

CHAPTER - 1

HOSPITAL PHARMACY

Definition of Hospital:-

Hospital can be defined as an institution of community health or a specialized complex organisation which makes use of physicians, surgeons and team of technical staff, pharmacy etc.

It also provides facilities for diagnosis, therapy, rehabilitation, prevention, education and research.

Functions of a Modern Hospital:-

- 1- To raise the quality of law and general standards of medical practices.
- 2- To provide the means and methods by which persons can work together in groups with the object of care of hospital department, patient and community.
- 3- It lowers the incidences of disease through early detection and treatment.
- 4- To estimate the needs for facilities, supplies and equipments and then utilize these facilities for evaluation, control and maintenance.
- 5- It provides a common link between the general public and policy makers.
- 6- To estimate the requirements for the departments and to recommend various policies and procedures to maintain adequate and competent staff.
- 7- It stimulates the growth of medical science whereby doctors and nurses receive their training in large teaching hospitals.
- 8- To develop and to maintain an effective system of clinical and administrative records and reports.

- 9 - To participate in the financial plan for the operation of hospital.
- 10 - To provide facility for continuing education of all the persons.
- 11 - To participate in and put into practice, the safety programmes of the hospital.
- 12 - To initiate, utilize and participate in research projects designed for improvement of patient care and other hospital services.

CLASSIFICATION OF HOSPITAL:-

There are 4 types of hospitals

- (i) Type - I → On clinical Basis
- (ii) Type - II → On the Basis of Sizes
- (iii) Type - III → On the Basis of Cost
- (iv) Type - IV → On the Basis of System of Medicine

Type - I :- On clinical Basis

clinical - Basis		Non-clinical - Basis		
Medicine	Surgery	Maternity	Governmental	Non-Governmental
1. Paediatrics	1. Orthopaedic	1. short-term	- Army hospital	- Private Hospitals
2. Psychiatric and nervous diseases	2. Gynaecology	2. Long-term	- Navy hospital	- for Profit
3. T.B	3. ENT		- city hospital	- Non-Profit
4. General medicine			- civil hospital	- Church hospital
			- Big hospital	- community hospital
			- AIIMS/PGI etc.	- Missionary hospital
				- charitable hospital

Type-II :- On the Basis of Size

1. Large hospitals beds 1000 and above
2. Medium hospitals beds between 500-1000
3. Small hospitals beds between 100-500
4. Very small hospitals beds less than 100

Type-III :- On the Basis of Cost

1. Elite hospitals :-

- These are symbols of high technology and advances in medical sciences.
- They have deluxe rooms equipped with T.V., telephones and refrigerator.
- The room rates vary from Rs. 500 to 1200 per day. Therefore they are called as five star hospitals. These elite institutions have provision for some poor people for their treatment and stay.

2. Budget hospital :-

- These hospitals are meant for moderate budget and low budget persons e.g., Civil hospitals and charitable hospitals.

