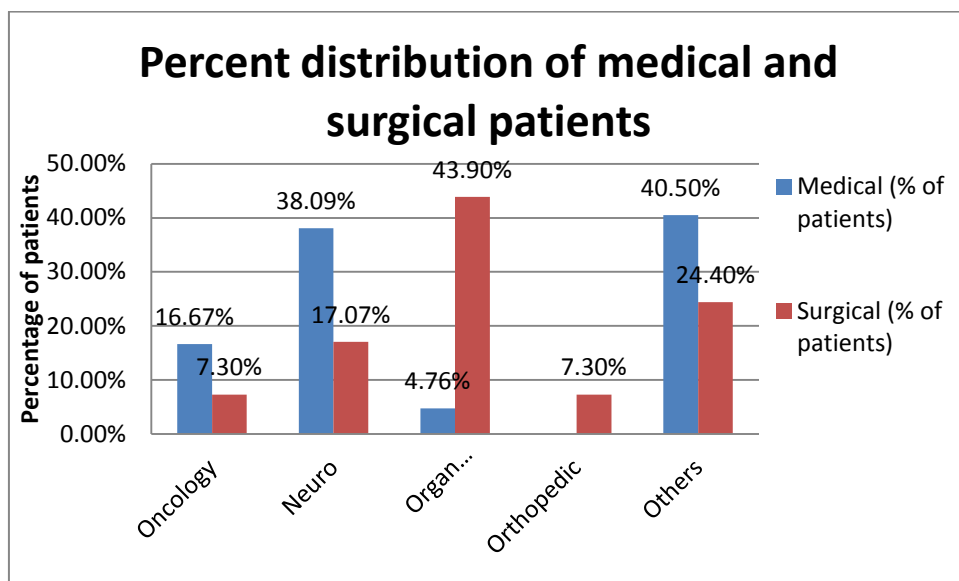


Figure 6: Department wise Percent distribution of medical and surgical long stay patients

Graph given below shows that medical patients had higher average length of stay than surgical patients.

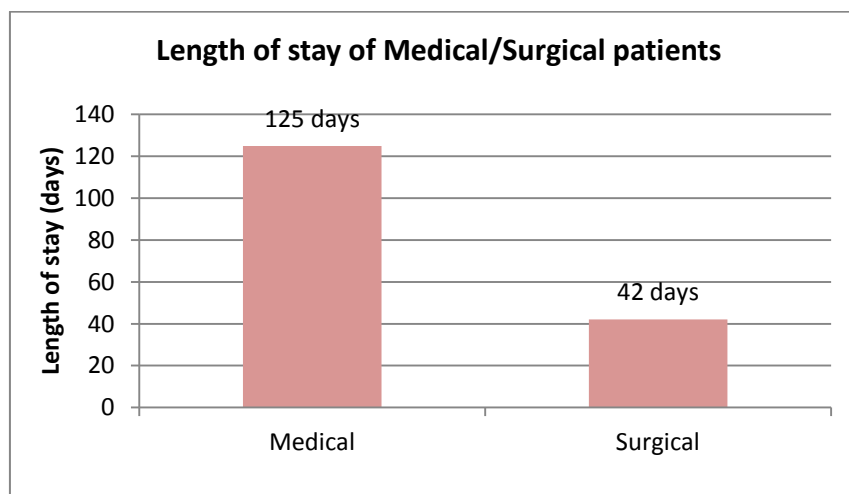


Figure 7: Average length of stay of medical and surgical patients

Analysis For major diagnosis:

Figure 4 shows that among all the major diagnosis Cerebrovascular Accident and carcinoma patients were most vulnerable to prolonged stay in the hospital and had highest length of stay.

