Summer Training at
Apex Hospital Pvt. Ltd., Malviya Nagar, Jaipur
(April 3 to June 2, 2017)

Study on Drug Inventory System (ABC Analysis) in Apex Hospital, Jaipur

By
Ashish Manocha

Under the guidance of
Dr. D.K. Mangal

MBA Hospital & Health Management
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Institute of Health Management Research
The IIHMR University, Jaipur
2017

INSTITUTE OF HEALTH MANAGEMENT RESEARCH
(WHO Collaborating Centre for District Health System Based on Primary Health Care)

IIHMR UNIVERSITY

CERTIFICATE

This is to certify that **Dr. Ashish Manocha** has undergone summer training in **(Apex Hospital Pvt. Ltd., Jaipur)** from 3rd April to 2nd June 2017.

The candidate ~~herself~~/himself completed the project assigned to his/her during summer training.Her approach to the project was sincere and proactive.This summer training is in partial fulfillment of the course requirement recommended for the award of MBA in Hospital and Health Management.

I wish him/her success in all her future endeavors.

Col. (Dr.) Ashok Kaushik

Dean (Academic & Student Affair)

The IIHMR University, Jaipur

Dr. D.K. Mangal 30/6/17

Dean (Research)

The IIHMR University, Jaipur

1, Prabhu Dayal Marg, Near Sanganer Airport, Jaipur- 302029, Rajasthan, India.
Ph.: 0141- 3924700, 2791431- 32, Fax: 0141 3924738, E-mail: iihmr@iihmr.edu.in, Web.: www.iihmr.edu.in

Apex Hospitals®

APEX HOSPITALS® PRIVATE LIMITED

Regd. office : SP - 6, Malviya Industrial Area, Malviya Nagar, Jaipur-302 017
Office Address : SP-4 & 6, Malviya Industrial Area, Near Apex Circle, Malviya Nagar, Jaipur-302 017
Corporate Identity Number (CIN) U85110RJ1987PTC004214
Phone : 0141-4101111, Fax : 0141-2751006 E-mail : apexhospital2008@gmail.com, drsachinjhawar@gmail.com

Date:- 02nd June 2017

TO WHOMSOEVER IT MAY CONCERN

This is to certify that **Dr. Ashish Manocha** has successfully completed his training from **3rd April 2017** to **2nd June 2017** in **Supply Chain Management Department** of our hospital and has completed the project assigned to him on "**A Study on Drug Inventory System (ABC Analysis) in Apex Hospital**" and has submitted the report as well. He was found sincere and hardworking during this tenure.

We wish him all the best for his future endeavors.

For Apex Hospitals Pvt. Ltd.

Harsh Arora
Senior Manager, HR

ACKNOWLEDGEMENT

For a MANAGEMENT student, the power of knowledge is an attainable unless an element of practical observation and practical performance is not added. I consider myself fortunate for having being provided an opportunity to pursue my summer internship from **APEX HOSPITAL PVT. LTD., MALVIYA NAGAR, JAIPUR.** It is a great pleasure to express my sincere gratitude to **Dr. Sachin Jhawar** (Director – Clinical Services), **Mr. Harsh Arora** (Senior HR Manager), **Mr. Ajay Kumar Sharma** (Senior Manager - SCM), **Mr. Anand Mohta** (Pharmacy Incharge) for providing me an opportunity to undergo training in this highly esteemed organization.

I would also like to thank my mentor **Dr. D.K. Mangal** (Dean Research, IIHMR Jaipur), for his able guidance and support, unflinching help and motivation at every step of completion of this report.

It is my genuine pleasure to express my very special thanks and gratitude to **Mr. Ajay Kumar Sharma** (Senior Manager SCM) whose dedication and keen interest had been solely and mainly responsible for the completion of this report. His timely advice, meticulous scrutiny, scholarly advice and scientific approach have helped me to a great extend to complete this task. He has been a constant guiding light and source of illumination to me. It entirely goes to his credit that this report has attained this final shape.

I would also like to thank the **Team of Supply Chain Department (SCM)**, for providing me the necessary detail and clearing my doubts whenever required. I acknowledge them for taking out time from their hectic schedules and helping me in completion of my report.

Lastly, I would like to express my gratitude to my family and friends for being a constant source of inspiration for me.

DECLARATION

I do hereby declare that I am a student of 1st year, MBA in Hospital and Health Management, IIHMR University, Jaipur, Rajasthan session 2016-2018.

I would like to state that I have carried out my Internship on the topic "A study on Drug Inventory System in Apex Hospital, Jaipur" under the guidance of Mr. Ajay Kumar Sharma (Senior Manager – SCM) at Apex Hospital, Jaipur for the partial fulfilment for the degree of MBA Hospital and Health Management.

This project work is my own and has not been submitted to any of the other Institute or University for the purpose of award of any degree or diploma.

Dr. Ashish Manocha

MBA HM -21

2016 - 2018

IIHMR University

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ABBREVIATIONS

A&E- Accident and Emergency

HCA-Health Care Assistant

COO-Chief Operating Officer

CGHS-Central Government Health Scheme

CSSD-Central Sterile and Supply Department

CT-Computerized Tomography

ECG-Electro Cardiogram

TMT-Trade Mill Test

EEG-Electro Encephalography

EMG-Electro Myography

HOD-Head Of Department

HRD-Human Resources Department

ICU-Intensive Care Unit

HDU-High Dependency Unit

IPD- In-Patient Department

MRD-Medical Records Department

APEX HOSPITAL PVT. LTD.

2.1 APEX HOSPITAL PROFILE:

Managing Director: Dr. S.B. Jhawar

Director Clinical services: Dr. Sachin Jhawar

Chief Operating Officer: Mrs. Sheenu Jhawar

Apex Hospital is a Multi-speciality hospital, state of art medical centre, boasting of a clean and patient friendly environment, internationally trained clinical and managerial team and driven with skilled clinical expertise, high morale and patient focused care.

2.1.1 Brief History:

Dr. S.B. Jhawar (Managing Director)

- M.D. (Medicine) from S.P. Medical College, Bikaner.
- He worked with different hospitals in the dept. of Medicine/Geriatric psychiatry in England.
- First person to start and pioneer ultrasonography in Rajasthan.

