

# hospital pharmacy

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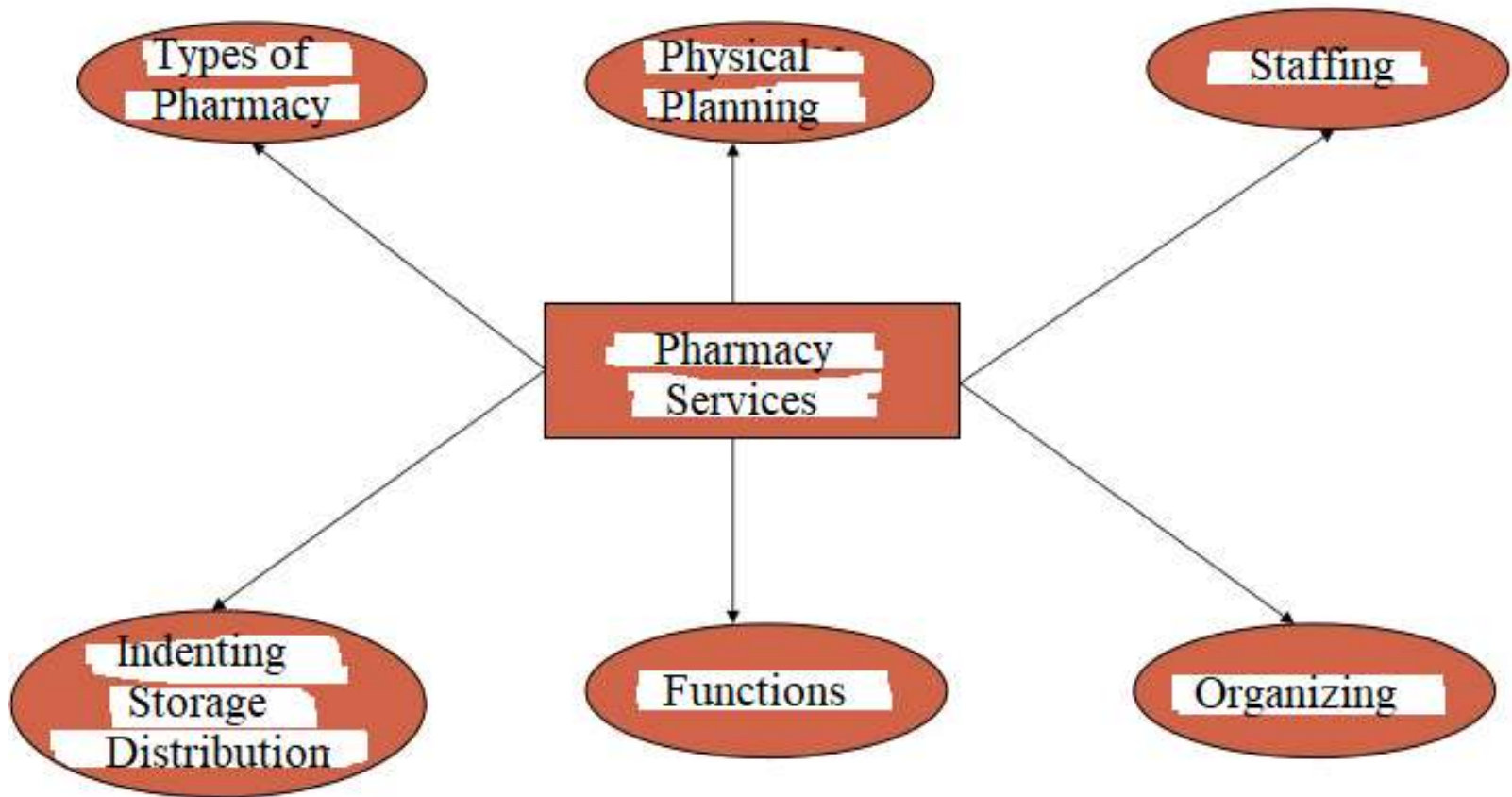
## **Hospital Pharmacy:**

The department of the hospital which deals with procurement, storage, compounding, dispensing, manufacturing, testing, packaging, and distribution of drugs.

