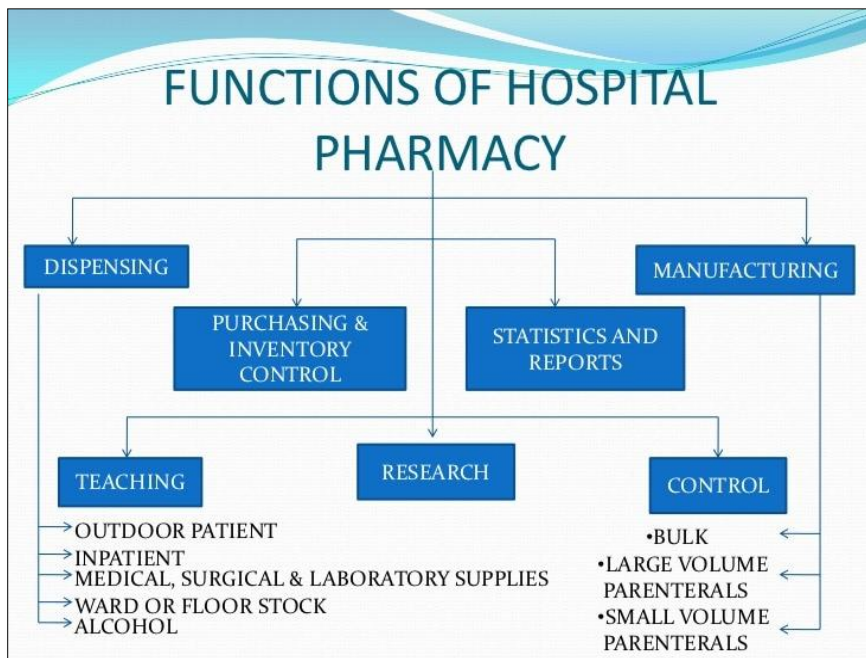


# HOSPITAL PHARMACY AND IT'S ORGANISATION

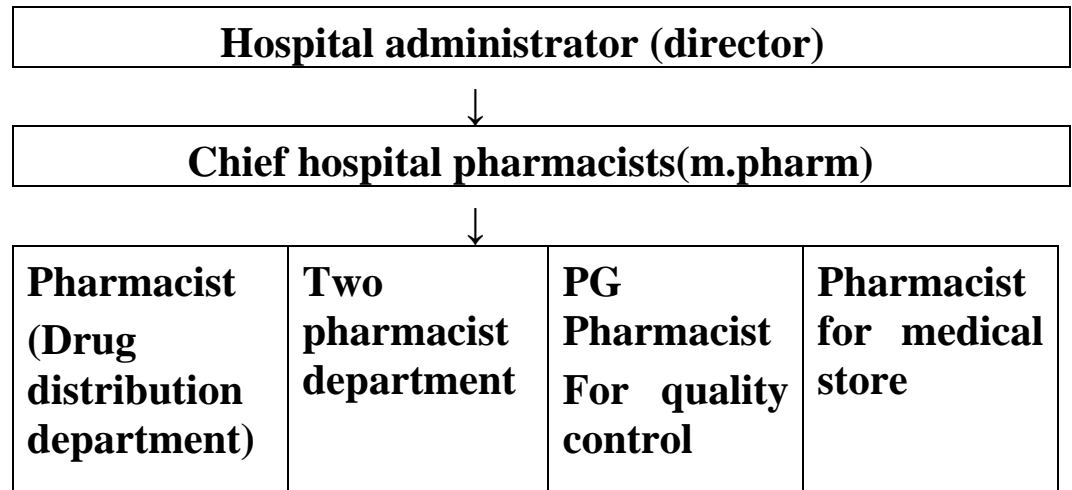
## DEFINITION

- The department of hospital which deal with procurement , storage ,compounding ,dispensing ,manufacturing ,testing ,packing and distribution of drugs.
- The practice of pharmacy within the hospital under the supervision on a professional pharmacist is known as Hospital Pharmacist.
- As per know history,the 1<sup>st</sup> pharmacy was established in Baghdad in 754 AD.