2.2 Apex Logo

Green is the colour of healing and is symbolic of our steadfast focus to ensure the health and well-being of those we minister to.

Red is expressive of the dynamic zeal with which we strive to make it a reality.

The Apex logo is the indelible assurance that our expertise will always be tempered with humanity. We never forget that the wellbeing of human lives is our **raison d'etre.**

2.2.1 Key Statistics of Hospital

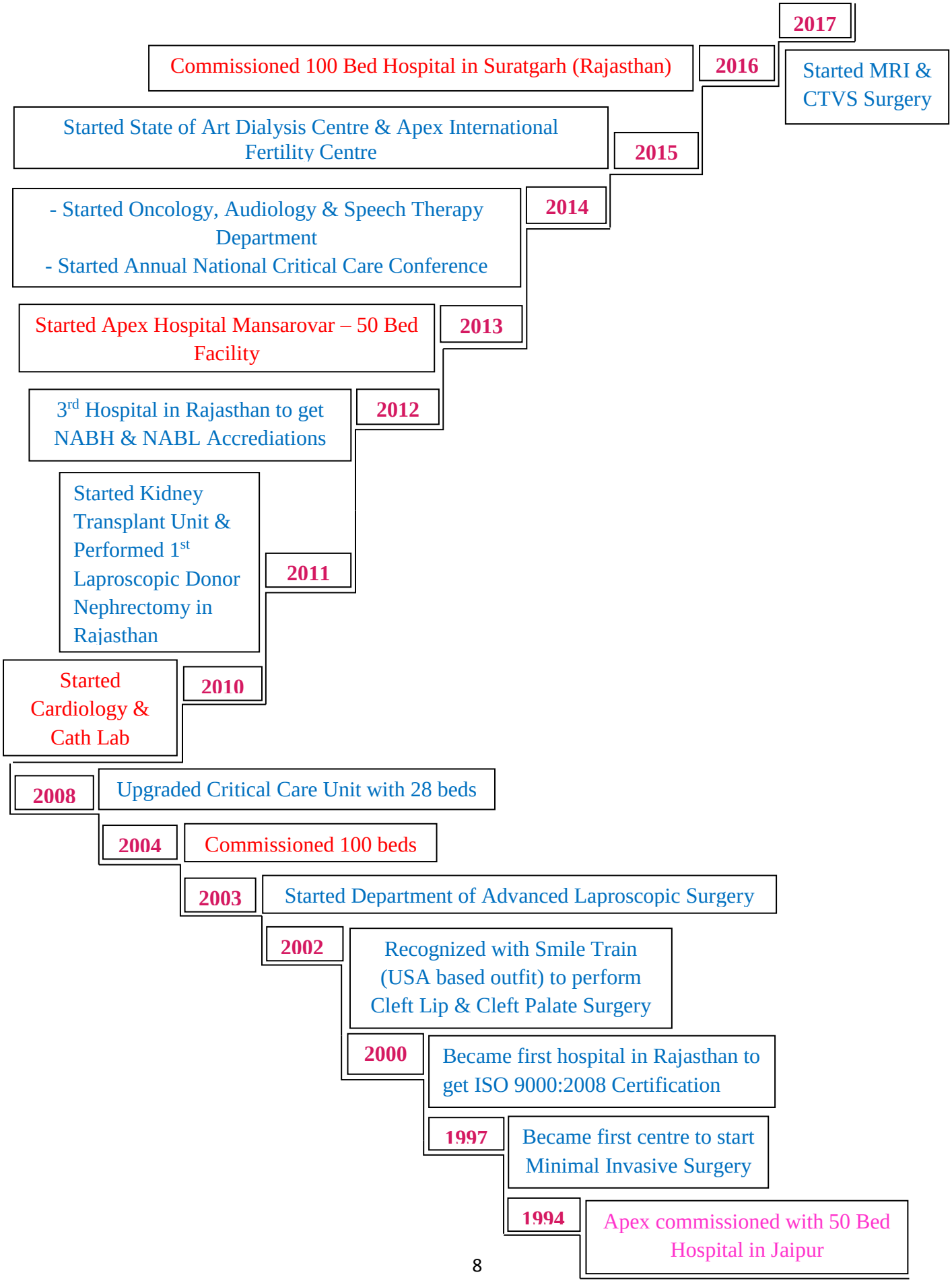
Encompassing 6000 sq.ft of space spread over 4 floors and a basement. Its intelligent framework allows for hospital staff to optimize utilization of space and resources.

Accommodates over 200 in – Patient beds, allows optimal utilization of resources and ensures privacy, dignity, comfort, convenience and the best healthcare to every patient. However, the smooth and seamless movement of people & staff guaranteed.

Critical care unit is the best of critical care beds in Jaipur, with 30 ICU beds. Special technical features in ICU including ceiling mounted, dual arm pendants which ensure that the space around the patient is not cluttered. Another unique feature is dedicated air supply that keeps the critical care free of any kind of contamination and infection.

It has a total of over 40 full time consulting clinics with the capacity to handle over 500 outpatients consulting every day.

2.2.2 Milestones:



2.3 APEX VALUES

The **VIRTUOUS VALUES** serve as a guideline for the routine conduct of each member of Apex Hospital, Jaipur. All the employees are expected to imbibe and practice values that are:

V – Imbibe and share the **Vision**

I – Lead through honesty and **Integrity**

R – Earn **Respect**

T – Gain Patients **Trust**

O – Own Quality excellence

U – **Uphold** Innovation and continous improvement

S – Develop and **Share** success

2.4 APEX VISSION

To deliver quality conscious and technology driven contemporary healthcare across segments, in an environment that is oriented towards patients and staff needs with all endeavors to ensure continuous education and training for a multi-faceted personal and linear organizational growth.

2.5 APEX MISSION

To provide holistic quality care at a minimal cost in a hygienic environment with perseverance, dedication and compassion.

2.6 APEX QUALITY & SAFETY STANDARDS

The Apex Quality & Safety Standards (AQSS) are the standards set by people representing QA Dept. for the Apex Hospitals "level of performance" in key functional areas such as patient rights, patient treatment and infection control. AQSS has been developed on the lines of NABH.