The practice of pharmacy within the hospital under the supervision of a professional pharmacist is known as hospital pharmacy.

As per known history, the first pharmacy was established in Baghdad in 754 AD.

# PHARMACY SERVICES



# TYPES OF PHARMACY

## **Community pharmacy**

Community pharmacy means any place under the direct supervision of a pharmacist where the practice of pharmacy occurs or where prescription orders are compounded and dispensed other than a hospital pharmacy or a limited service pharmacy.

## **Hospital pharmacy**

Hospital pharmacy is the organization or department of the hospital to manage the procurement, storage, preservation, packaging, [REDACTED] compounding, preparation, dispensing or distribution of medicine in the hospital.

## OBJECTIVES OF HOSPITAL PHARMACY

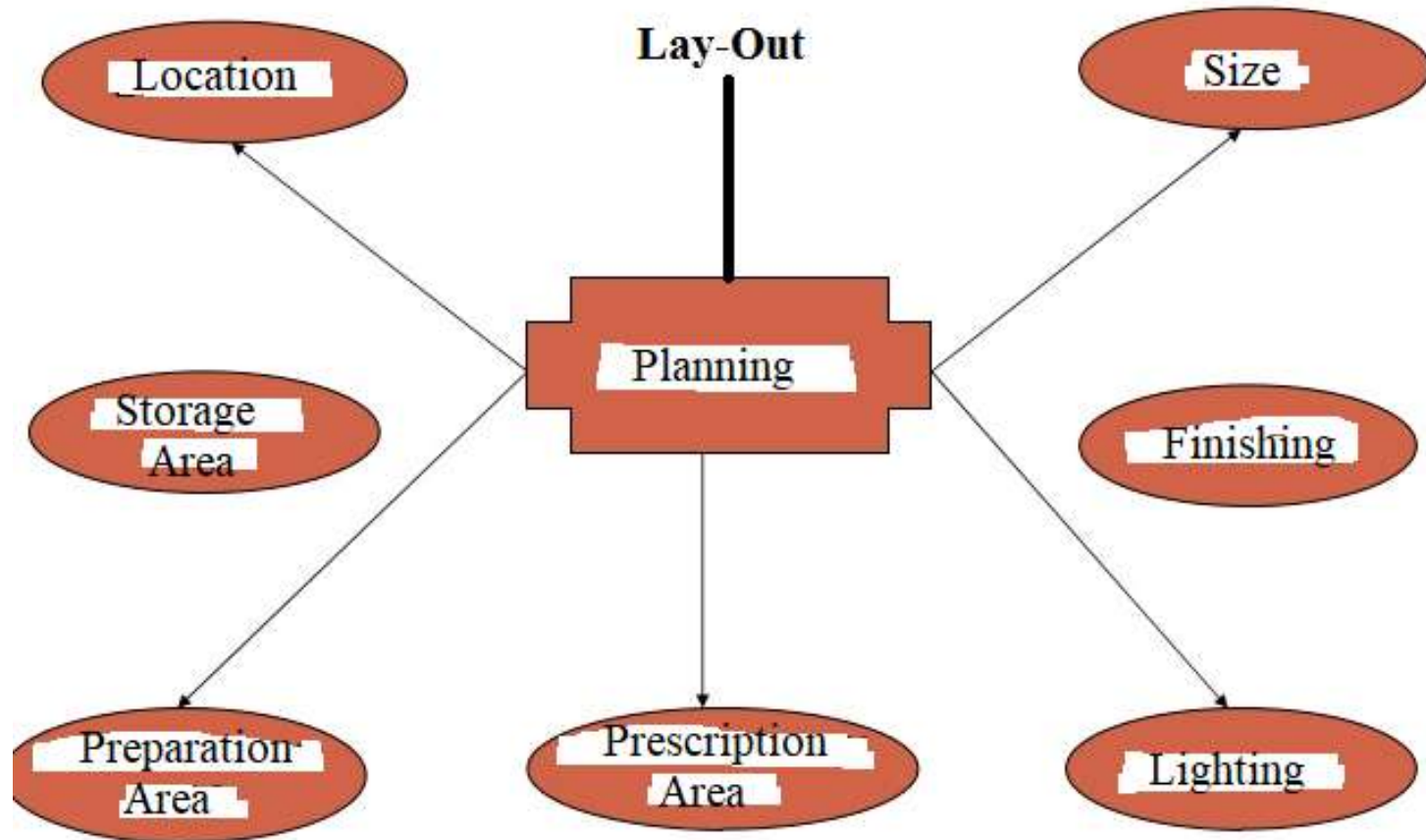
- **Cost Containment**
- **Effective and Efficient Service**
- **Patient Satisfaction**
- **Effective Staff Utilization**