Type-IV :- On the Basis of system of Medicine

(i) Allopathic Hospitals

(ii) Ayurvedic Hospitals

(iii) Homoeopathic Hospitals

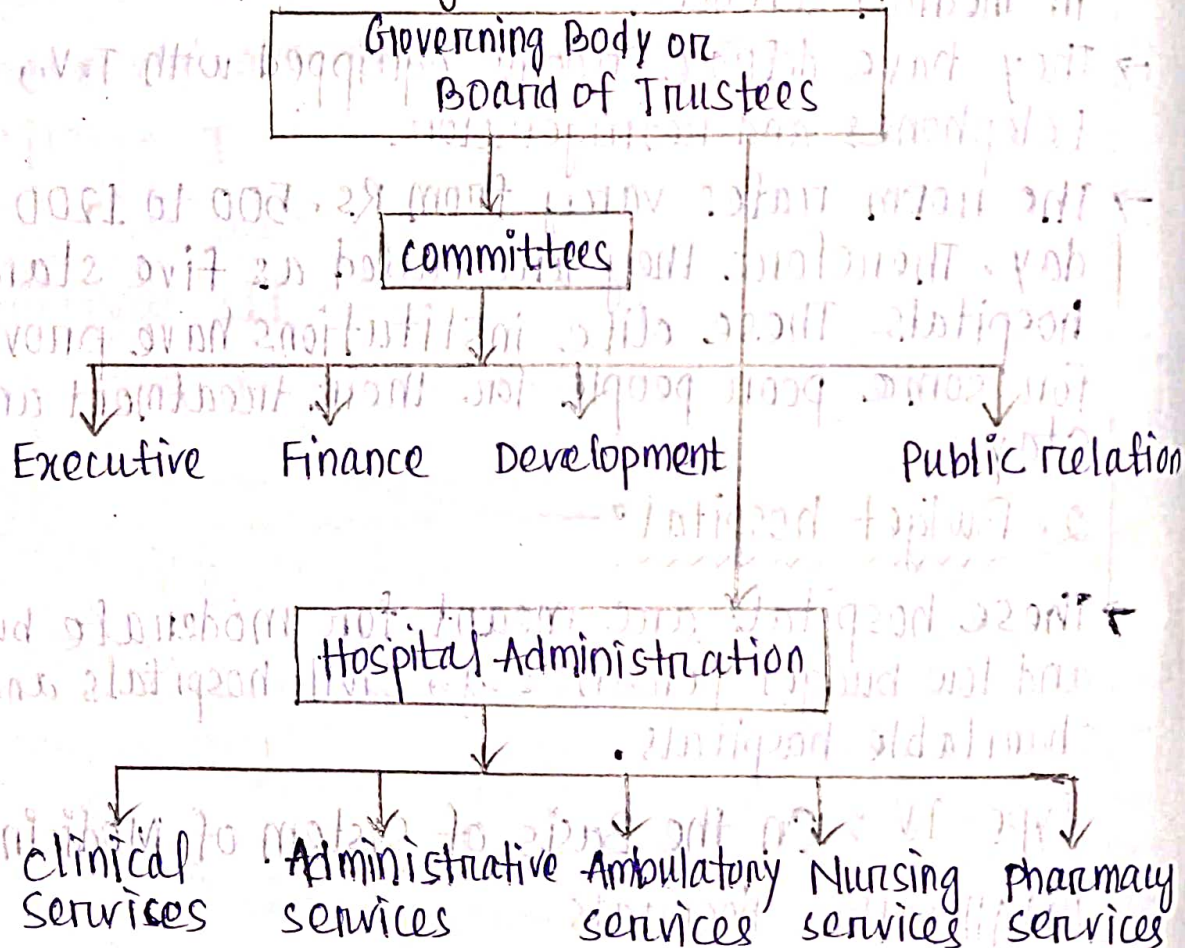
(iv) Unani Hospitals

ORGANISATION OF HOSPITALS

Organisation is a dynamic process in which various managerial activities bring people together and binds them together for the achievement of common objectives or common goals.

The most important body of any hospital is the governing body or board of director or board of trustees.

Typical Organisation of a Hospital



Hospital Pharmacy :-

Hospital pharmacy is an organ of hospital where drugs are manufactured and purchased, stored, dispensed and its uses monitored and also drug information, education and training providing to inpatient, outpatient as well as to fellow health professional by qualified pharmacist.