Implementing AQSS will lead us to improved patient care, safety and continuous quality improvement. This also strengthens the confidence of patients, third party and insurance agencies, providing us a competitive edge. The mission of the AQSS is to improve the quality of healthcare.

2.7 ACCREDIATION & AFFILIATION

National accrediation board for hospital and healthcare providers (NABH) accrediations recieved in 2012.

Apex hospital, Jaipur is NABH accredited Multi-speciality hospital in Rajasthan, with the mission to bring quality medical care at doorstep.

2.8 SERVIVES AT APEX HOSPITAL

- General Medicine
- Cardiology
- Gastroenterology
- Pediatric Medicine
- Neurology
- Nephrology
- Diabetology
- Dermatology
- Psychiatry
- Anesthesiology
- Radiology
- Pathology
- Physiotherapy
- Dietician
- Ophthalmology
- ENT
- Dental
- Pulmonary Medicine
- Critical Care Specialty
- Oncology

2.9 FLOOR INFORMATION

BASEMENT	GROUND FLOOR	FIRST FLOOR	SECOND FLOOR	THIRD FLOOR
• OPD • Operation theatre-1	• Front desk • Admissions • Emergency • Pharmacy • Canteen • Radiology department	• IPD wards • Counselling department • Nursing superintendent room	• ICU • Operation theatre-2 • Cath lab	• IPD wards (male and female wards) • Operation theatre-3 • Quality department • Supply chain management department

ADMINISTRATIVE BLOCK

BASEMENT	GROUND FLOOR	FIRST FLOOR
• Accounts • IT department • HR department • Finance	• Dialysis unit	• Oncology department

2.10 DEPARTMENTS

ACCIDENT & EMERGENCY

An Emergency Department (ED) is also known as Accident & Emergency (A & E), Emergency Room (ER), Emergency Ward (EW), or Casualty Department is a medical treatment facility, specializing in acute care of patients who present without prior appointment, either by their own means or by ambulance. Due to the unplanned nature of patient attendance, the department must provide initial treatment for a broad spectrum of illness and injuries, some of which may be life threatening and require immediate attention.

Layout

- 11 bedded (6+3 triage + 2 isolation)
- Each bed is separated with curtains to maintain patient privacy and is equipped with the following:

✓ Oxygen supply
✓ Suction pump
✓ Syringe pump
✓ Cardiac monitor

Minor Operation Theatre

- Machines in minor OT are as follows: -

✓ Anesthesia machine
✓ ETCO2 machine
✓ Cautery machine
✓ OT table

- Procedure done in minor OT

✓ Lumbar puncture
✓ Biopsy
✓ Bone marrow aspiration
✓ Suturing

Equipment

- Defibrillator-2
- Portable ECG-2
- Nebulisation machine -2
- Portable sonography machine -1
- Trolleys:
    - ✓ Procedure trolley
    - ✓ Induction trolley
    - ✓ Adult crash trolley
    - ✓ Dressing trolley

Ambulance
There are 2 types of ambulance:

a) Non-cardiac ambulance
b) Cardiac ambulance

Equipment in the ambulance are as follows: -

- Ambulance sets
- Portable ventilator (cardiac ambulance)
- Portable oxygen unit
- Portable suction unit
- First aid kit
- Traction splint
- Auxiliary stretcher
- Transfer sheet
- Airways (nasal, oropharyngeal)
- Obstetrical kit
- Sphygmomanometer
- Stethoscope
- Fire extinguisher
- Burn kit
- Others

    - ✓ Sterile and non-sterile gloves
    - ✓ Face mask
    - ✓ Blankets
    - ✓ Towels
    - ✓ Bed pan
    - ✓ Tongue depressors
    - ✓ Cold packs instant chemical type

- ➢ 1 HCA in non-cardiac ambulance
- ➢ 1 HCA + 1 nurse + 1 cardiac consultant in cardiac ambulance

OUTPATIENT DEPARTMENT

Apex Hospital has 40 independent consultant clinics with a capacity to handle over 500 outpatient consultation every day. These clinics are organized as functional clusters representing a specialty, with each cluster containing its own examination room, phlebotomy room, and in instances, rooms for specialized medical equipment unique to the cluster. A day care dialysis unit, an endoscopy theatre complex, radiology suites and a blood bank support outpatient service are co-located on the same floors as the self-contained outpatient area.

The specialists included are Anaesthesiologist, Critical Care Medical, accident and emergency, gynaecology and obstetrics, imaging, laboratory medicine and pathology including biochemistry, molecular biology, haematology, histopathology, microbiology, clinical pathology, transfusion, medicine, rheumatology, geriatric medicine, surgery including dentistry, ENT, general surgery, ophthalmology, plastic and reconstructive surgery, urology, surgical oncology, cosmetology.

OPERATION THEATRE

The aim of department of anaesthesiology and OT facility is to provide the highest quality of care to patients undergoing various types of surgeries. The OT facility is positioned as a tertiary care centre of excellence providing complete services for various surgical specialties. The department is staffed with highly experienced and trained anaesthesiologist, surgeons, technicians, nurses and other support staff. Their services have state of the art technology and equipment with highest level environment and quality controls. For each OT there are two scrub nurses and one circulating nurse. Protocols based on approach for quality pre-operative, intra-operative and post- operative and follow-up care of the patients. The complex is divided into three zones: sterile, semi sterile and non-sterile zones. Complete services to the following surgical specialties are provided.

- Cardiac surgery
- Neuro surgery
- Onco surgery
- Orthopaedic surgery
- General surgery
- Gynaecology and obstetrics surgery
- Paediatric surgery
- GI surgery
- Uro surgery
- Plastic surgery
- Ophthalmic and ENT surgery
- Transplantation surgeries

IN PATIENT DEPARTMENT

The IPD provides the detailed pre-procedure needs their completion and coordination with the diagnostic to arrive at the diagnosis and completion of treatment regimens, comprehensive care in the pre-operative and follow-up care, rehabilitative, and nutritional regimented their scientific amalgamation as per the progressive patient care need. The IPD rooms are of the following types: single room, twin sharing, deluxe room. Each wing has a separate nursing station. The various types of rooms with their features as follows:

- GENERAL WARDS
  - 5 beds/room
  - Air conditioned
  - Bed heads panels with medical gases
  - Nurse call systems with two-way communication
- SINGLE ROOMS
  - Area of 100 sq. ft.
  - Separate patient zone and attendant zone
  - Nurse call system with two-way communication.
- TWIN SHARING
  - Bed head panels with medical gasses
  - Television sets
  - Couch for each patient relative
  - Nurse call system with two-way communication.