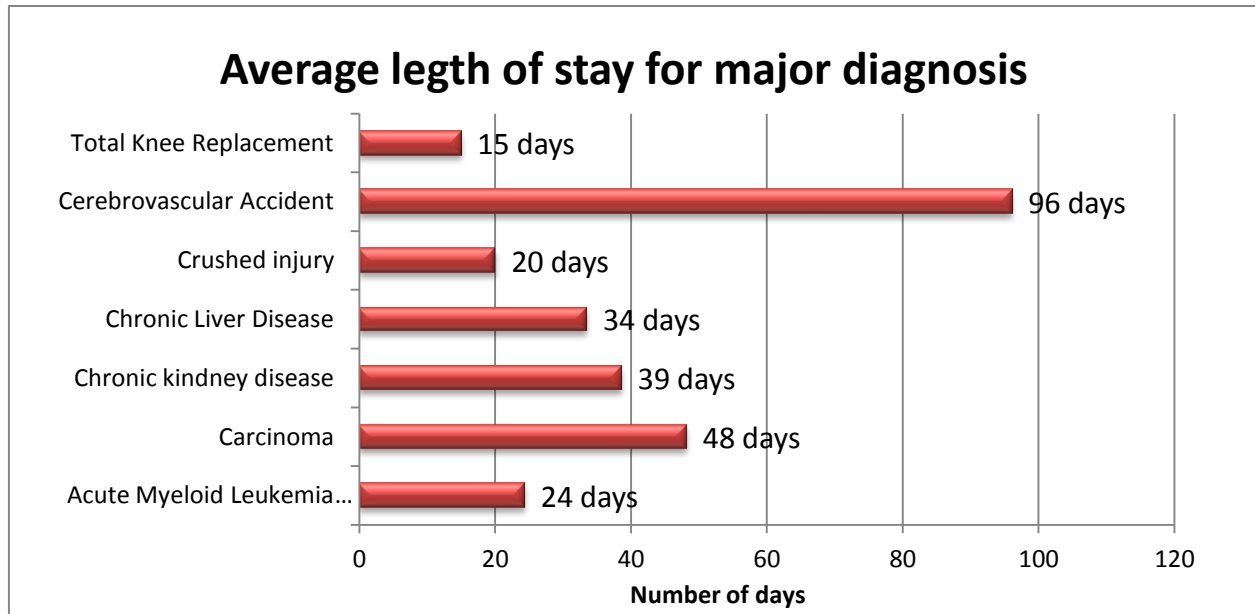


Figure 8: Average length of stay for major diagnosis found.

Major reason for prolonged stay of patients:

Amongst all the long stay patients 50.6% stayed in the hospital because they were in need of complex patient care and ~ 6% required critical care, remaining were staying in the hospital because of some other reasons which can be optimized if further steps are taken.

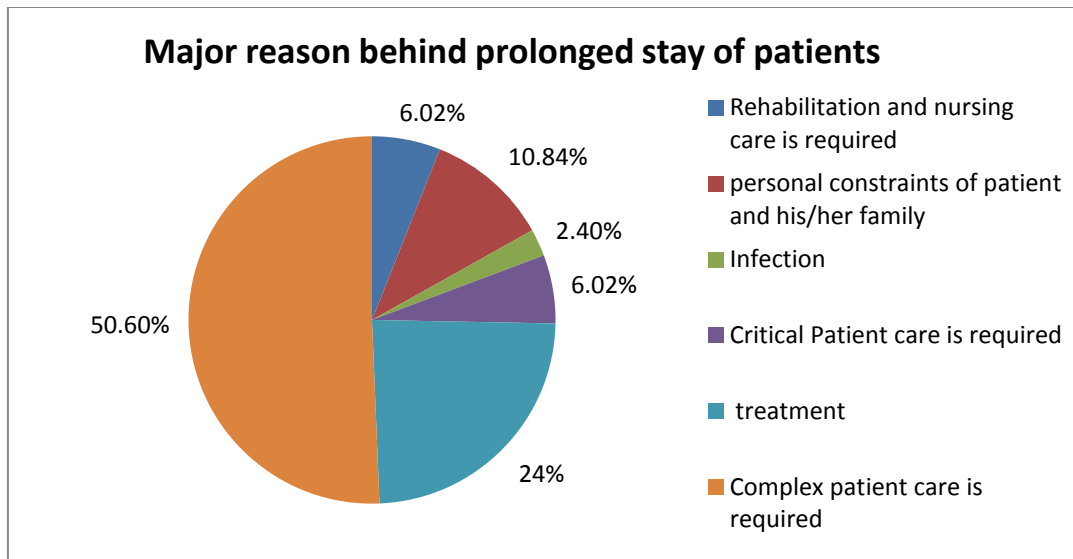


Figure 9: Analysis of different reasons contributing towards the prolonged stay of patients in the hospital.