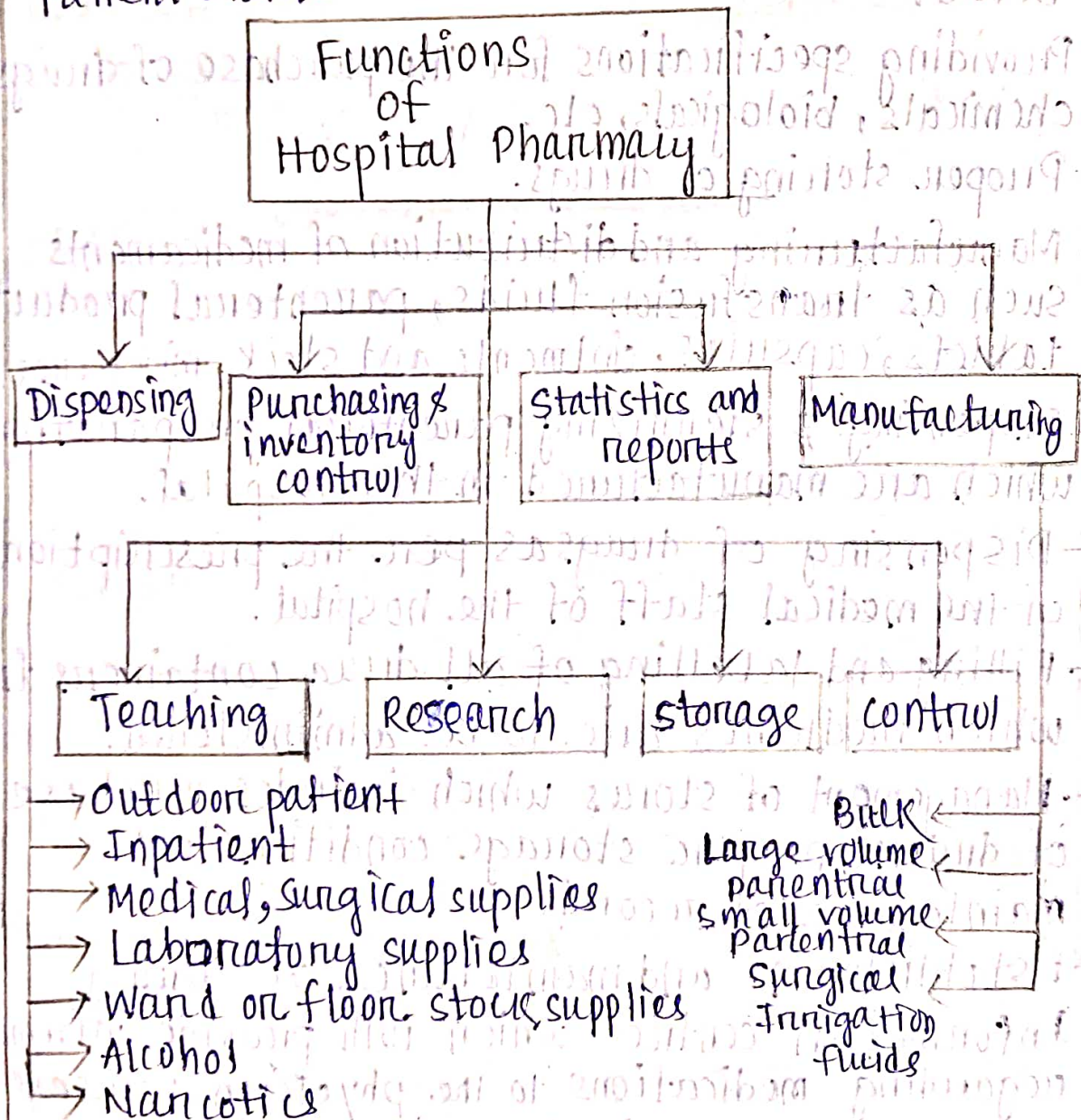
OR Hospital pharmacy may be defined as that department of the hospital which deals with procurement, storage, compounding, dispensing, manufacturing, testing, packaging & distribution of drugs.

Functions and Objectives of Hospital Pharmacy :-

A pharmacist is required to perform various functions in hospital pharmacy which are described below :-

- 1- Providing specifications for the purchase of drugs, chemicals, biologicals, etc.
- 2- Proper storing of drugs.
- 3- Manufacturing and distribution of medicaments such as transfusion fluids, parenteral products, tablets, capsules, ointments and stock mixtures.
- 4- Dispensing & sterilizing parenteral preparations which are manufactured in the hospital.
- 5- Dispensing of drugs as per the prescriptions of the medical staff of the hospital.
- 6- Filling and labelling of all drug containers from which medicines are to be administered.
- 7- Management of stores which includes purchase of drugs, proper storage conditions and maintenance of records.
- 8- Establishment and maintenance of "Drug Information centre" which will provide information regarding medications to the physician, nurses or any other competent person who deals in drugs.
- 9- Patient counselling service while supplying drugs especially from out-patient department.
- 10- Maintaining liaison between medical staff, nursing staff and patients.

- 11- Providing cooperation in teaching and research programmes of the hospital.
- 12- Discarding the expired drugs and containers with worn and missing labels.
- 13- Providing drug monitoring services by studying various effects of drugs administered to the patients especially the indoor patients from 'patient charts' maintained in the wards etc.