Nurse bed ratio is 1:5 for general ward, 1:2 for single rooms, 1:3 for twin sharing. The various other rooms are clean utility, dirty utility, janitor room, AHU (air handling unit), sluice room, pharmacy room, I.T. room.

INTENSIVE CARE UNIT

The ICU cater to patients with most severe and life-threatening illnesses and injuries requiring constant close monitoring and support from specialist equipment and medication to ensure normal bodily functions. The nurse patient ratio for critical patients is 1:1 and for stable patients is 1:2. The ICU coordinates with CSSD, Laboratory and the radiology department, strict aseptic techniques are used. Pressure zones are created to control infection rate

THE ICU HAS HIGHLY DEDICATED AND TRAINED MEDICAL, NURSING AND ALLIED STAFF. THERE IS A SYSTEM OF CLOSED ICU IN APEX HOSPITAL. THE SPACE PER BED IS 220SQ FEET IN THE PATIENT CARE AREA

EQUIPMENTS

MONITORING EQUIPMENT	CARDIOVASCULAR THERAPY	RESPIRATORY THERAPY	LABORATORY EQUIPMENT
Bed side and central monitors	CPR Trolley	Ventilators	Blood gas analyser
ECG recorder	Defibrillators	Incubation / tracheotomy trolley	Electrolyte analyser
Pulse oximeter	Infusion pumps and syringes	Nebulisers	
Spiro meter			
ECG monitor			
Temperature monitors			
Blood glucose meter			

Miscellaneous equipment

- Crash cart
- Dressing trolley
- Procedure trolley

MEDICAL RECORDS DEPARTMENT

- The main functions of the department are:
    1) Storing file for future reference.
    2) Research
- Open and closed audit is done of all files before keeping them for storage.
- The arrangement of files is done in following ways:
    - ✓ Year wise and UHID wise
    - ✓ Also on the basis of their type:
        a. Regular files
        b. DAMA files
        c. MLC flies
        d. OT recovery files
        e. Chemotherapy files
        f. Dialysis files
- Apart from files few forms, and records are also store in this department:
    - ✓ Consent forms
    - ✓ OT papers
    - ✓ A&E Papers
- Certificates issued from the department:
    - ✓ Patient fitness certificate
    - ✓ Fit to fly certificate
    - ✓ Leave certificate

- All files are stored in the department for the following time-period:
  - ✓ Report-1.5 year
  - ✓ Death, DAMA and MLC files 20 years
  - ✓ Regular files-5years
- ICD-10 coding is done for storing files:
  - ✓ Red-Death, DAMA, MLC
  - ✓ Black-Oncology
  - ✓ Yellow-Gynaecology, & obstetrics, IVF files
  - ✓ Dark blue- general medicine, critical care, Nephrology, Endocrinology, Gastroenterology, Pulmonary medicine, Dermatology, Dental, Psychiatry, rehabilitation, Rheumatology.
  - ✓ Light blue- Paediatrics
  - ✓ Orange- Neurology, CVTS, Cardiology, Orthopaedics.
  - ✓ Green- ENT, general surgery, ophthalmology, Urology, Cosmetology, Interventional radiology.
- This department has to notify Jaipur Municipal Corporation (JMC) about following things on regular basis:
  - ✓ About Birth & Death report (once in a week)
  - ✓ Notifiable diseases which includes cholera, dengue, plague, yellow-fever, TB, polio, meningococcal meningitis, leptospirosis, viral encephalitis (once in a week).
  - ✓ Maternal mortality (once in a week)
  - ✓ MTP & PNDT (once in a month)
  - ✓ Retrieval- for easy retrieval of files tracer cards are used when files are given to patients or sent outside the department.

BLOOD BANK

Transfusion medicine is a multi-displinary area concerned use of blood and blood component in the treatment of human disease. The mission of Apex Hospital is to make available appropriate adequate quantity and high quality of safe blood and blood component to "anyone, anytime, anywhere" in medical community. Apex Hospital adheres to quality norms and focus on the donor satisfaction standards and technique and quality control are precisely and meticulously maintained as per norms given in the drugs and cosmetics acts, by the regulatory authority, director drug controller (India), ministry of health and family welfare, Govt. of India, and also internationally recommended methods. The department runs round the clock and blood and its products are supplied as and when requested. Blood donation is accepted from voluntary blood donors and relatives and friends of the patient. Autologous blood donation (blood donation from one's own use) is also accepted. The blood donors are informed and educated about the infection transmitted by transfusion of blood components. All the mandatory screening for the transfusion transmissible disease like HIV, HBV and HCV is done with the more sensitive and specific CMLIA and ELISA methods. All units are screened for VDRL and malaria

parasite. Red cells in an additive solution (RCA) like, SAGM or ADSOL is a product which is used in variety of indication like surgeries, anemia, trauma,child birth etc. asa thumb rule one unit would increase the hemoglobin by 1 gm%.

IMAGING

The imaging department consists of radiology services. The investigations performed in these departments include:

CT Scan
MRI
X-RAY
Ultrasound
Mammography

CENTRAL STERILE SUPPLY DEPARTMENT

The central sterile supply department (CSSD) plays a key role in providing the items required to deliver quality patient care. Centralizing the reprocessing of reusable devices helps ensure uniform standards of practice, while also providing for improved workflow (soiled, to clean, to sterile). This also facilitates the training and education of skilled technicians who must be aware about the standards, complexities, challenges, risks and technicians associated with the CSSD function. Every CSSD task must be performed for the welfare and safety of patients, co-workers and the community.

CSSD is the heart of hospital infection control and the most important unit of clinical support services. CSSD's main functions are cleaning and drying, assembly, packing, sterilizing, storing and distributing instruments (both multi use and single use devices), as per well delineated protocols and standardized procedures.