**Fig.No.01**

## FUCTIONS OF HOSPITAL PHARMACY ORHANIZATION STRUCTURE



**Fig.No.02**

- Pharmacy manager identifies a relatively standard organizational design that most closely fits the pharmacy 's needs . the design is molded to match with unique requirements of pharmacy and hospital administrator

-the size and nature of the pharmacy department's management staff will depend on the number of personnel in the department and the scope of Services delivered

-small pharmacies tend to have much simpler organizational structures ,this is usually generally understood and no problems arise (for example: the pharmacy in primary health centre )

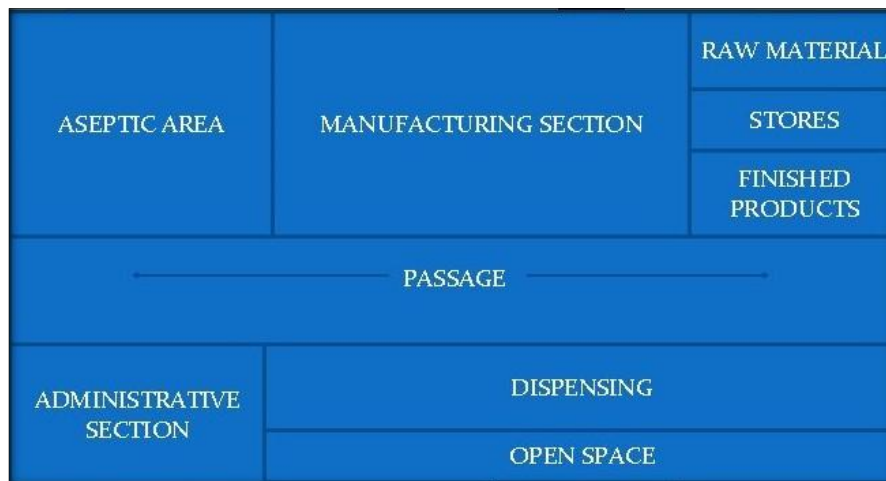
-large pharmacies with assistant chief pharmacists , supervisors and unprofessional personnel have complex organizational structures,

therefore, authority must be delegated by the chief pharmacist

## LOCATION

- Hospital pharmacy is mostly located in hospital premises only so that patients and staff can easily approach it.
- In multi-stored building of hospital , the pharmacy should be preferable located on the ground floor especially the dispensing unit.
- It should be laid in such a way that there is continuous flow of man and materials.

## LAYOUT OF HOSPITAL PHARMACY



**Fig. no. 03**

-Storage Area

-Administrative Area

-Structure Design

-Receiving Area

## Staff requirement

- The number of staff member of staff member relies on the following factor
- Number Of beds
- Services out patient and in patient

| Pharmacist requirement on the basis of bed strength |                           |
|---|---------------------------|
| Bed strength  | No of pharmacist required |
| Upto 50 beds  | 3                         |
| Upto 100 beds                                       | 5                         |
| Upto 200 beds                                       | 8                         |
| Upto 300 beds                                       | 10                        |
| Upto 500 beds                                       | 15                        |