## **FUNCTIONS OF HOSPITAL PHARMACY:**

- Forecast of demand
- Selection of reliable suppliers
- Determining specifications of the required medicament
- Manufacturing of sterile or non-sterile preparations
- Maintenance of manufacturing records
- Quality control of purchased or manufactured products

- Distribution of medicaments in the wards
- Dispensing of medicaments to out-patients
- Drug information source in hospitals
- Centre for drug utilization studies
- Implement recommendations of the pharmacy and therapeutic committee
- Patient counseling
- Maintaining liaison between medical, nursing and the patient.

# PHYSICAL PLANNING





## **LOCATION:**

- In the ground floor with storage in basement.
- Readily accessible to elevator.
- Accessible to all areas of hospital.
- OPD Unit to serve OPD patients.

## **SIZE:**

- |                |   |                     |
|----------------|---|---------------------|
| -10 sq ft/ bed | - | 100 bedded hospital |
| -6 sq ft/ bed  | - | 200 bedded hospital |
| -5 sq ft/ bed  | - | 500 bedded or more  |

## *Style of layout designs*

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graph TD; A[Style of layout designs] --> B[Grid Layout]; A --> C[Free Flow layout];
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### **Grid Layout**

Products are displayed in straight and parallel lines

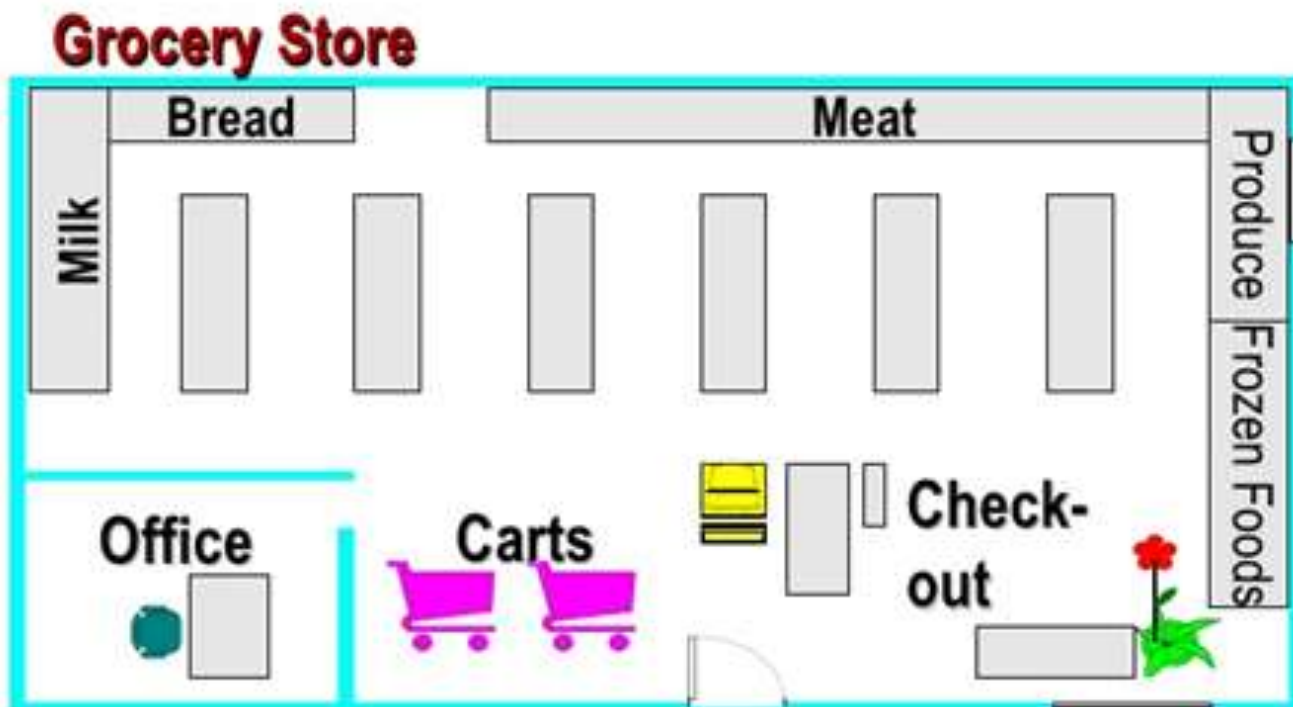
### **Free Flow layout**

Fixture are irregularly shaped such as circles arches and triangle

# Grid Layout:

- The traditional form of store layout is grid layout, in which the counters and fixtures are placed in long rows or runs, usually at right angles, throughout the stores. In grid layout, customers circulate up down through the fixtures.