Infrastructure

It is divided into 3 zones

1. Decontamination area
2. Assembly area
3. Sterile storage area

PHARMACY

Central pharmacy indents to IP, OP. It is of 2 categories: capital and consumables.

SCOPE OF INVENTORY MANAGEMNET:
Indentation
Receiving
Storing
Distribution

STORES

Material stores functions in order to supply the right material in right quintiles at the right time at the right price. The IP departments put up requests for the required materials by uploading indents in the HIS. The store manager raises a purchase order to be sent at the central procurement stores. The supplies received are inspected on the basis of quantity and expiry in the incoming material inspection area. The items are stored as per the storage norms. Departmental issues are made for non – medical consumable as per requirement. Stock is reviewed periodically for non-moving items and short expiry items. Stock audits are carried out twice/year. Any variance is reported to the higher management. For inventory control, ABC analysis is carried out. FIFO (first expiry first out) is followed. The staff includes:

The key performance indicators are no stock outs, zero errors in maintenance of accounts, zero error is billing processing maintain minimum inventory maximum efficiency, maintaining stores as per the NABH – ISO standards, submission of bills accounts within 4 working days, expired items on the shelves should be zero, minimize emergency purchase, TAT suture and lab kits (19 days), instruments (8 weeks) and other items (2 days)

FOOD AND BEVERAGES

The objectives of food and beverages department are to deliver healthy and nutritious meals coupled with a wonderful with a wonderful experience of hospitality services to all IP, OP and staff. The main functions of the department are as follows:

- Impatient meal management
- Purchase of fruits, vegetables, milk, pulses, whole grain and other dietary consumables
- FIFO is followed

The purchased items are unloaded in the receiving area, where they are inspected and then washed with water and anti-bacterial liquid before bringing it in the kitchen premises. It is followed by storage of perishable and non-perishable items in refrigerator and dry storage area respectively. Diet planning and counseling is done by the dietician according to the patient's condition, food allergy and taste and general preference. The diet summary is

handed over to the supervisor in the form of meal sheet cum ticket. According to this, the food is prepared and laid out on trays. The meals are served in the patient's room and clearance is carried out after 2 hours. Food/meal/diet for a patient admitted in the hospital is decided by the doctor admitting the patient depending on his/her medical condition. On doctor's recommendations, the dieticians plan the meal that is best fir the patient 'speedy recovery. The staff includes:

- Regional head of support function
- F&B managers cum chef
- Assistant manager F&B staff

ENGINEERING DEPARTMENT

Engineering and maintenance department is manned for 24 hours for keeping round the clock vigil on proper functioning of plant engineering equipment coming under the purview of department. This covers maintenance of major supplies to the hospital such as power, water, which form the life line to the hospital's activities. The responsibilities of the department include operation and maintenance of plant equipment installed in the basement of main building and various other areas to support the normal functioning of the hospital and repair work of equipment related to the department's responsibility. The policy of the department is to serve well with safety and it time, continuous improvement, cost saving, optimum utilization of manpower and equipment, optimum utilization of inventory and teamwork.

The major engineering services are:

- Electrical power supply- normal and emergency.
- Air conditioning, ventilation and refrigeration.
- Steam and hot water supply.
- Water stations and cold-water supplies- filtration system.
- Medical gases supply
- Fire detection alarms and fighting system.
- Internal and external plumbing system.
- Civil works- masonry, carpentry, glasswork, upholstery, painting etc.
- PNG and LPG supply
- Safety assessment of facilities.

MARKETING AND SALES

Marketing and sales department is concerned with business development, branding, promotions and advertisement of Apex healthcare services. Marketing deals with organizing health checkup camps and awareness talks for corporate or PSUs and RWA, designing all the brochures and signage, pitching referral sales from nearby general practitioners and nursing homes, liaison with TPAs.

FINANCE

The scope of services includes the entire hospital cash handling and cash disbursement in the form of salaries and vendor payment for stores, pharmacy and biomedical department. All the cash collected is deposited on daily basis of the bank. The TPA payment is collected through lump sum amount in the form of cheque at the end of the month.

HUMAN RESOURCE DEPARTMENT

The functions of HR department at Apex Hospital are:

- Hiring
- Physician and nurse recruitment
- Employee orientation
- Personal management
- Benefits and compensation management
- Counselling
- Claims handling
- Training and performance monitoring
- Professional development programs
- State and federal regulations education
- Work place safety and sanitation
- Administration – employee meetings
- Staff morale and retention

Recruitment / selection:

- Identifying the key requirements areas (KRA)
- Drafting job description
- Recruitment through job portals and internal references
- Selection
- Medical examination of the candidate
- Offering letter to the selected ones

PURCHASE DEPARTMENT

Purchasing department is responsible for the procurement of function of the hospital. The primary functions of the department are to:

1. Procure the rights and services from the right suppliers at the right time for the right place.
2. Receive, warehouse, issue distribute stocks to hospital departments in accordance with Apex Hospital procedure.
3. Hospital users and clinicians actively participate in product evaluation processes. The purchasing department is actively involved in cost analysis and suppliers performance management. It is through all of these activities that the department manages the chain process.