**Fig.No.04**

## A HOSPITAL PHARMACY SHOULD APPOINT FOLLOWING PERSONAL

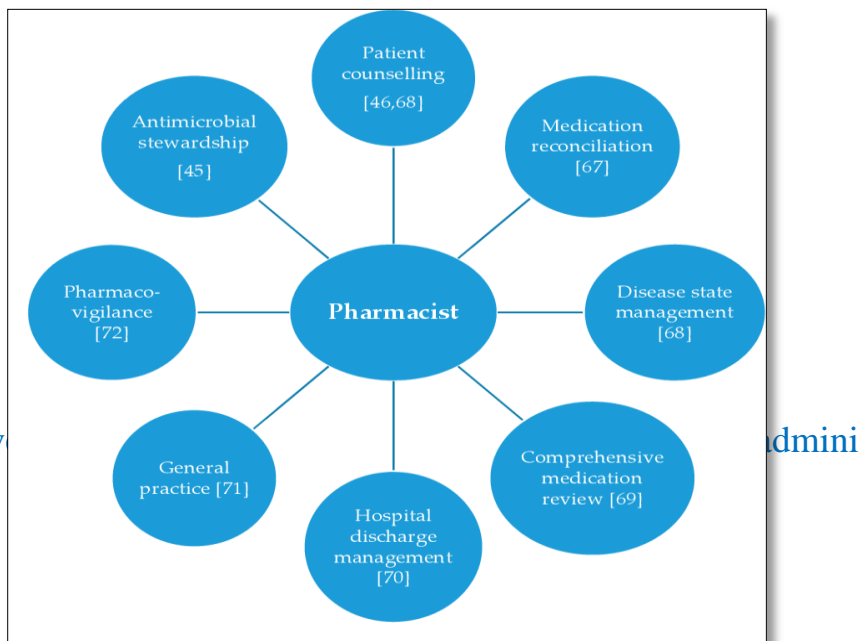
-One member as chief pharmacist or directors

-Four registered pharmacist (One pharmacist hand 60 patients)

- Sufficient number of assistance and sweeper
- In a big hospital one pharmacist handle 133 patients

## Hospital pharmacist

- works in hospitals, clinics.
- advise the medical staff on the selection & effect of drugs, monitor patients's drug regimens & evaluate drug use patterns in the hospital.
- commonly specialize in specific aspects of drug therapy, i.e. oncology, drug information, radiopharmaceuticals, or pediatrics.



**Fig.no. 05**

## Responsibility function of hospital Pharmacist

- **Dispensing and distributing** medication for inpatient out patient in the hospital setting .
- **Counselling** patients on usages of medicine.
- **Collaborating** with physicians , Nurses on the safest and most effective course of medicine and drug.
- Ensuring the prevention** of harmful drug interactions or reactions .
- Monitoring** patients for any side effects to medications.
- to develop and maintain** an effective system of clinical and administrative records and reports.
- purchasing, inventory control and budget** hospital pharmacist plays an important role in purchasing drug account.
- educational and training programs** majority of hospitals provide the training programs for healthcare practitioners. Such training programme runs under diverse faculty of physicians, administrators, nurses, pharmacists etc.

\*\*\*role varies greatly depending on the size of the hospital & services that are provided



# COMMUNITY PHARMACY

## DEFINATION

A community pharmacy is a pharmacy that deals direct with people in the local area it has responsibilities including compounding , counselling , checking and dispensing of prescription drugs to the patients with care, accuracy and legality

## Functions of community pharmacy

- Providing health information to patient and public.
- Prescription handling
- Patient counselling
- Patient medication record
- Pharmacy administration
- Compounding

## Scope Of community pharmacy

- Advancement in research and technologist - newer drug in market .
- Population explosion - medical facility insufficient for all

- Disease prevention and health promotion in society.

## ORAGANISATION AND STRUCTURE OF RETAIL AND WHOLESALE DRUG STORE

The organization structure of retail will vary with size and type of the bushiness