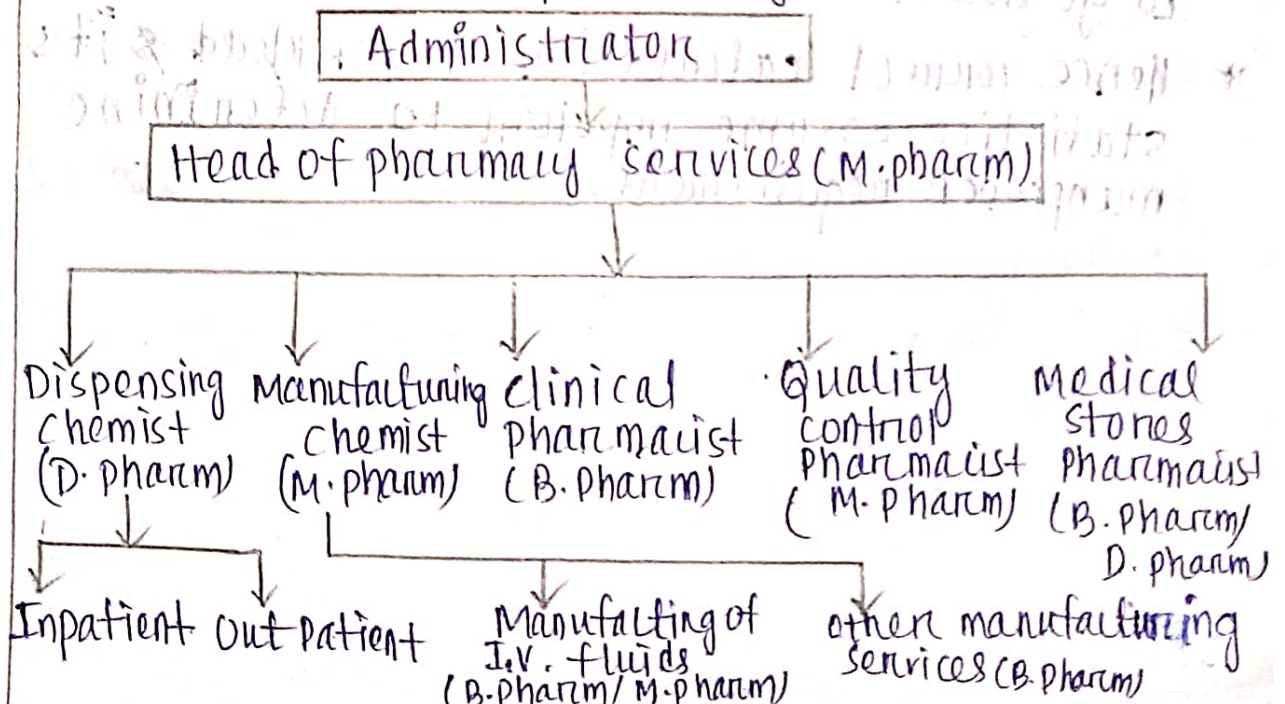


Objectives of hospital pharmacy:-

The practice of hospital pharmacy started in India in 1941 but became a respectable discipline only in sixties. The objectives of hospital pharmacy are:

- 1- To ensure the availability of the right medication, at the right time, in the right dose at the minimum possible cost.
- 2- To professionalize the functioning of pharmaceutical services in a hospital.
- 3- To act as a counselling department for medical staff, nurses and for patient.
- 4- To act as a data bank on drug utilisation.
- 5- To participate in research projects.
- 6- To plan, organise and implement pharmacy policy procedures in keeping with the established policies of the hospital.
- 7- To implement decisions of the Pharmacy and Therapeutics Committee.
- 8- To co-ordinate and co-operate with other departments of a hospital.

The organised hospital pharmacy department has an integrated set up, consisting of dispensing section, manufacturing section, quality control section and clinical pharmacy.



- 1 - The number of pharmacist required for a hospital are calculated on the basis of workload, like the no. of prescription received & dispensed, no. of beds available.
- 2 - The pharmacists should possess adequate pharmacy qualifications & experience. The overall charge of the inpatient department should remain with the chief pharmacist.

Work Loads:-

- * While calculating for workload for entire hospital, hospital pharmacy each of its section, specific need should be taken into account.
- * As per medical / pharmacy manual published by state govt. in India, a pharmacist has to dispense around 60 patients per day of 6 hours shift allotting 6 minutes per patient.
- * Due to various reasons like huge crowd in government hospitals, disproportionate pharmacist appointed in a hospital, a pharmacist force to work more than 10 hours a day while dispensing to 100 patients. This makes quality of service to go down.
- * Hence correct calculation of workload & its statistics assume impotent to determine manpower requirement.