Analysis of contributing factors towards prolonged stay of patients

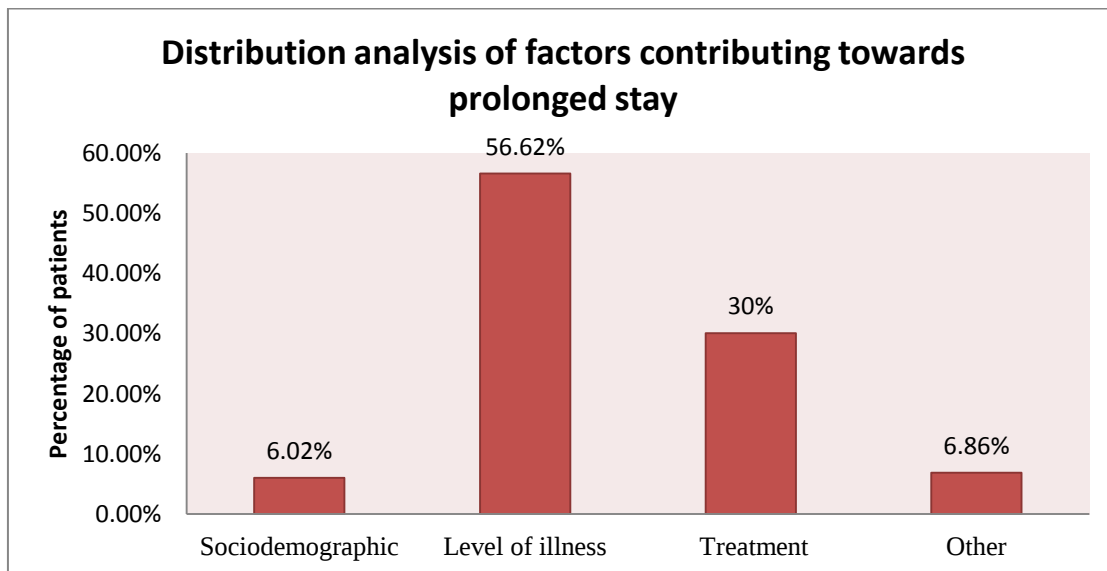


Figure 10: Percent distribution of contributing factors towards prolonged stay of patients

OBSERVATIONAL LEARNINGS

Impact of prolonged stay on the hospital

- Demand and supply gap is created because of unnecessary occupancy of beds by long stay patients in the hospital :- the patients who are in a need of acute and emergency care are deprived of services provided as the demand is more and supply is less because of unnecessary occupancy and prolonged stay of patients.
- Another major impact of prolonged stay of patients is increase in waiting time for other patients who may be in need of more acute care or hospitalization.
- Unnecessarily prolonged lengths of stay is driving up costs and compromise in quality, putting hospitals at risk as volumes climbing, cost pressures are intensifying and demands for performance data heighten up.
- Prolonged stay of patients is leading to improper utilization of services like manpower (Doctors nursing and paramedics) and resources like consumables, pharmacy, diagnostics and many more.

CONCLUSION

- From above study the conclusion which can be made out those elderly patients i.e. patients between the age group 56-75 are highest in number and have the highest average length of stay. There are several reasons behind their prolonged stay but most of them needed complex clinical care given by paramedical staff of the hospital.
- Amongst all the 83 long stay patients 30 were medical patients and amongst those medical patients 38% were suffering from neurological impairments. Most of these types of patients need only rehabilitation care but they still occupy most of the beds and services, amongst all the long stay patients who were present in the hospital. Cost incurred on these kinds of patients by the hospital is more as compared to short staying patients because they are utilizing the resources & services more and contributing less in the revenue earnings of the hospital.
- Approximately 42% of the long stay patients were residing in Delhi and NCR region who contribute the most in prolonged average length of stay.
- Amongst all the sample of long stay patients taken in the study, 56.62% of the patients stayed because of their most responsible diagnosis and the level of illness. Sociodemographic characteristics were not significant factors in lengthening the hospital stay for long-stay patients.
- It is analysed that 50.6% patients were those who require complex patient care and almost 6% were in need of critical care but remaining stayed in hospital longer because of some other reason. The availability of more rehabilitation services offered sooner and in an appropriate environment may help patients to be discharged sooner at a higher functional level.

RECOMMENDATIONS

- Introducing rehabilitation unit /ward in the hospital premises so that the patients who are in need of only some basic rehabilitation and nursing care can be transferred there and hospital could utilize those beds for patients requiring such care.
- Home Based Outreach Services and Mobile Support Teams can be created to provide services at home.
- Hospital can have tie-ups with any nursing home or NGOs who can provide nursing care to patients for longer period.

LIMITATIONS

- Major limitations of the study are that whole of the long stay patients population could not be included in it as there were some areas in the hospital where patients are kept under strict isolation and peaceful environment were required, like in organ transplant ICU so it was difficult to collect data from these areas.
- The reasons given for prolonged stay may contain some ambiguity as there were limited access to patients and their attendants to get information about the reasons completely and accurately.
- Interaction with the consultants, regarding the prolonged stay of patients could not become possible because of time constraints and other physical barriers.

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