BP706T · B.Pharm Semester VII · Theory Notes

Pharmacy Practice

Unit I — Introduction to Pharmacy Practice (8 hours)

Unit I (8 hours)

Pills & Python Notes

From-zero teaching standard: every technical term is defined before use.

Syllabus coverage: Unit I (8 hours).

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CHAPTER 1: Introduction to Pharmacy Practice — Definition, Scope and Evolution

Learning Objectives

After studying this chapter, the student will be able to:

1 Define the term "pharmacy practice" in simple words.

2 Describe the scope (the full working area) of the pharmacy profession.

3 Explain how hospital pharmacy and clinical pharmacy evolved (changed step by step) over time.

4 Describe how the pharmacist's role changed from a simple dispenser to a healthcare provider.

5 Explain the pharmacist's role in public health (health of the whole community).

6 Explain the pharmacist's role in policymaking (helping to make rules and laws for health).

Definitions

- **Pharmacy practice:** All the professional activities (services, duties and actions) done by a pharmacist to make sure medicines are used safely, correctly and effectively for patients. In simple words: it is the real-life work a pharmacist does — dispensing medicines, advising patients and doctors, and protecting people from medicine-related harm.
- **Hospital pharmacy:** Pharmacy work done inside a hospital — buying, storing and supplying medicines, preparing special medicines, and advising doctors and nurses about medicines.
- **Clinical pharmacy:** Pharmacy work done close to the patient (in wards, clinics and rounds) — the pharmacist checks each patient's medicines, suggests the right dose, watches for side effects, and talks to the doctor and patient about the treatment.
- **Healthcare provider:** A trained person who gives healthcare services to people — for example a doctor, nurse or pharmacist.
- **Public health:** Efforts to keep a whole community or population healthy (not just one patient at a time) — for example vaccination drives, health education and disease prevention.
- **Policymaking:** The process of making rules, laws and government plans. In health, it means deciding how medicines are sold, stored, priced and supplied in a country.

Terminology Table

Term	Meaning
Pharmacy practice	The professional work of a pharmacist: dispensing, counselling, checking medicines and promoting safe use of medicines
Pharmacist	A licensed professional trained in medicines — their action, dose, side effects and safe use

Term	Meaning
Dispenser	A person who only gives (hands over) medicines as written on a prescription — the oldest, narrowest role of a pharmacist
Healthcare provider	Any trained professional who gives health services (doctor, nurse, pharmacist)
Hospital pharmacy	Pharmacy services inside a hospital — supply, storage, preparation and distribution of medicines
Clinical pharmacy	Patient-centred pharmacy services — reviewing medicines, checking doses, preventing side effects
Pharmaceutical care	The idea that the pharmacist is responsible for the patient's medicine outcomes — doing everything needed so medicines work and cause no harm
Public health	Health of the whole population — prevention of disease and promotion of health in the community
Policymaking	Making rules, laws and government health plans
Rational use of medicines	Using the right medicine, in the right dose, for the right patient, at the right time (more detail in Chapter 2)
Patient counselling	Explaining to the patient how to take medicines correctly, and what to avoid
Prescription	A written order from a doctor (prescriber) telling which medicine the patient should receive

Simple Explanations

Concept 1: What is pharmacy practice?

Simple explanation: "Pharmacy" means the field of medicines. "Practice" means the actual work done, not just theory in books. So pharmacy practice = the real work a pharmacist does every day so that medicines help patients and do not harm them. It includes giving medicines, explaining how to take them, checking that the doctor's order is safe, and teaching the community about health.

Example: A patient brings a prescription for diabetes medicine. Pharmacy practice is: checking that the medicine and dose are correct → giving the right medicine → telling the patient "take this tablet after food, once daily" → warning "do not stop it suddenly" → recording the supply.

Textual diagram/flowchart:

```
Patient brings prescription
        |
Pharmacist CHECKS it (correct drug? correct dose? safe for this patient?)
        |
Pharmacist DISPENSES the right medicine
        |
Pharmacist COUNSELS the patient (how/when to take, side effects, precautions)
        |
Pharmacist FOLLOWS UP (is the medicine working? any problems?)
```

Key takeaway: Pharmacy practice is the full job of a pharmacist — not just handing over a bottle of tablets, but making sure medicines are safe and effective for every patient.