QUALITY CONTROL DEPARTMENT

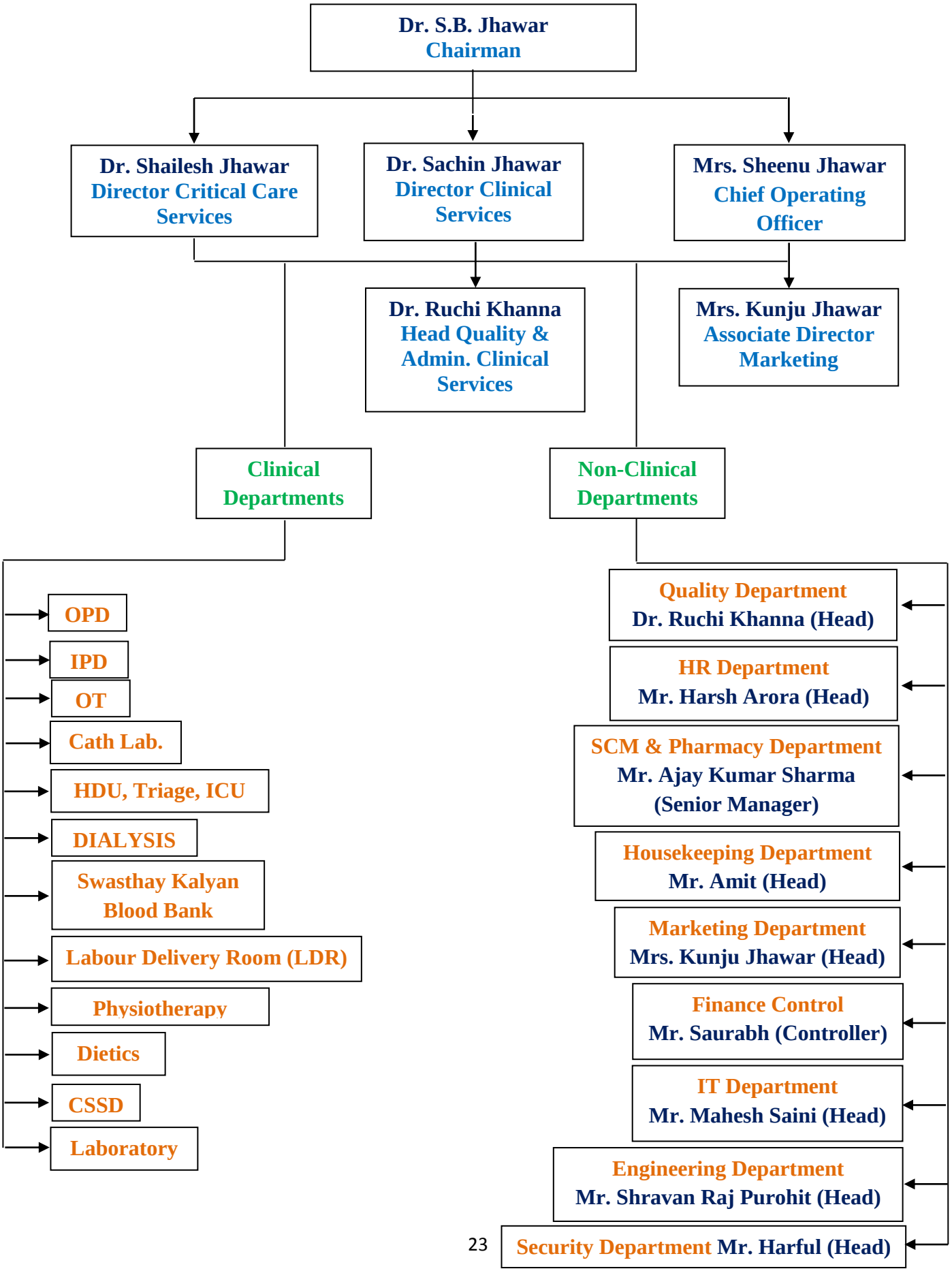
The Functions of the department are:

- To analyze patient feedback forms.
- To analyze different parameters from different departments and compare them.
- Infection control of the hospital.
- Induction and training of hospital staff.

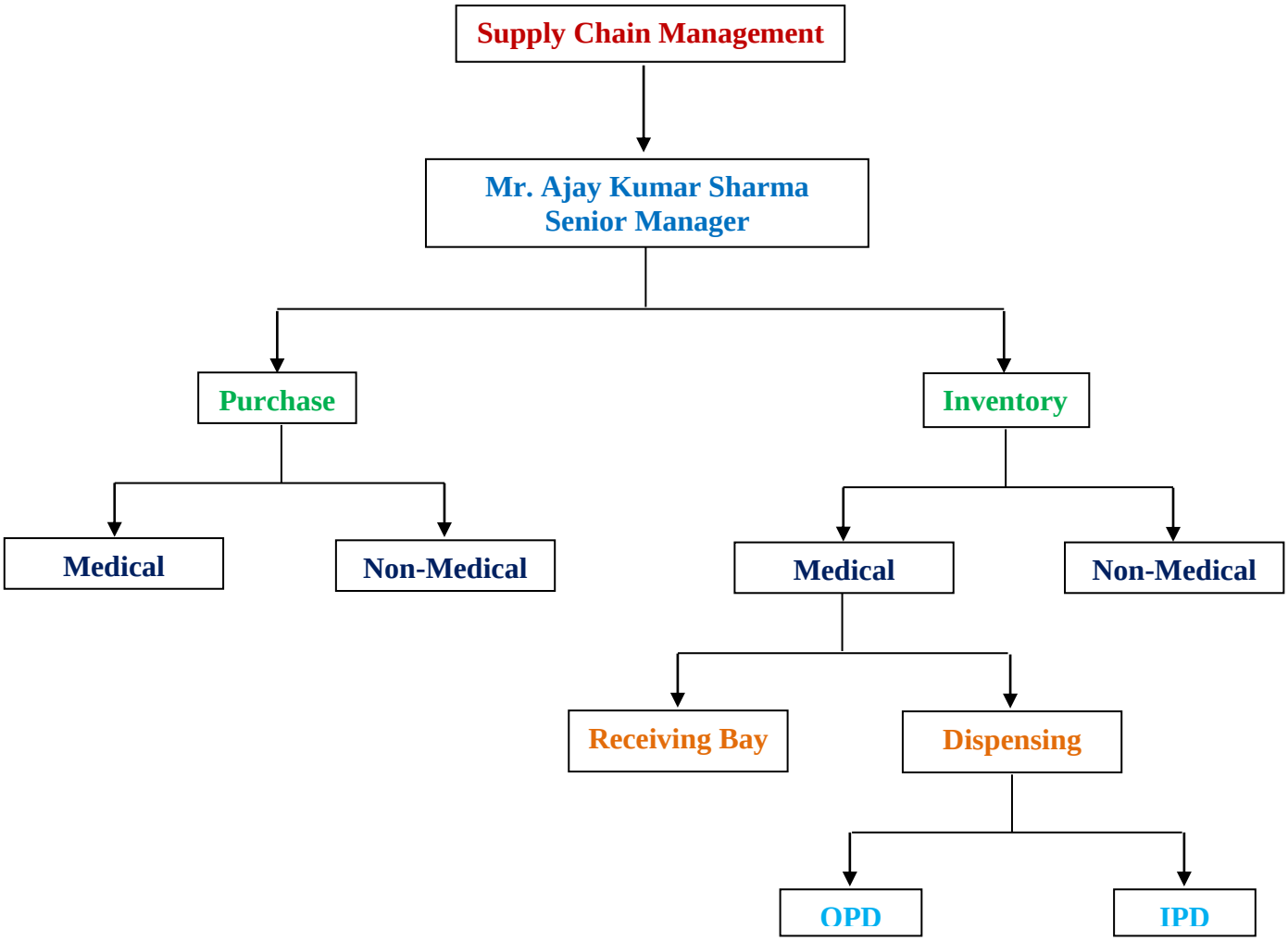
This department also maintains few quality indicators for hospital:

- Medication Errors
- Return of patient within 72 hours.
- Return of patient to ICU within 48 hours.
- Return of patient to OT within 48 hours.
- Number of Needle Sticks Injuries.
- Number of blood transfusion reaction.
- Number of Adverse Drug reaction.

2.9 ORGANOGRAM



2.10 SUPPLY CHAIN MANAGEMENT ORGANOGRAM



PROJECT REPORT

ON

A STUDY ON DRUG INVENTORY (ABC ANALYSIS) IN APEX HOSPITAL, JAIPUR

PROJECT

3.1 INTRODUCTION

The goal of any hospital supply system is to ensure that there is adequate stock of required item, so that uninterrupted supply of all essential items is maintained. Health care industry is a labour-intensive organization. While salaries and fringe benefits accounts for roughly 60 percent of operating costs in a hospital, 30-35 percent of costs are incurred on materials and supplies like drugs etc.[4] A logistic expenditure is possible on materials and supplies therefore, controlling these expenses. A study conducted by the Department of Personnel and Administrative reforms in India has revealed that not only quantity of medicine received in the primary health centres falls short of their requirements, but supply chain is often erratic. Even common medicines are out of stock and remain so for a considerable period. The present study was conducted at Apex Hospital, Jaipur to study the drug management through the application of inventory control technique ABC analysis. Since health sector faces a resource crunch it is essential that health managers use scientific methods to maximize their returns from investment at a minimal cost.

3.2 REVIEW OF LITERATURE

Approximately 30-35% of hospital budget is spent on buying materials and supplies including medicines. This requires effective and efficient management of the medical stores. Efficient priority setting, decision making in the purchase and distribution of specific drugs, close supervision on drugs belonging to important categories and prevention of pilferage depend on drug and inventory management.

Quality of care in tertiary care hospitals is also sensitive to the timely availability of facilities including drugs. Huge budgets and key element in the provision of care make drug as an important component of hospital care. The medical store is one of the most extensively used facilities of the hospital and one of the few areas where a large amount of money is spent on purchase on a recurring basis. This emphasizes the need for planning, de-signing and organizing the medical stores in the manner that result in efficient clinical and administrative services. The goal of the hospital supply system is to ensure that there is adequate stock of the required items so that an uninterrupted supply of all essential items is maintained. A study conducted by the Department of Personnel and Administrative Reforms in India has revealed that not only does the quantity of medicines received fall short of requirement but also the supply is often erratic.

Even common medicines are out of stock remain so far, a considerable period. Of the various explanations for non-availability of even simple medicines in the third world countries, a large number are related to materials management. A study from a 1500 bedded state funded hospital has claimed that review and control measures for expensive drugs brought about 20% savings.[5]

Drug inventory management aims at cost containment and improved efficiency. Inventory control is very essential in a developing country like India. India is a country of scarce resources and it is the primary responsibility of each hospital to ensure optimum utilization of available resources to provide good service or quality patient care. Usually, the hospital management is faced with choosing the alternative of either lowering the quality of care or adopting ways and means to reduce the cost of inventories. Therefore, the need of the hour is that we follow the principles of rational drug use and inventory management techniques so that in the existing budget we can cater to more number of patients.[2]

It is essential that the health mangers use scientific methods to maximize their returns from investment at a minimal cost. Inventory analysis seeks to achieve maximal output with minimal investment input, based on the economic principle of stretching the limits means to meet unlimited ends. Each item may be considered critical and there is perceived need to supply very high levels of service.

There is no denying that the stocking hospital pharmaceuticals and supplies can be expensive and tie up a lot of capital, and bringing efficiencies to such important cost drivers often 30%-40% of a hospital's budget can present meaningful savings. Thus a hospital material manager must establish efficient inventory system policies for normal operating conditions that also ensure hospital's ability to meet emergency demand conditions. The study use pattern helps in designing appropriate corrective measures. ABC analysis is an important tool and worldwide, identifying items that need greater attention for control. The limitation of ABC analysis is that it is based only on monetary value and consumption may be very vital or even lifesaving. Their importance cannot be overlooked simply because they do not appear in category A of inventory. Therefore, another parameter of the materials is their critically. This could be in item of the therapeutic value of a drug or intrinsic value of the material is achieving the objective of the hospital system.

We undertook this analysis of inventory control of drugs to identify areas for further improvement as well as find corrective interventions to achieve result.[3]

3.3 RESEARCH QUESTION

1. What category of drugs need effective and efficient management control?
2. What is the annual consumption and expenditure of items of medical store?

3.4 OBJECTIVES

1. To identify the categories of drugs and medical consumables which need stringent management control.
2. To analysis the annual consumption of items of medical store and expenditure incurred on them for the year 2016-2017.

3.5 ABC ANALYSIS INTRODUCTION

An ABC analysis is performed to classify planning objects according to their usage value, or number of objects. During ABC analysis, the system assigns each object one of the following indicators:

A – The most value, or given number of objects that produce the greatest value.

B – Less value, or given number of objects that produce less value.

C – The least value, or given number of objects that produce the least value.

The annual consumption of all the drugs was calculated after multiplying unit cost by annual consumption and the resulting annual expenditure of individual items was arranged in descending order. Next step was to calculate the items cumulative cost of all the items, as well as the cumulative percentage of expenditure and the cumulative percentage of number of items. The drugs were then classified into three categories: A, B and C based on the cumulative percentage of 70%, 20% and 10% respectively.