- The most familiar example of the grid layout is supermarket and drugstore.
- The grid is a true shopping layout, best used in retail environment in which the majority of customers wish to shop the entire store.

# Grid Design



# Free Flow Layout -

- Fixtures and Merchandise are grouped in Free-flowing patterns on the sales floor
- This layout is used in specialty stores like-: Reebok, Nike
- Works best in small stores (under 5,000 square feet) in which customers wish to browse
- Advantage-: increased impulse buying
- Disadvantage-: possible confusion and waste of floor space



# **FINISHING**

## **FLOOR:**

- Floor should be smooth, tough and resistant to acid, base.
- A heavy linoleum flooring is preferred.

## **WALL:**

- Walls to be smooth without crevices, washable, light color.
- Drug cabinet light coloured wood or steel.
- Sterile room, water proof, smooth, non skid surface with drainage system.
- Arrangement of fixtures to be made in such a way day light can be used.

Linoleum: A material consisting of a canvas backing thickly coated with a preparation of linseed oil and powdered cork, used especially as a water-resistant type of floor covering.

## **LIGHT:**

- Plenty of windows for day light.
- To make dust free Venetian window blinds to be used.
- Florescent light on prescription and distribution area.
- Adequate electric sockets and exhaust for gases.



*A Venetian blind* has horizontal slats, one above another.

## **PRESCRIPTION AREA:**

1. Prescription desk with cabinets and drawers.
2. Sectional drawer cabinets with cupboards bases.
3. Desk, office equipment, computer, telephone.
4. Drug available list, information board.