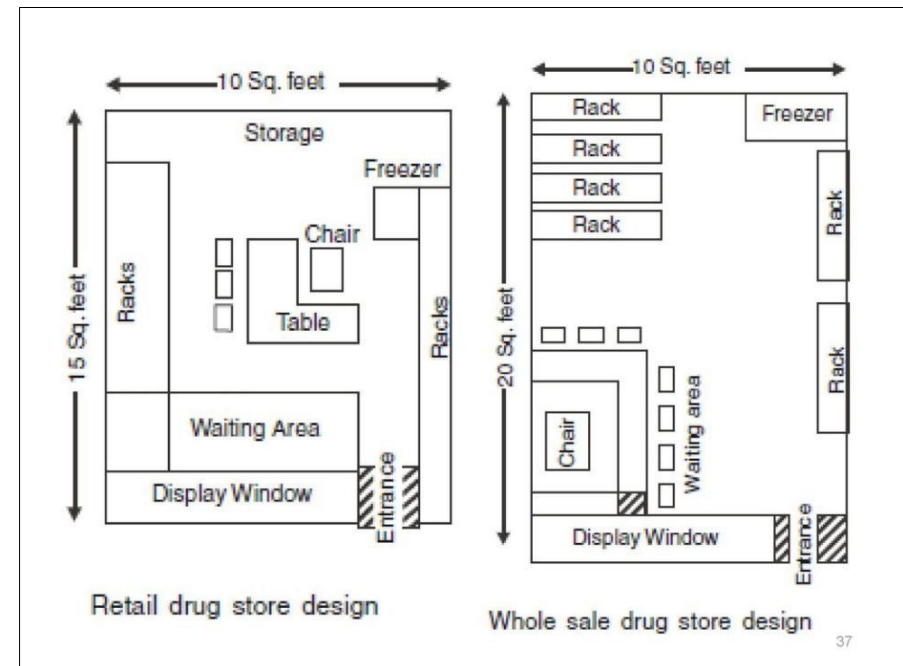


Fig.No.05

## **TYPE AND DESIGN OF DRUGS STORE**

A modern drug store complies with the requirement of schedule 'N' of drug and cosmetic act.

- 1) Pharmaceutical center
- 2) Prescription oriented drug store and design
- 3) Traditional drug store and design
- 4) Super drug store and design
- 5) Personal service drug store

## **TYPES OF LAYOUT**

There are mainly following types of layouts:

### **1. Process layout**

It is also known as functional layout and is categorized by keeping similar machines/operational tool at one location. The arrangement is like a separate department, in which, particular class of machine or operational tool doing particular type of work or process e.g. cutting machines may be placed under cutting department.

#### **Advantages:**

- better utilization of resources.
- greater flexibility.
- better supervision which ultimately leads to better production.
- while doing such arrangements, there may require a smaller number of machines or other resources thereby results into reduced capital.

### **Disadvantages**

-in pharmaceutical and chemical industries, the functional layout type may not be possible due to sequential performance/operation of many of the unit/sector.

### **2. process layout**

This type of layout also called as straight-line layout and is required to standardize in beginning according to manufacturing process of particular product. Using such product layout design, the product can be manufacturing in large quantity by repetitive operation.

#### **Advantages:**

- less space requirements for the same volume of production.
- smooth and continuous work flow.
- processing of work is quick and smooth.
- floor space can be properly utilized.
- less in-process inventory.
- cost of material handling can be reduced by using conveyors
- manufacturing time is reduced and manufacturing cycle can be speeded up.

### **3. combination layout**

-In this layout, they use a combination of both functional and product layout for more advantages.

-a combination of process and product layout combines the advantages of both types of layout. The layout should be well-organized by keeping handling of material at a minimum level while there requires suitable layout planning to keep the cost of product minimum.

## **LEGAL REQUIRMENT FOR ESTABLISHED AND MAINTANACE OF DRUG STORE**

### **General License :**

- Granted to person who have for business for business and engage the service of qualified person ti supervise the sale of drug.

- The license for the retail sale of drug other than the ones mentioned in the schedule C, C1 and issued in form 20. For drug specified in schedule C and C1 in form 21. Schedule X drug in form 20. For drug specified in Schedule C and C1 in form 21.Schedule X drug in form 20F.

### **Restricted License:**

The licenses for restricted sale of drugs other than those specified in Schedule C, C, and X are issued in the form 20A.Those specified in Schedule C and C1 but not schedule X are Issued in form 21A

## **Requirements for the Maintenance of Records of Drug Stores**

### **1) Legal Records:**

-According the Federal State Law, up to date and proper records should be maintained according to Drugs and Cosmetics act 1940, Rules 1945 and Poison act 1919 for the maintenance of records of distribution of poisonous substances.

