



**K.K. Wagh Institute of Pharmacy**

**HOSPITAL PHARMACY**

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# Introduction:

- Hospital pharmacist was the first recognized representative of the pharmaceutical profession.
- The first North American Hospital, Pennsylvania Hospital started functioning in 1752 and Jonathan Roberts worked in it as a Hospital Pharmacist.
- The greatest achievements in the profession were made in early 1940s. The American Society of Hospital Pharmacists was formed in 1942 and they published the American journal of Hospital Pharmacy.
- In 1946, there were approximately 7000 hospitals registered by the American Hospital Association, however by 1977, the number increased to 7,099.
- With an increase in the number of hospitals, the purchase and use of drugs increased, which in turn necessitated the modernization of hospitals.
- The hospital administrator realized that only trained pharmaceutical personnel were capable of storing, handling, pricing and dispensing pharmaceutical products.

# Definition Hospital Pharmacy:

- is defined as the actual practice of pharmacy in a hospital. This department in the hospital, under the supervision of professionally competent and legally qualified pharmacists and from where:
  - (a) All medications are supplied to the nursing units.
  - (b) Special prescriptions are filled for in-patients and out-patients.
  - (c) Pharmaceuticals are manufactured in bulk.
  - (d) Narcotics, biological and prescribed drugs are dispensed.
  - (e) Injectable are prepared and sterilized.
  - (f) Professional supplies are often stocked and dispensed.

# Function:

1. To provide and evaluate service in support of medical care for achieving the objectives and policies of hospital.
2. To implement the philosophy, objectives, policies and standards of the hospital.
3. To participate in the functioning of all other departments and services of the hospital.
4. To estimate the requirements of the department and to recommend and implement policies and procedures to maintain an adequate and competent staff.
5. To develop and maintain an effective system of clinical and/or administrative records and reports.
6. To estimate the requirements for facilities, supplies any equipment
7. To co-ordinate with the financial plan of operation for the hospital.
8. To initiate and participate in studies or research project designed for the improvement of healthcare of patients and other hospital services
9. To provide and implement continuing education in pharmacy programme for all health professionals in the hospital.
10. To initiate and participate in the safety programme of the hospital.

# Objectives of Hospital Pharmacy:

- 1 To teach the hospital pharmacist about the philosophy and ethics of pharmacy and guide them to take responsibility for professional practice
- 2 To strengthen the management skills of hospital pharmacist working as the head of the department.
- 3 To strengthen the scientific and professional aspects of practice of pharmacy such as consulting role of hospital pharmacist, his teaching role & research activities.
- 4 To utilize as maximum as possible the resources of hospital pharmacy development of the profession.
- 5 To attract greater number of well trained pharmacists to work in the hospital pharmacy.
- 6 To promote the payment of good salaries to hospital pharmacist in order to retain the services of these professionals.

# National & International Scenario

- 1) The third-largest group of healthcare professionals in the world is pharmacists, and during the past ten years, the field has undergone steady growth.
- 2) Conventionally, the only role of pharmacist is to manufacture and dispense drugs. But this role is now evolving and the pharmacist play a role of essential team member in the care of patients.
- 3) In many parts of the world, the focus has switched from product-centered services to patient-centered services (patient education and counselling, illness prevention, health promotion, various disease states management, and offering specialized clinical advice to other healthcare professionals) as a result of complexities caused by a growth in variety of drugs and poor compliance.
- 4) The pharmacy profession still lags behind in developing nations in comparison to industrialized nations in that neither the general public nor healthcare professionals have ever regarded pharmacy specialists as a component of healthcare team.
- 5) Developed countries have clearly defined the role of community pharmacists by equipping them with the skills and knowledge necessary for patients counselling, providing information about medications and disease conditions, or offer advice about lifestyle changes, drug administration, dosage, side effects, drug storage, and drug-food interactions.

- 6) To reduce the responsibilities of doctors and enhance the standard of care, many industrialized countries, like Australia, United Kingdom, and United States, have also granted pharmacists the right to write prescriptions.
- 7) However, community pharmacists have a restricted role in India than in the western countries. Pharmacist's practice in providing improved patient care is also endorsed and encouraged by several professional pharmacist associations.
- 8) Pharmacists have been granted the ability to prescribe medications for some diseases in nations, like UK.
- 9) The WHO adopted the Good Pharmacy Practice Guidelines which was created by the FIP declares that a pharmacist's top priority should be patient welfare.
- 10) Hospital pharmacists are expected to deliver high-quality patient care by implementing both clinical and standard pharmacy services.
- 11) But, due to differences in healthcare structures, public policies, economic resources, cultural norms, and educational systems, the nature and Scope of provided services may change across different locations.