## **PREPARATION AREA:**

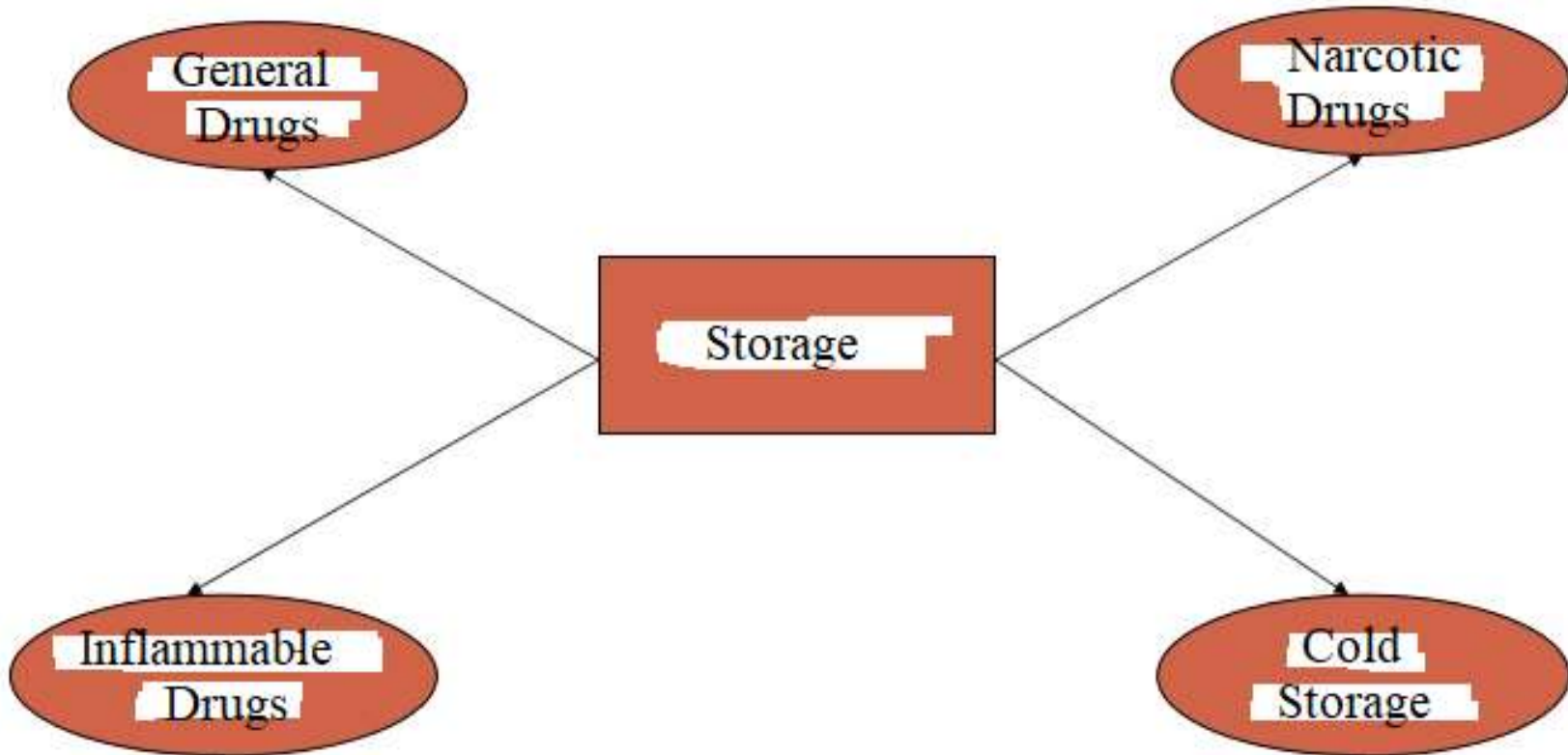
1. Work table for manufacture of solutions.
2. Empty, adjustable glass storage shelves.
3. Sterilization facilities.
4. The standard counter heights 36"x30"x74" with acid resistant tops.
5. Acid proof sinks.



## **STORAGE AREA:**

1. Storage cabinet with proper leveling
2. Space for loading of wood packs
3. Space for pharmacy lab with testing equipments.
4. Equipments for compounding, dispensing

# Storage of Drugs



## Storage Of Refrigerated Drug Items:

Refrigerated medications must be stored at appropriate temperatures according to the following:

- Room temperature: Between 15-25°C

- Cool place: Between 8-15°C (Air conditioning) (Antibiotics, Vitamins etc)

- Refrigerator: Between 2-8°C (Vaccines, insulin, heparins etc)  
(Refrigerator but not freeze)

- Freezer: Between -10 and -25 °C (Oral Polio vaccine which is kept below -20°C) (Freeze)

## **GENERAL DRUGS**

- Drug to be arranged alphabetically in Cabinet.
- OR as per use i.e. antibiotics, anti hypertensive etc.
- Bin card showing stock position.
- Short expiry to be placed in front and long expiry at the back.
- FIFO (first in first out) method to be followed.
- The drugs to be used before date of expiry or transferred to other hospitals.
- Expiry drugs to be disposed up as per rule.

## **COLD STORAGE**

- **Drugs such as antibiotics, vitamins, liver extracts should be stored in Cold Room between 8 to 15 °C.**
- The room to be air conditioned with temperature control facility.**
- Drugs like vaccines, sera, hormones etc to be stored at 2° to 8° C in deep freezers or walk in cooler.**
- **Temperature monitoring through dial thermometer and temperature charting.**

## **NARCOTIC DRUGS**

- There should be separate, special arrangement for narcotic drugs like morphine, pethidine, barbiturates.
- Proper recording to be maintained
- Always to be kept under lock and key

## **INFLAMMABLE ITEMS**

- Separate enclosure to be made for inflammables like spirit, gases & chemicals.
- Adequate ventilation and fire fighting arrangements.
- Exhaust fans & sky scrappers for air to pass through.