Concept 2: Scope of the pharmacy profession

Simple explanation: "Scope" means "how wide the work is" — all the places and jobs where a pharmacist can work. The scope of pharmacy is very wide: hospitals, community (retail) pharmacies, industry, research, teaching, government, public health programmes, and regulatory offices. Wherever medicines are made, tested, supplied, prescribed or used, a pharmacist's knowledge is needed.

Example: One pharmacist works in a hospital checking cancer drug doses. Another works in a drug company testing medicine quality. A third works in a government office checking whether new medicines are safe to approve. All three are inside the "scope" of pharmacy.

Textual diagram/flowchart:

```
              SCOPE OF PHARMACY
                     |
   +-----------------+-----------------+
   |                 |                 |
HOSPITALS      COMMUNITY         INDUSTRY / RESEARCH
(dispensing,   PHARMACY          (manufacturing, quality
clinical work, (retail shops,     testing, research)
counselling)    patient advice)
   |                 |                 |
PUBLIC HEALTH   TEACHING /       GOVERNMENT /
(vaccination,   ACADEMICS        REGULATORY
health camps)   (colleges)       (drug control offices)
```

Key takeaway: A pharmacist is not limited to a medicine shop — the profession's scope covers hospitals, industry, teaching, research, public health and government.

Concept 3: Evolution of hospital pharmacy

Simple explanation: "Evolution" means slow, step-by-step change over a long time. Long ago, hospitals simply stored medicines and handed them out. Then hospitals grew bigger, medicines became more complex, and pharmacists started buying, storing, preparing sterile (germ-free) injections, and distributing medicines ward-wise. Today hospital pharmacy also includes clinical services — advising doctors on medicine choice and dose.

Example: In an old hospital, the pharmacist kept a store room and gave nurses whatever the doctor wrote. In a modern hospital, the pharmacist sits on committees that decide which medicines the hospital will stock, checks every inpatient prescription for errors, and prepares injections for cancer patients under sterile conditions.

Textual diagram/flowchart (evolution steps):

```
Stage 1: MEDICINE STORE  →  pharmacist only stores and hands out medicines
Stage 2: DISPENSING UNIT →  pharmacist dispenses ward-wise, keeps records
Stage 3: ORGANISED DEPARTMENT → buying, storage, sterile preparation, distribution systems
Stage 4: CLINICAL SERVICES → pharmacist joins ward rounds, advises doctors, monitors therapy
```

Key takeaway: Hospital pharmacy evolved from a simple medicine store room into an organised department that also gives clinical, patient-centred services.

Concept 4: Evolution of clinical pharmacy

Simple explanation: Clinical pharmacy means the pharmacist works "clinically" — near the patient and the disease, not behind a counter. It grew when people realised that many patients were harmed by wrong doses, drug interactions and side effects. So pharmacists began reviewing each patient's medicines, joining doctors on ward rounds, monitoring drug therapy, and taking responsibility for the outcome of treatment. This idea is called "pharmaceutical care".

Example: A heart patient takes 8 different medicines. The clinical pharmacist reviews the list, finds that two medicines do the same work (duplication) and one can harm the kidneys at this dose, discusses it with the doctor, and the prescription is corrected before harm happens.

Textual diagram/flowchart:

```
Many medicines, complex patients
        |
Problems appear: wrong dose, interactions, side effects, non-adherence
        |
Pharmacist moves to the bedside: medication review → ward rounds → counselling
        |
Pharmaceutical care: pharmacist responsible for medicine outcomes
        |
Safer therapy, better recovery
```

Key takeaway: Clinical pharmacy grew from the need to prevent medicine-related harm — the pharmacist now checks therapy at the patient's bedside, not just at the counter.

Concept 5: From dispenser to healthcare provider

Simple explanation: A "dispenser" only hands over what is written. A "healthcare provider" takes responsibility for the patient's health. The pharmacist's role shifted in this direction: today the pharmacist checks prescriptions for errors, counsels patients, monitors treatment, screens for diseases (blood pressure, sugar), gives vaccinations, and works with doctors as a team member. The pharmacist is now a provider of healthcare, not just a supplier of products.