### **2)Patients Records:**

-Patients drug history.

-Information on all kinds of and amounts of drugs taken by average patients

### **3)Financial Records:**

-Financial records need to maintain for the following purposes:

-For evaluation of past records, past operations forecasting needs and controlling the needs.

-Analyzing revenues and expenses.



## DISPENSING OF PROPRIETARY PRODUCTS

Dispensing is a main part of pharmacy practice in which the distributor/pharmacist takes the required order of medicine from physician on the prescription and accordingly supplies the medicines for the treatment of the patients. Following are the general patterns follow for the dispensing of the proprietary products.

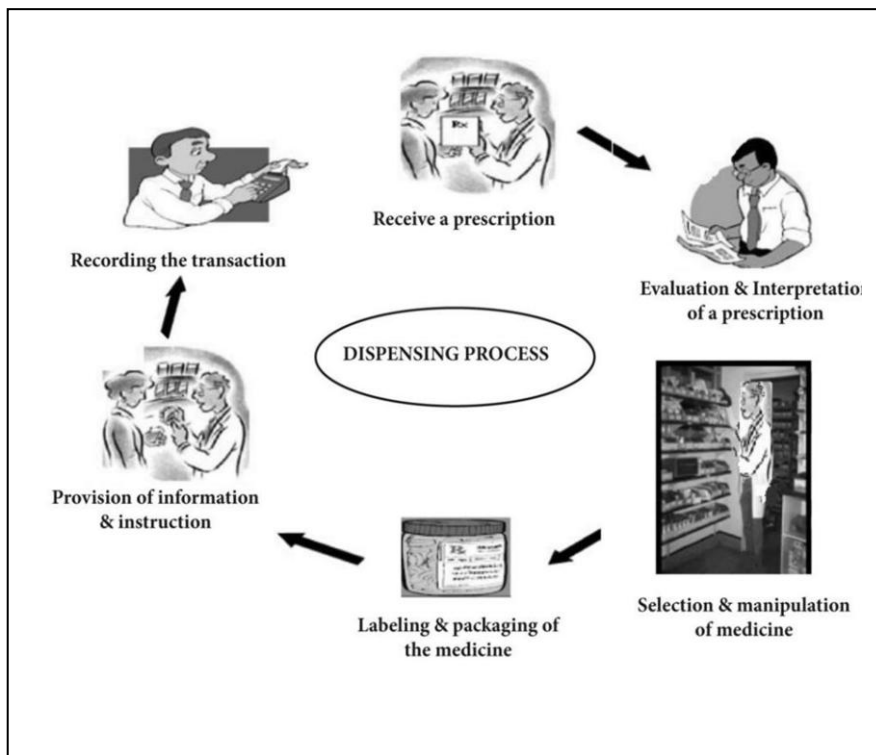


Fig. no. 06

### Layout of Dispensing Procedure:

Receiving the order of proprietary drug like Amlodipine. Check whether this order received correctly.



Keep the received order at side and check for expiry date and storage conditions



Keep the received order in proper dispensary shelf or drawer. Location of shelf for the received order should not be confused with other available stock.



Receive the order (Amlodipine) of prescription and locate the medicine for dispensing During locating of medicine, dispenser should check the medicine for correctness because there may similarly sounding medicine next to it e.g. amitriptyline



Identify and pick the correct medicine. Check the medicine strength and quantity as per the order received from physician.



Label and dispense the medicine. Before dispensing of medicine, check the label and instruction given on the label and same to be instruct to patients.