- 12) Pharmacists in India have the potential to play a larger role in patient care, but it can be challenging to define those obligations and get hospital administrators, the government, and patients to acknowledge them.
- 13) The clinical pharmacist's role is still not well understood by the healthcare professionals and community in India, where the pharmacy profession is more industry-centered than patient-centered.
- 14) The first step in advancing the profession is to comprehend the culture of existing pharmacy practice in various healthcare systems.



## Location & Layout:

- 1) The pharmacy should be situated at the ground floor or the first floor to ease its accessibility and to provide adequate service to the various departments and nursing stations.
- 2) If the hospital has an out-patient department, the pharmacy or its branch should be near it.
- 3) In a multi-store hospital, each floor should have a pharmacy.
- 4) The layout of floor pharmacies should be such that continuous flow of men and materials is maintained.
- 5) A complete unit of the hospital pharmacy includes the following areas:
  - i) Office of the chief,
  - ii) Out-patient dispensing unit,
  - iii) Bulk compounding area,
  - iv) Manufacturing unit for sterile and non-sterile preparations,
  - v) Packaging and labelling area,
  - vi) Alcohol and volatile liquid area,

- vii) Narcotic vaults,
- vii) Radioisotope storage and dispensing area,
- ix) Central sterile supply area,
- x) Cold storage area,
- xi) Research wing.
- xii) Pharmacy store room,
- xii) Library, and
- xiv)Waiting room.

6) An out-patient pharmacy should look pleasant, and have enough space and seating arrangement for patients waiting for the medicine to avoid overcrowding.

7) The waiting room in out-patient pharmacy should have a professional look. bear educative posters on health and hygiene, and hold light literature for reading to engage the visitors.

8) To manufacture bulk preparations (like stock solutions, bulk powders and ointments, etc.) routinely, a suitable space adjacent to the pharmacy or in the basement directly below the pharmacy should be provided.

9) The medical stores of the pharmacy should lie adjacent to the pharmacy beneath the pharmacy.

- **Facilities Required for Pharmacy:**

- (a) Suitable equipment for compounding, dispensing and manufacturing of pharmaceuticals.
- (b) Supply of necessary book-keepings, stationary, furniture, material and equipment for the proper administration of the department.
- An adequate library and filing facilities to make the information on drugs readily available to both physician and pharmacist. A modern pharmaceutical library should be maintained in which the following official books and journals should be available
  - National Formulary, United States Pharmacopoeia, Pharmacopoeia of India, British Pharmacopoeia
  - American Hospital Formulary Service,
  - Journal of American Pharmaceutical Association,
  - International Pharmaceutical Abstracts,
  - Journal of Pharmaceutical Sciences,
  - American Journal of Hospital Pharmacy and Indian Journal of Hospital Pharmacy
  - Journal of American Medical Association.

- The library should contain the text and reference books on the following subjects: Pharmacy, Chemistry, Pharmacology, Bacteriology, Toxicology, Therapeutics, Staining Techniques; Sterilization and Disinfection Techniques and Medical Dictionary,
- (d) Adequate locking arrangement for storage of narcotics and alcohol.
- (e) Sufficient floor space with proper lighting and ventilation should be provided for adequate storage of pharmaceuticals and other operations of pharmacy.
- (f) The facility of refrigerator should be provided for the storage of thermolabile products.
- **The equipments required are of two types:**
  - 1. Fixed equipments: These equipments require installation and become attached to the building. These are items which are included in construction contracts of the building e.g. cabinets, counters, dumbwaiters, elevators and sinks.
  - 2. Movable equipments: These are equipment which can be moved and which are not meant to be permanently fixed to the building. These are large number of items of furniture and equipments having reasonably fixed position but can be moved. e.g. Balances, desks, mixers, carts etc.