Category	Percent of Items	Percent of Investment
A	10-15	70-80
B	20-25	15-25
C	60-70	5-15

3.6 METHODOLOGY

The Staff of medical store and doctors are observed and interviewed over 500 medical prescriptions in medical store that are observed during 8 weeks of the study.

The current inventory policy was investigated and tested. The data concerns only the medicines from the OPD of apex hospital, retrieved from the records available on the hospital information system (HIS) for the 2016–2017. Only drugs with a high consumption value – about 70% of total annual drug value – are focused on, the purpose being to reduce expenditures and increase the effectiveness of drug utilisation. Medical devices and other consumables are not included.

3.7 DATA COLLECTION

Type of Data: Quantitative

Tool: Observation, Stakeholder interviews

Technique: Direct observation of sales from medical store

Source of Data: Primary Data – Direct Observation, Interviewing Staff of medical store and Doctors.

Secondary Data – Previously compiled data of 1 year from medical store of the year 2016-17.

3.8 FINDINGS AND ANALYSIS

ABC analysis revealed that -

6.45% of drugs belong to category **A** and the amount spent is **Rs. 81888613.2**

19.39% of drugs belong to category **B** and the amount spent is **Rs. 17547559.97**

74.16% of drugs belong to category **C** and the amount spent is **Rs. 5849186.657**

Category	Number of Drugs	Percentage % of Items	Annual Drug Expenditure	Percentage % of Annual Drug Expenditure
A	293	6.45%	81888613.2	77.8
B	880	19.39%	17547559.97	16.7
C	3367	74.16%	5849186.657	5.6
TOTAL	4540	100.00%	105285359.8	100.0

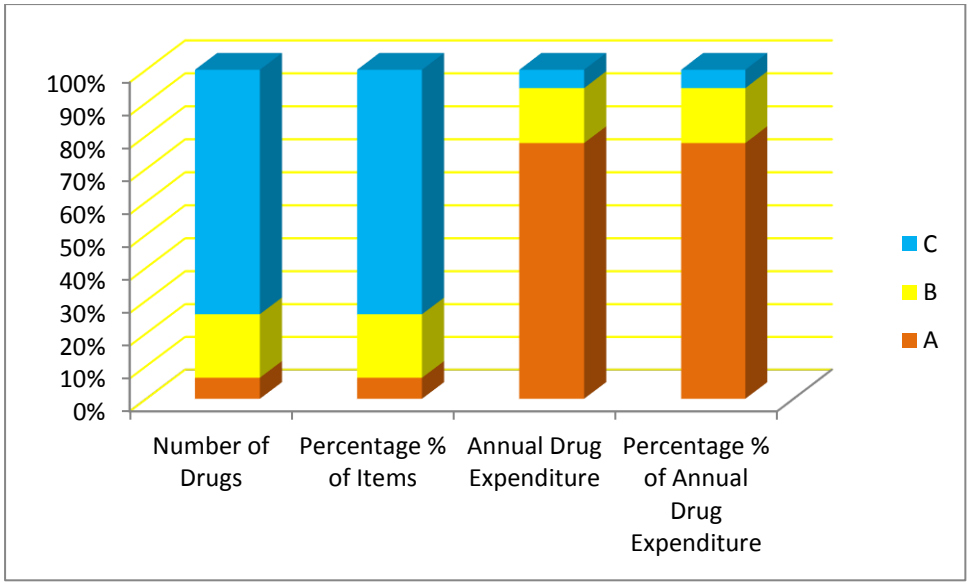


Fig. - Category wise distribution of Drugs

The above graph clearly explains that only 6.45% of the drugs are counting for 77.8% of the total drug expenditure. Hence by keeping a tight control over the A category drug 70% of expenditure for drug can be controlled.

3.9 CONSTRAIN OF THE STUDY

In place of procurement cost of the drugs MRP of the drug was provided hence calculations were done on the basis of MRP not actual cost.

3.10 RESULTS

Cost accounting has become an essential part of healthcare management. The increasing costs have forced the healthcare managers to know the costs of different alternatives, approaches to providing care. These costs can only be known if the organization has the knowledge and capability to measure.With the advent of advanced medical technology and drugs, the expenditure on health-care delivery is increasing disproportionately as compared to the resources available.

Inventory control is the tool of management which is used to maintain an economic minimum investment in materials and products for the purpose of obtaining a maximum financial return. ABC analysis is the analysis of stores on cost criteria.

The study revealed that 4540 items in total were stored during the study period. These items included the drugs provided by the hospital to the patients and does not include the drugs for sales counter, surgical items, disposables and dressing materials. The value of annual consumption of the inventory was worked out to be Rs.105285359/-. This amount does not include the inventory carrying cost, inventory storage cost and inventory acquisition/replacement costs.

Out of these drugs, 293 items (6.45%) consumed 77.7% (Rupees 81888613/-) of annual drug expenditure comprising group 'A' items.880 items (19.39%) consumed 16.66% (Rs.17547559/-) of annual drug expenditure forming group 'B' items. Rest 3367 items (74.16%) consumed only 5.55% (Rs.5849186/-) of total budget, classified as group 'C' items.

3.11 RECOMMENDATION

The study has analyzed the inventory of drugs as per their cost. It is expected to guide the management to delegate the responsibility to different officers and apply the **"*Principle of Management by Exception*"**.

Moreover, it will facilitate the management in controlling the cost and ensure the availability of vital and essential items in the hospital which will be in the interest of patients and the administration. It is also suggested that the sales counter inventory be also analyzed which involves more costly drugs and have much more financial implications.

3.11 CONCLUSION

Inventory is the physical asset of the hospital that create problem of shortage and supply, inventory constantly changing as quantities are sold or replenished.

Hence, it can be understood that positive inventory control can take the hospital to new heights otherwise it ruins it. Hospitals are highly in tensed on domestic market and it increase the market level of the hospital because domestic market is changing very fast.

This study provides insights to the management of high value items. Analysis was carried out to identify the fast moving, non-moving and important items, and the hospital has to periodically review the inventory to avoid production loss.

3.12 REFERRENCES

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