Work Load Statistics and manpower Requirement

SLNo.	Section / Designation	No. of M-pharm/Pharm B	No. of B-pharm	No. of D-pharm	Total
1	HOD/director	1 (M. Pharm, Pharm-D & PH.D)	—	—	01
2	Deputy director (Production, Q.C)	1 (M. Pharm)	—	—	01
3	Deputy director (Clinical ph, education)	1 (Pharm D)	—	—	01
4	Deputy director (Purchase, stores, dispensary)	1 (M. Pharm)	—	—	01
5	Manufacture	1 (M. Pharm)	05	12	18
6	Quality control	1 (M. Pharm)	02	—	03
7	Central sterile service	—	01	02	03
8	Clinical pharmacy service	12 (Pharm D)	—	—	12
9	Drug information centre	1 (Pharm D)	03	—	04
10	Purchase & stores	1 (M. Pharm)	03	06	10
11	Dispensary	—	03	20	23

GOOD PHARMACY PRACTICE :-

In 1992, the international pharmaceutical Federation (FIP) developed standards for pharmacy services under the heading Good pharmacy practice in community and hospital pharmacy settings which were circulated in March 1993 to WHO information officers for comments.

PHARMACY PRACTICE

- Pharmacy practice is knowledge-based execution of the prescription by qualified registered pharmacist to ensure safe, effective, rational and cost effective medications with suitable communication with medical, paramedical staff and patient.
- Pharmacy practice is strongly emerging as important function executed by pharmacist in healthcare system.
- Now the role of pharmacist is not limited to merely counting tablet and capsule but much beyond that.
- Now practice of pharmacy is highly specialized and skilful profession of high importance and responsibility to the level of advisor or consultant to medical, paramedical staff and patient.

PHARMACY PRACTICE REGULATION 2015 :-

Pharmacy Act (1948) → by pharmacy council of india section 10 & 18

↓
→ they got approval by central govt
↓
Makes (regulation)
pharmacy practice → 2015

In exercise of the powers conferred by section 10 & 18 of the pharmacy Act 1948 (8 of 1948) the pharmacy council of India, with the approval of central govt. here by makes the following regulation namely Pharmacy Practice Regulation, 2015.

Practice of Pharmacy Means:-

- Interpretation, evaluation and implementation of medical orders; dispensing of prescriptions, drug orders.
- Participation in drug and device selection, drug administration, drug regimen reviews, drug or drug related research.
- Provisions of patient counselling and the provision of those acts or services necessary to provide pharmaceutical care in all areas of patient care including primary care.
- Responsibility for compounding and labeling of drugs and devices, proper and safe storage of drugs of devices, maintainance of proper record for them
- Therefore key function or elements of pharmacy practice are,
 - (i) Attending and dispensing prescription
 - (ii) Patient counselling
 - (iii) Drug information centre
 - (iv) Inventory Management

Mission of Good Pharmacy Practice:-

Provide medication and health care products and services to people and society to achieve good outcomes from treatment.

Requirements of Good Pharmacy Practice:-

- A pharmacist first priority must be welfare of the patient.
- A pharmacy service must supply medication and health care product assurance quality and must monitor the effects of use.
- A pharmacy services must contribute in promotion of rational economical prescription and appropriate use of Medicine.
- Each element of pharmacy services must be relevant to the patient, clearly defined and effectively communicated to all those involved.

Role of pharmacist in satisfying requirement of Good Pharmacy Practice (GPP):-

- 1- He must establish and maintain relationship particularly with physician as a therapeutic collaborative partnership which involves mutual trust and confidence in all matters relating to pharmacotherapeutics.
- 2- In hospital, pharmacy manager should accept a share of responsibility for the selection, evaluation and improvement of quality of drugs used.
- 3- Pharmacist must update the information about therapeutics and medicines in use.
- 4- Pharmacist must ensure the integrity of supply chain and quality of medicine.
- 5- Pharmacist should accept personal responsibility for maintaining and accessing their own competence throughout their professional working lives.

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- 6- Pharmacist must prepare, store, secure distribute and dispose of medical products.
- 7- Pharmacist must provide effective medication therapy management to assess patient health status and needs.
- 8- Pharmacist must provide information about medicines and health related issues.
- 9- Pharmacist must monitor patient progress and outcomes.
- 10- Pharmacist must engage in preventive care activities and services.
- 11- Pharmacist must support national policy that promote improved health outcomes.
- 12- Comply with national professional obligation, guidelines and legislations.