# Professional Responsibilities:

- Inpatient Pharmacy Department:

- (I) Dispensing area:

- 1. Policies: He ensures that the established policies and procedures of the hospital are as followed.
- 2. Accuracy: He keeps the proper control for the accuracy of dosages prepared especially for intravenous administration.
- 3. Maintenance of records: He keeps the records of drugs supplied, drugs returned bills of investigational drugs and IV. admixtures, etc.
- 4. Storage: He keeps an adequate control over the drugs stored in his section
- 5. Working: He ensures that all laws and rules are followed in his section and adequate techniques are used for compounding the preparations.
- 6. Co-ordination: He co-ordinates all the activities of the dispensing area to give the best possible service.
- 7. Drug Information: He keeps himself and his staff well informed about the drugs stored in the hospital, about their side effects, therapeutic efficacy and stability

- **(II) Patient Care Area:**

- 1. Co-ordination: He co-ordinates all the pharmacy services in the nursing unit.
- 2. Communication: He communicates with nurses and medical staff regarding medication administration problems.
- 3. Technical:
  - (a) He gives instructions to the technicians regarding the new procedures and dealing with difficult patients.
  - (b) He acts as a link between the technician and nursing and medical staff and ensures that proper techniques are used by the technician for administering the drugs.
  - (c) He assists in training new technicians.
  - (d) He ensures that adequate number of technicians are provided to in-patient care area. He ensures that technicians are following the personnel policies and rules and keeping the medication area neat.

- 4. Supervisory:
- (a) He reviews all medication orders to ensure that these are entered accurately in the unit dose system.
- (b) He periodically inspects each patient's drug administration form to ensure that all doses are being administered and charted correctly.
- (c) He confirms periodically that administered doses are correctly noted on patient's chart and the drug charges are correctly assessed.
- (d) He reviews all doses missed, re-schedules the doses as necessary and signs all "Drugs not given" notices.
- (e) He periodically inspects the medication areas to ensure that adequate level of floor stock drugs and supplies are maintained.

- **(III) Direct Patient Care:**

- 1. He obtains patient's medication history and gives the information to the physician.
- 2. He identifies the drugs brought in the hospital by patient.
- 3. Patient monitoring: The complete drug therapy of the patient effectiveness, side effects, toxicities, allergic reactions is monitored.
- 4. Patient Counselling: He helps in counselling the patient about self administered drugs and discharge drugs.
- Selection of drug: He assists the physician in selection of drug, dose regimens, schedules, and the time for drug administration.
- 6. He participates in cardiopulmonary emergencies.

- **(IV) General Responsibilities:**

- He provides in-service education and drug information to all health professional.



# Outpatient Pharmacist's Responsibilities

- **(I) In dispensing area:**

- 1. Maintenance of records: He provides for the adequate record keeping of the following: (a) Prescription files, (b) Outpatient bills, (c) Patient medication. (d) Investigational drugs, (e) Report.
- 2 Co-ordination: He co-ordinates all the activities of area with available staff to give the best possible service.
- 3. He ensures that proper personnels are present in the area with the proper knowledge of techniques and procedures to be followed.
- 4. He maintains the outpatients area neatly at all the times.
- 5. He maintains professional competence.

## (II) Inpatient care area:

1. Inspection: He periodically inspects the medication area of the nursing unit for the proper supply and storage of stock drugs.
2. Patient monitoring and patient counselling as explained earlier.
3. In selection of drug therapy, dose regimen and schedule, he helps the physician and nursing staff.
- 4 He obtains patient's medication history and identifies drugs brought by him to the hospital and informs the same to the medical and nursing staff.

## (III) General Responsibilities:

- 1 Co-ordination: He co-ordinates all the activities essential for providing the good ambulatory patient care.
2. Drug Information: He gives the adequate and essential drug information to all the health professionals.
- 3 Control: He provides good control over the proper handling of drugs and proper follow up of rules and procedures of the hospital.
4. Education: He provides in-service education and training programmes to all health professionals.
5. He maintains the professional competence in the area.
6. He participates in the cardio-pulmonary emergencies.