All drugs are grouped in the following categories:

- Refrigerated ( Heat sensitive products)
- Oral ( solid & liquid )
- Injectable
- Topical
- Infusion
- Inhalation
- Non Drug

# Disposal of Stores

## **First In First Out (FIFO):**

A **First In First Out** strategy implies that the products that were stocked first will move out first. Companies should use FIFO method if they are selling perishable goods. Companies selling products with relatively short demand cycles, such as clothes, also may have to pick FIFO to ensure they are not stuck with outdated styles in inventory.

## **LIFO (Last In First Out)**

In this warehouse management, the products which are brought in the last, moves out the first. LIFO is used in case of products which do not have a shelf life.

## **FEFO ( First Expiry First Out )**

In FEFO warehouse management, the products are dispatched from the warehouse according to their expiration date.



# Staffing:

- There should be Drug & Therapeutic Committee for advise and decision making.**
- A chief pharmacist in hospital more than 200 beds.**
- 2 pharmacist for 100 bedded hospital.**
- 3 pharmacist for 200 bedded hospital.**
- 7 pharmacist for 500 bedded and more.**

# **DRUG & THERAPEUTIC COMMITTEE**

<b>Medical Superintendent/ Director</b>	<b>-</b>	<b>Chairman</b>
<b>All HODs</b>	<b>-</b>	<b>Member</b>
<b>Nursing Superintendent</b>	<b>-</b>	<b>Member</b>
<b>Chief Pharmacist</b>	<b>-</b>	<b>Member Secretary</b>

## **FUNCTIONS**

- Preparation of hospital drug formulary.**
- Selection of manufacturer and supplier, mode of procurement.**
- Addition of new drugs, deletion of old drugs.**
- Drugs to be supplied in OPD.**
- Policy formulation for pharmacy and monitoring**
- Budget demand for pharmacy**
- Developing Drug Information System**
- Checking of pharmacy records and drug quality**
- Maintenance of drug standard and quality control**
- Disposal of Expiry Drugs**

A drug formulary is a list of prescription drugs, both [generic](#) and [brand name](#), used by practitioners to identify drugs that offer the greatest overall value.

# Role of Chief Pharmacist

- 1. Implementation of decision of Therapeutic Committee**
- 2. Dispensing of drugs, pharmaceuticals and chemicals to different areas**
- 3. Maintenance of approved stock of emergency drugs and antidotes**
- 4. Dispensing of Narcotic drugs and accounting**
- 5. Specification for various fluids**
- 6. Inspection of drugs at various points of use**
- 7. Preparation of indents, issue and receipt voucher**
- 8. Inventory Control**
- 9. Maintenance of stores, ledgers and records**
- 10. Provision of alternate electricity supply**
- 11. Inspection and Quality Control**
- 12. Teaching and training of pharmacist**
- 13. Periodic utilization report of pharmacy**
- 14. Patient Education**

# Records and Registrars

- Stock ledger of different group of drugs**
- Indent and receipt voucher**
- Drug Inspection Report**
- Index Register and bin cards**
- Expiry Date Register**
- Adverse Reaction Record**
- File of correspondence with suppliers and units**
- Ledger account for payment of vouchers**
- Condemnation record of Non-consumables & Consumables**
- Annual Stock Verification Record**
- Hospital Formulary**
- Antibiotic Policy**

## **INDENTING OF DRUGS**

- The hospital must have a laid down hospital formulary containing 250-300 drugs.
- Modern management techniques like ABC, VED analysis.
- Drug to be indented keeping safety stock in mind.
- Economic order quantity to be followed to prevent over stocking or pilferage
- Order be issued as soon as critical level is reached.
- In case of imported drugs, sufficient lead time to be given.

## **RECEIPT OF DRUGS**

- All drugs received must be checked, weighed, batch no., quantity, date of expiry.
- Random sample of each batch sample to be sent to lab for quality testing.
- In case of any suspicion of sub standard, drug to be used only after lab test.