Main Elements of GPP :-

For each of four main element of GPP; national standards, covering processes and necessary facilities should be established and promoted to the profession.

Health Promotion and Ill health Prevention:-

National standards are needed for;

- Provision of general advice on health matters.
- Involvement of personnel in briefings for special campaigns to ensure co-ordinating effort and consistency of advice.
- Supply and use of prescribed medicines & other health care products.
- Receipt of the prescription & confirmation of the integrity of the communication.

→ National standards are needed for facilities, procedure and personnel.

Assessment of the prescription by the pharmacist

→ Therapeutic aspects (pharmaceutical & pharmacological)

→ Appropriate for the individual.

→ Social, legal, economic, aspects.

Assembly of the prescribed items:-

National standards are needed for;

→ Sources of supply of medicines and other items; manufacture of medicines.

→ Storage

→ Condition at time of supply to the patient;

→ Personnel involved

→ Equipment required

→ Facilities and work place required

→ Preparation and quality assurance of

extemporaneous prepare

Influencing Prescribing and Medicine use

General national prescribing policies National standards are need for;

→ Quality of prescribing data provided to the pharmacist;

→ the preparation of formularies on medicines.

→ Educational program for health professionals.

Hospital Pharmacy standards: FIP Basel

Statements:-

FIP Basel statements:-

FIP is a global Federation of national association of pharmacists and pharmaceutical scientists.

→ It is active across all areas of pharmacy practice, pharmaceutical science and education, primarily through the work of member associations and dedicated volunteers.

→ It initiates and implements numerous projects and programs to improve the responsible use of medicines.

→ Hospital pharmacists from around the world met in Basel, Switzerland in 2008 to discuss the future of hospital pharmacy hosted by FIP (International Pharmaceutical Federation) in 2014 they again gathered in Bangkok & launched an updated version of Basel statement with 65 statements.

→ These statements cover following six main areas of hospital pharmacy :-

- (i) Procurement
- (ii) Influences on prescribing
- (iii) preparation & delivery of medications
- (iv) Medication administration
- (v) Monitoring medication
- (vi) Human resources & training.

Hospital Pharmacy standard: (FIP Based statement, AHSP):-

Each pharmacy should plan for emergency medicine shortage and emergencies;

* The 7 rights;

- 1- Right Patient
- 2- Right dose
- 3- Right Medicine
- 4- Right route
- 5- Right information
- 6- Right documentation
- 7- Right time.

(i) Procurement :-

- Hospital Pharmacist should be involved in the procurement of medicines and health products, promoting equity and access to ensure transparent procurement.
- Procurement practices ensure quality assurance principles, regularly reviewed and adapted to fit different settings & emerging needs in the most appropriate & cost effective way.

(ii) Influences on prescribing :-

- Hospital should utilize a medicine formulary system. Hospital pharmacist should be key members of pharmacy & therapeutics committees to oversee all medicines management policies and procedure.
- Hospital pharmacists should be an integral part of the multidisciplinary team responsible for therapeutic decision making in all patient care areas.
- Hospital pharmacist should participate in collaborative prescribing.

(iii) Preparation and Delivery :-

- should assume responsibility for storage, preparation, dispensing & distribution of all medicines including investigational medicines.
- should be involved in determining which medicines are included in ward stock and standardising the storage and handling of ward medicines.
- conc. electrolytes products and other institutionally identified high risk medicines

should be dispensed in ready to administer dilutions and stored in secure separate areas with distinct labels.

→ Hospital pharmacist should develop simple rules based approaches to advancing patient safety.

(iv) Administration:-

→ Hospital pharmacists should ensure that the information resources needed for safe medicine preparation & administration are accessible at the point of care:-

- Hospital pharmacist must see clinically relevant allergies, drug interactions, contradictions, past adverse events and other relevant medication history details are accurately recorded in a standard location in patient records and evaluated prior to medicine use.
- Hospital pharmacist should ensure that medicines are packaged and labeled to ensure identification.
- Hospital pharmacist should ensure that healthcare professionals who administer medicines are appropriately trained in their use, hazards, necessary precautions.
- Doses high risk medicine should be independently checked against the original prescription by at least two healthcare professionals, one of whom should be pharmacist, prior to administration.