# Qualification & Experience:

Sr. No.	Position	Qualification & experience
1	Pharmacist	D.Pharmacy/B. Pharmacy from recognized universities (PCI Approved) with no experience
2.	Senior Pharmacist	D.Pharmacy/B. Pharmacy from recognized universities (PCI Approved) with 4 years experience
3.	Chief Pharmacist/ Director of Pharmaceutical services	B. Pharmacy/M.Pharmacy from recognized universities (PCI Approved) with 4 years experience

# Abilities Required for Hospital Pharmacist

## • 1. Administrative and Managerial Ability:

- planning and integrating pharmacy policies, budgeting, stock control, maintenance of records and preparation of reports.
- He must be thoroughly familiar with the organization of hospital, staff and line relationships and appropriate lines of communication.
- He co-ordinates the pharmacy activities with medical, nursing and other services of the hospital.
- He must be able to prepare suitable written communications to the hospital staff.
- He is responsible for interviewing and selecting the personnel for work in pharmacy.
- He organizes and schedules the work of pharmacy personnel.
- He is responsible for training and development of pharmacy personnel.
- He is responsible for justification and expenditure of pharmacy funds and keeping the records of all pharmacy operations.

## • 2. Manufacturing Ability:

- Since a large number of hospitalized patients are served from the hospital pharmacy, he must be able to develop and conduct a pharmaceutical manufacturing program.
- He must be able to provide the drugs at a relatively low cost by manufacturing in bulk quantities.
- For this purpose he should have sufficient knowledge of availability and sources of drugs.
- He must be able to prepare and supply a required form of drugs which may not be commercially available.

## □ 3. Perfect Knowledge of:

- **(a) Drugs and its actions:** he must have a perfect knowledge of drugs regarding its chemistry, pharmacology, toxic effects, routes of administration and other information.
- He also helps physicians in training by providing the information on drugs.
- He must be able to provide information on proper storage and handling of drugs.
- He must be able to apply his knowledge of drugs for individual cases of patients and for dispensing a particular pharmaceutical quality of a drug.

- **(b) Control of drugs:**

- **(i) Quality control of drugs:** He must be able to develop and write specifications for drugs to be purchased and dispensed by the hospital pharmacy. For this purpose, he must have the perfect knowledge of pharmaceutical properties of drugs. He must be able to evaluate the controls properly for selecting the manufactured drugs.
- **(ii) Control on distribution of drugs:** Depending on the type and size of hospital, the problem of drug distribution varies from hospital to hospital. This is important in case of patients requiring intensive drug therapy. Hence in large hospitals "automated" dispensing at nursing station is carried out

- **4. Research Ability:**

He must be able to perform Pharmaceutical research on the drug

(a) To improve its usefulness.

(b) To develop methods for preservation and stability

(c) To improve therapeutic effectiveness and taste.

(d) To develop the various bases and vehicles for improving, the absorption of act ingredients from internal and external preparations.

- **5. Teaching Ability:**

- He must be able to deliver lectures and give demonstrations for the nursing staff on

- (i) Methods of storage of drugs.

- (ii) Drug usage.

- (ii) Various dosage forms.

- (iv) Mathematical calculations involving percentage solutions and dose calculation.

- (v) Prescription writing.

- (vi) Drug stability and incompatibilities.

He must be able to carry on a continuous training program for trainee and staff pharmacists.

## Job Specifications:

- 1) Constantly supervising pharmacy-related services and logistics.
- 2) Writing prescriptions and assuring the effectiveness and safety of drugs.
- 3) Preparing each drug and adapting dosage forms to the specific circumstances.
- 4) Reporting all the possible Drug Related Problems (DRPs).
- 5) Communicating to healthcare providers regarding DRPs.
- 6) Attending pharmacy-managed clinics and clinical rounds led by each healthcare provider.
- 7) Providing sufficient data on drug consumption.
- 8) Keeping a track of drug inventories and creating medication budgets.
- 9) Offering services for drug information.
- 10) Offering pharmacy-related training to under-and post-graduate students.
- 11) Managing research activities related to pharmacy.



# Work-Load Requirements

• Following are some work characteristics:

1) Working hours per week,

2) Number of hours a responder spent working alone as the pharmacist in his/her pharmacy department.

3) Number of prescriptions filled at the facility where the respondent worked.

4) Quantity and variety of encounters pharmacists have with others on a regular

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Bed Strength	Number of Pharmacist Requirements
Upto 50 beds	3
Upto 100 beds	5
Upto 200 beds	8
Upto 300 beds	10
Upto 500 beds	15