Hand out the medicine to patient. Check the right patient to whom the right medicine is hand out



## **REFERENCE**

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**SUBJECT :** Pharmacy practice

**CLASS :** Final Year B pharm

**ACADEMIC YEAR :** 2021-2022

# HOSPITAL AND ITS ORGANIZATION

**DEFINITION:** - WHO defines modern hospital thus; A hospital is an integral part of social and medical organization, the function of which is to provide complete healthcare for the population, both curative and preventive and whose outpatient service reach out to the family and it's home environment.

The hospital is also center for training of health workers and for bio-social research

## FUNCTION OF HOSPITAL

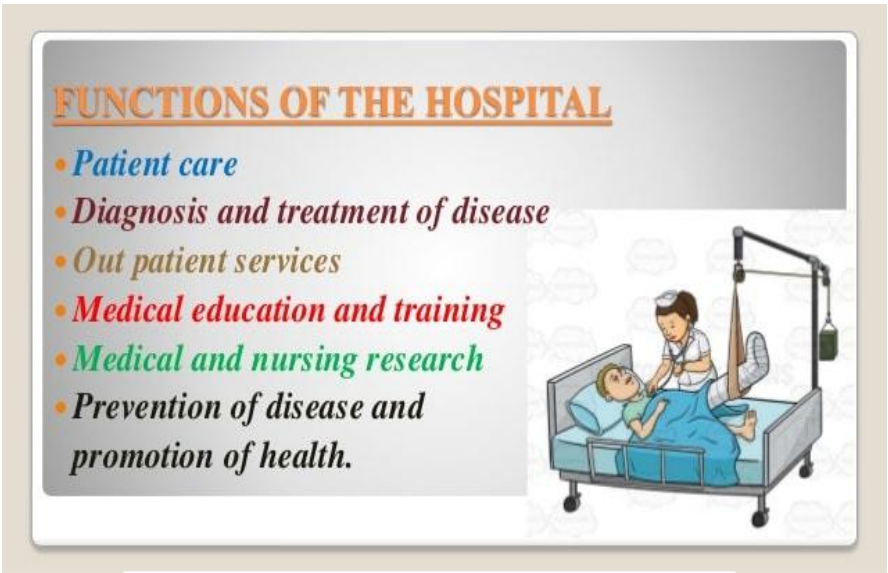


FIG NO. 1: FUNCTION OF HOSPITALS

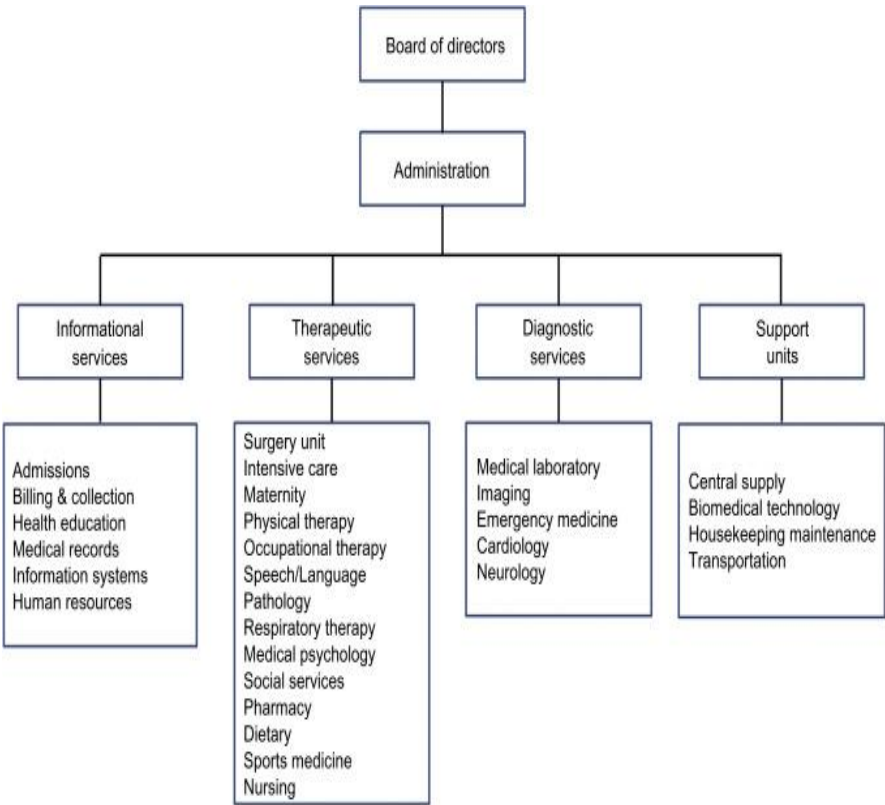
## CLASSIFICATION OF HOSPITAL

| PRIMARY HOSPITAL   | SECONDARY HOSPITAL   | TERTIARY HOSPITAL  |
|--|--|--|
| Day to day healthcare given by a health care provider.                           | It refers tier of health system, in which patients from primary health care are referred to specialist in higher hospital for treatment. | It refers third level system, in which specialized consultative care is provided usually on referral from primary and secondary medical personnel. |
| Involves common health problem. Eg, sore throats, sprained ankles, hypertension. | First level of referral service.   | Highly specialized services provided at regional and central level hospital.   |
| Health services are delivered through sub center and primary Health center.      | Health services are delivered through community Health center  | Health services are delivered through medical colleges and Hospital.   |

ORGANIZATION OF HOSPITAL.

TABLE NO. 1: CLASSIFICATION OF HOSPITAL

Organization is a dynamic process in which various managerial activities bring people together and binds them together for the achievement of common objective or common goals. The pattern of organization is identical to that of an industrial plant; only the difference is of nomenclature of position.



| MEDICINE DIVISION          | SURGERY DIVISION          |