**V – VITAL  
E – ESSENTIAL  
D – DESIRABLE  
ANALYSIS  
(VED ANALYSIS)**

**(ABC = Always Better Control)  
This is based on cost criteria.**

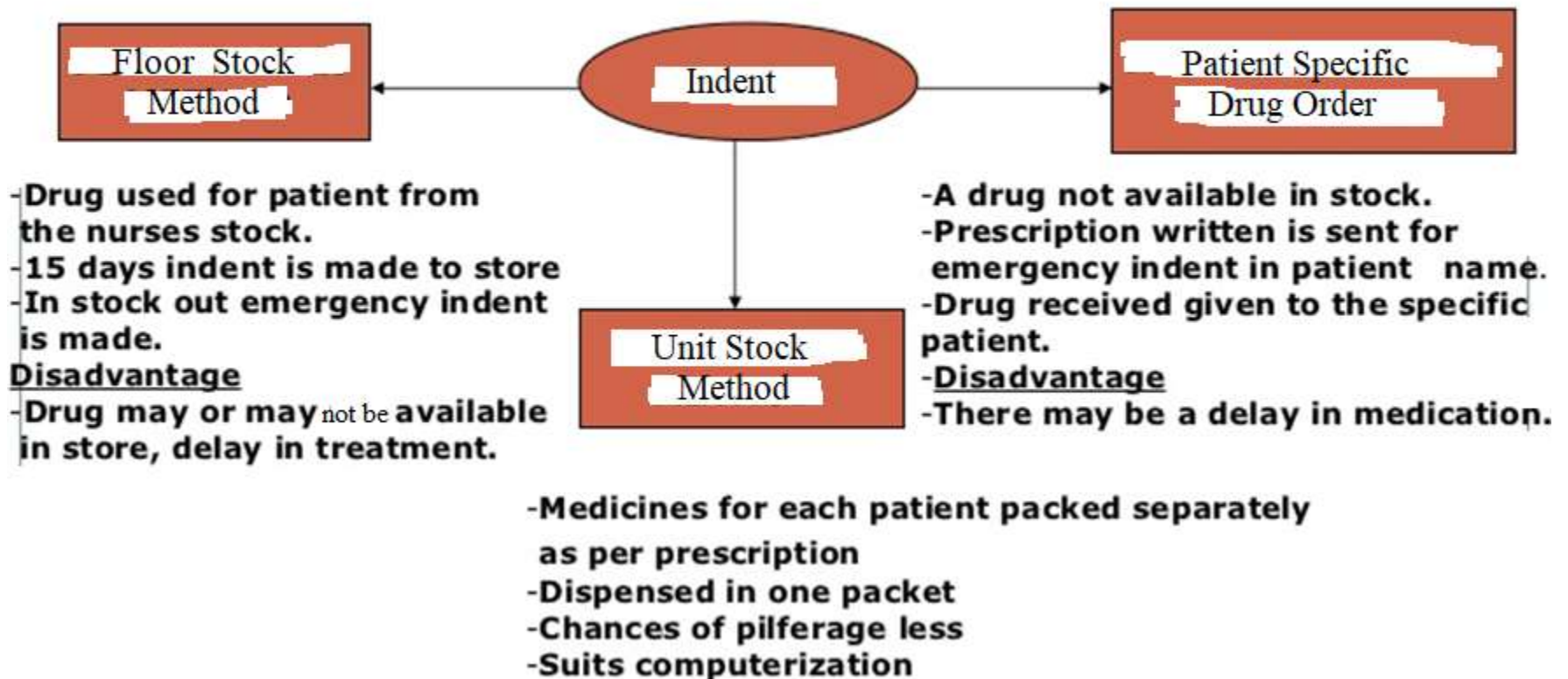
**It helps to exercise selective control when confronted with large number of items it rationalizes the number of orders, number of items & reduce the inventory.**