(v) Monitoring of Medicine use:-

→ Reports of defective or substandard medicines should be reviewed internally and sent in a timely manner to regional or national pharmacovigilance or regulatory reporting.

programs, and the manufacture.

- An easily accessible reporting system for adverse drug reaction should be established and maintained.
- Reports of medication error should be regularly reviewed to improve the quality and safety of medicine use practices.

(vi) Human Resources, Training & Development:-

- At a national level, competency frameworks are defined, established & regularly assessed.
- At a national level, hospital pharmacy should enlarge health authorities to bring together stake holders to collaboratively develop evidence based hospital pharmacy, human resource plans, to support responsible use of medicines including those in rural and remote areas.

American Society of Health system Pharmacists (AHSP)

- American Society of Health system (AHSP) have been formerly called as American society of Hospital pharmacists.
- It is a professional organization that represents pharmacist who serve as patient care providers in hospitals and other health care settings.

Minimum Standard Required to the pharmacist:-

- 1- Proper knowledge and understanding of the health care institution and pharmacy department.
- 2- A complete knowledge and understanding of the duties and responsibilities of his position.
- 3- A working knowledge of the pharmaceutical medical terms, abbreviations and symbols

regularly used in prescribing and dispensing.

- 4 - A working knowledge of the general chemical and physical properties of all drugs handled in manufacturing and packaging operation in the pharmacy department.
- 5 - A working knowledge of commonly used weight and volume equivalents and an ability to carry out the arithmetic calculations essential for the usual dosage determinations and solution preparation.
- 6 - The ability to perform the important functions relating to drug purchasing and inventory control.
 - ⊗ A working knowledge of drug dosage, routes of administration and dosage forms.
 - ⊗ The ability to perform the function relating to a unit dose drug dispensing system.
 - ⊗ A working knowledge of the procedures and techniques associated with the sterile manufacturing and parenteral mixture preparation.

National Quality Assurance standards (NQAS):-

- NQAS have been developed with aim of recognising the good performing facilities as well improving credibility of public hospitals in community.
- # NQAS are currently available for districts hospitals
 - CHCs - Community Health centres
 - PHCs - Primary Health centers
 - Urban PHCs - Urban ^{Primary} Health Centers
- # Standard care primarily meant for providers to assess their own quality for improvement through pre-defined standards and to bring up their facilities for certification.

The NQAS are broadly arranged under 8 Areas of concern;

- (i) Service Provision
- (ii) Patient Rights
- (iii) Inputs
- (iv) Support Service
- (v) Clinical care
- (vi) Infection care
- (vii) Quality Management.
- (viii) Outcome

These standards are ISO 9001 (International Society for Quality in Healthcare) accredited and meets global benchmark in terms of comprehensiveness, objectivity, evidence & rigour of development.

It formulates policies & procedures to ensure the safety program & quality improvement program in place & ensures the involvement of all area of hospitals.

NABH Accreditation and Role of Pharmacists -

Introduction
National accreditation board for Hospital & health care was started in the year 2005.

→ developed by the quality council of India (QCI)

→ The accreditation program was started with the intent to improve the standards of health care organizations.

Quality Indicators:-

These are the set of functional parameters which have been selected across different departments of hospitals.

* NABH provides guidelines to setup patient and hospital management centered standards.

* Provides guidelines in training of hand hygiene, fire safety, biomedical waste management and Basic life support (BLS).

* Provides guidelines for the benefits of patients, employees and hospitals.

Benefits of Accreditation:-

- 1- Patients are the largest beneficiary as the implementation of accreditation standard assures patient safety.
- 2- Accreditation standard assure commitment to quality care associated with good clinical outcomes.
- 3- Enhances patient satisfaction and increases community confidences as services are provided by medical staff.
- 4- Accreditation status delivers a promising marketing advantage in competitive healthcare.

Quality Indicators for pharmacy and Role of pharmacists in NABH Accreditation.

- 1- Incidence of dispensing errors.
- 2- Percentage of wastage of drugs.
- 3- Percentage of medicine expiring in a period.
- 4- Percentage of out of stock medicines along with emergency medicines.
- 5- Percentage of drugs rejected before preparation of good receipt note.
- 6- Percentage of medicines procured through local purchase.

All the above data of quality indicators is collected by the pharmacist from the pharmacy every month and analyze it.
→ keeps watch & control on the major deviation in any of the above data.