|----------------------------|---------------------------|
| Internal medicine          | General Surgery           |
| Cardiology                 | Obstetrics and gynecology |
| Gastroenterology           | Orthopedic surgery        |
| Nephrology                 | Ophthalmology             |
| Pulmonary diseases         | Otolaryngology            |
| Infectious diseases        | Dental and oral surgery   |
| Allergy                    | Nephrology                |
| Skin and venereal diseases | Neurological surgery      |
| Endocrinology              | Cardiothoracic surgery    |
| Geriatrics                 | Plastic surgery           |
| Immunology                 | Anesthetics               |
| Pediatrics                 |                           |



FIG. NO. 2 : FUNCTION OF MEDICAL STAFF

**MEDICAL STAFF AN INVOLVED IN THE HOSPITAL AND THEIR FUNCTION:-**

TABLE NO.2: CLASSIFICATION OF MEDICAL STAFF

# ADVERSE DRUG REACTION

**DEFINITION:-**The World Health Organization defines as adverse drug reaction as “Any noxious and unintended effect of drug which occurs at doses normally used in man for the prophylaxis diagnosis or therapy of disease or for the modification of physiological functions.”

## **TYPES OF ADVERSE DRUG REACTIONS:-**

| TYPE | TERM             | CHARACTERISTICS  | EXAMPLES   |
|------|------------------|--|--|
| A    | Augmented        | Dose-dependent, frequent, predictable, drug overdose, explained by pharmacologic drug effect | Bleeding after anticoagulants, hypoglycemia from insulin                                   |
| B    | Bizarre          | Dose-independent, rare, unpredictable, not explained by pharmacologic drug effect            | Urticaria from aspirin, exanthem from antibiotics  |
| C    | Chronic          | Dose and time dependent, rare, long-term exposure  | Cushing syndrome from cortisone  |
| D    | Delayed          | Time dependent, very rare  | Kidney disease from long-term analgesics or non-steroidal anti-inflammatory drugs (NSAIDs) |
| E    | End of treatment | Time dependent, rare, relapse after stopping a therapy                                       | Withdrawal effects of drugs (eg opioids or antiepileptics), rebound or relapse phenomena   |