**About 10 % of materials consume 70 % of resources**

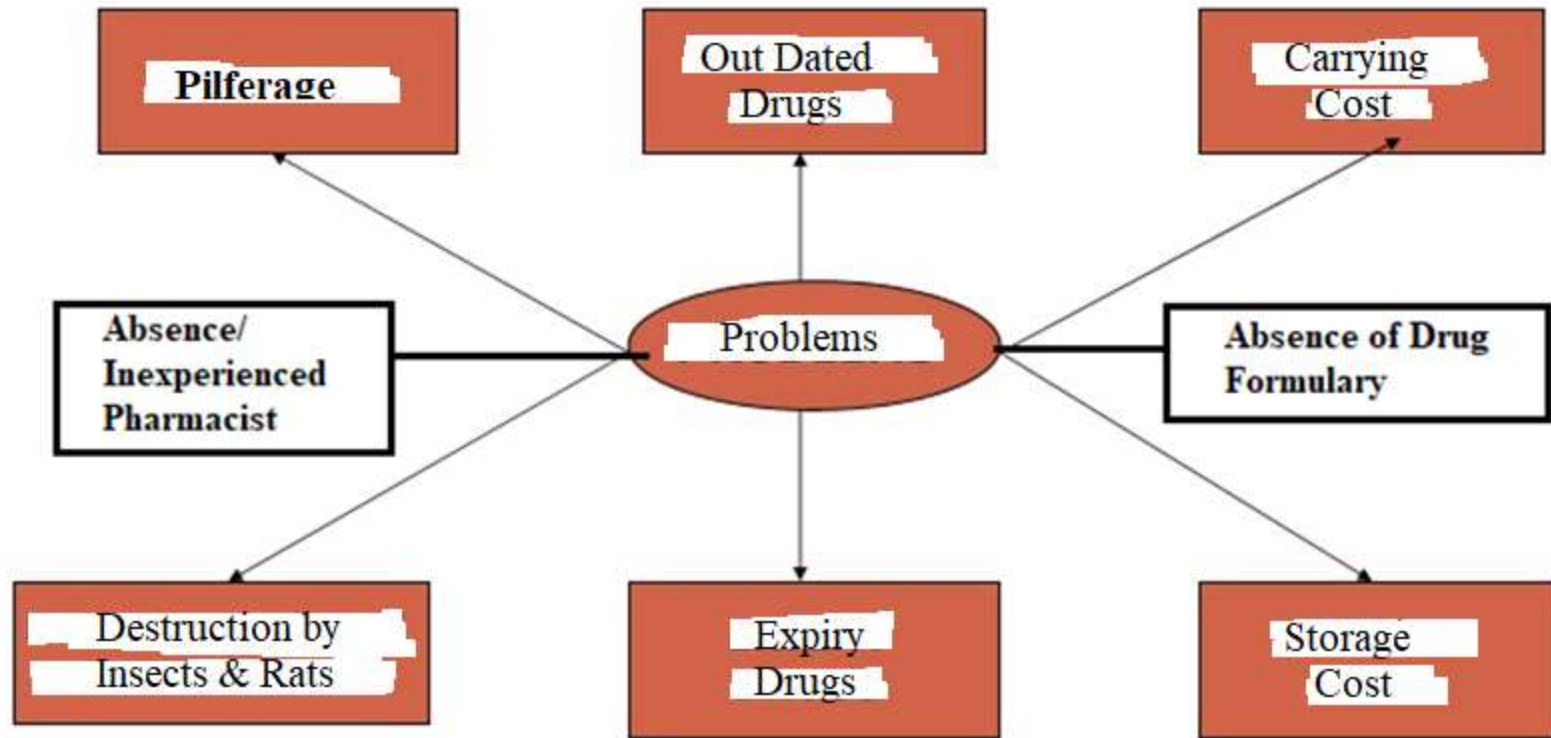
**About 20 % of materials consume 20 % of resources**

# Distribution of Drugs

Drugs are distributed to various areas of hospital, OPD & emergency. Three methods of indenting is practiced



# Problems of Pharmacy



**Carrying cost**, or holding **cost** refers to the total **cost** of holding **inventory**. This includes warehousing **costs** such as rent, utilities and salaries, financial **costs** such as opportunity **cost**, and **inventory costs** related to perishability, shrinkage (theft) and insurance