TABLE NO. 1 TYPES OF ADVERSE DRUG REACTION

| Hypersensitivity Types and Their Mechanisms |   |   |   |   |
|---|---|---|---|---|
|   | Type I  | Type II   | Type III  | Type IV   |
| Immune reactant                             | IgE   | IgG or IgM  | IgG and IgM   | T cells   |
| Antigen form                                | Soluble antigen   | Cell-bound antigen  | Soluble antigen   | Soluble or cell-bound antigen   |
| Mechanism of activation                     | Allergen-specific IgE antibodies bind to mast cells via their Fc receptor. When the specific allergen binds to the IgE, cross-linking of IgE induces degranulation of mast cells. | IgG or IgM antibody binds to cellular antigen, leading to complement activation and cell lysis. IgG can also mediate ADCC with cytotoxic T cells, natural killer cells, macrophages, and neutrophils. | Antigen-antibody complexes are deposited in tissues. Complement activation provides inflammatory mediators and recruits neutrophils. Enzymes released from neutrophils damage tissue. | T <sub>H</sub> 1 cells secrete cytokines, which activate macrophages and cytotoxic T cells. |
| Examples of hypersensitivity reactions      | Local and systemic anaphylaxis, seasonal hay fever, food allergies, and drug allergies  | Red blood cell destruction after transfusion with mismatched blood types or during hemolytic disease of the newborn.  | Post-streptococcal glomerulonephritis, rheumatoid arthritis, and systemic lupus erythematosus   | Contact dermatitis, type I diabetes mellitus, and multiple sclerosis                        |

## **CLASSIFICATION OF ADVERSE DRUG REACTION**

### **Predictable**

- Excessive Pharmacological Effect
- Secondary Pharmacological Effect
- Rebound Response on Discontinuation

### **Unpredictable**

- Allergic Reaction and Anaphylaxis
- Idiosyncrasy
- Genetically Determined Effect

| <b>IDIOSYNCRASY</b>                              | <b>ALLERGY</b>                            | <b>TOXICITY</b>                 |
|--|---|---------------------------------|
| Occurs in genetically abnormal subject.          | For few percent of subject                | In all subjects at high doses.  |
| It arises for new drug.                          | Arises for many drugs.                    | All drug.                       |
| Prior drug exposure unnecessary.                 | Prior drug exposure unnecessary essential | Prior drug exposure unnecessary |
| Response in dose dependent.                      | Dose independent erratic response         | Dose dependent                  |
| Mechanisms explain by drug receptor interaction. | Antigen antibody reaction.                | Drug receptor interaction.      |

**TABLE NO 3 : COMPARISON BETWEEN IDIOSYNCRASY ,  
ALLERGY & TOXICITY.**

1) **Idiosyncrasy** is used to denote both quantitative and qualitative abnormal drug response.

2) Idiosyncrasy covers unusual or unexpected drug effect which cannot be explain or predicted in individual recipient.

**ALLERGIC DRUG REACTIONS:-** Allergy is an adverse response to a foraging substance resulting from a previous exposure to that substance it is manifested only after a second or subsequent exposure only a small proportion of the population exposed to the drug exhibit allergic reaction.

**ANAPHYLAXIS:-** Anaphylaxis is the most serious type of drug allergic reaction. It occurs only after second or subsequent exposure of the drug causing allergy.

## **DRUG INTERACTION**

**DRUG INTERACTION:-** Drug interaction may be defined as an alteration of the effects of one drug by prior or concurrent administration of another drug. A part from interaction of drug with another drug (drug- drug interaction), with food (drug- food interaction) and disease states (drug- disease interaction) it also includes.

### **TYPE OF DRUG INTERACTION:-**

- 1) Drug- drug Interaction
- 2) Drug food interaction
- 3) Drug chemical interaction
- 4) Drug laboratory test Interaction
- 5) Drug disease interaction

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2)Dr.J.S.Qadry, Dr.Ramesh K.Goyal, R.K Parikh, A Textbook of Hospital pharmacy 6<sup>th</sup> ed.2003-2004.

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