Example: A mother asks for cough syrup for her child. The old-style dispenser would just sell it. The modern pharmacist asks about the child's age, symptoms and other medicines, and may advise "this syrup is not safe for children below 2 years — please consult the doctor," or counsel on correct dose measurement.

Textual diagram/flowchart:

```
DISPENSER (old role)                    HEALTHCARE PROVIDER (new role)
Reads prescription              →       Checks prescription for safety
Hands over medicine             →       Dispenses + counsels the patient
Sells products                  →       Monitors treatment, follows up
Works alone behind counter      →       Works in team with doctors and nurses
No responsibility for outcome   →       Shares responsibility for patient outcome
```

Key takeaway: The modern pharmacist has moved from "giving medicines" to "giving healthcare through medicines".

Concept 6: Pharmacist's role in public health

Simple explanation: Public health = health of the whole population, not one patient. Pharmacists help here because they are the most easily reachable health professionals — people visit pharmacies without appointments. Pharmacists run vaccination services, health-screening camps (blood pressure, sugar, BMI), spread awareness about correct medicine use, support disease-prevention programmes, and report side effects of medicines to the authorities.

Example: During a vaccination drive, a community pharmacist vaccinates hundreds of people, keeps proper cold storage of vaccines, records every dose, and educates families that antibiotics do not cure viral fevers.

Textual diagram/flowchart:

```
Pharmacist in the community
        |
+-------+--------+---------+----------+
|       |        |         |          |
Vaccin- Health   Health   Rational  Reporting
ation   screening education use of    side effects
service (BP, sugar) (awareness medicines  (drug safety
        camps)    talks)   promotion   monitoring)
```

Key takeaway: Because pharmacists are easy to reach, they are powerful workers for public health — vaccination, screening, awareness and safe medicine use in the community.

Concept 7: Pharmacist's role in policymaking

Simple explanation: Policymaking = making the rules and plans by which a country's health system runs. Pharmacists contribute because they understand medicines deeply: they advise governments on drug laws, essential medicine lists, medicine pricing, quality standards, and pharmacy education. They sit on committees and give expert opinions so that policies are practical and safe.

Example: When the government decides which medicines every government hospital must keep (the essential drug list), pharmacists help select them based on safety, effectiveness and cost. When a new rule about online sale of medicines is discussed, pharmacists advise on how to keep it safe.

Textual diagram/flowchart:

```
Government needs medicine-related policy
        |
Pharmacists give expert advice (drug safety, cost, supply, quality)
        |
Policies formed: drug laws → essential drug list → pricing → quality rules
        |
Safe, affordable medicines reach the public
```

Key takeaway: Pharmacists shape health policy by giving governments expert, practical advice on medicines — from drug laws to essential medicine lists.

Classifications

Classification of pharmacy practice areas

1. **Hospital pharmacy** — services inside hospitals (dispensing, distribution, sterile preparation, clinical services).
2. **Community pharmacy** — retail/wholesale drug stores serving the public directly.
3. **Clinical pharmacy** — patient-centred services in wards and clinics.
4. **Industrial pharmacy** — manufacturing and quality control of medicines.
5. **Academic pharmacy** — teaching and training in pharmacy colleges.
6. **Regulatory pharmacy** — work in drug control offices, approvals, inspections.
7. **Public health pharmacy** — vaccination, screening, health programmes.

Stages in the evolution of the pharmacist's role

1. **Compounder/dispenser** — prepares and hands over medicines.
2. **Distributor** — manages supply of medicines in hospitals and stores.
3. **Clinical adviser** — checks therapy, advises doctors, monitors patients.
4. **Healthcare provider** — takes responsibility for medicine outcomes.
5. **Public health and policy contributor** — serves the community and advises governments.

Mechanisms / Processes

How the pharmacist's role expanded — the process

1. **Medicines became complex** — more drugs, more side effects, more interactions; simple dispensing was no longer enough.
2. **Medicine-related harm was noticed** — wrong doses and interactions harmed patients; someone needed to check therapy.
3. **Pharmacists moved to the bedside** — ward rounds, medication review, counselling began.
4. **Pharmaceutical care concept** — the pharmacist accepted responsibility for the outcome of drug therapy.
5. **Public health and policy roles** — pharmacists joined vaccination, screening and government committees.

How a pharmacist contributes to public health — the process

1. **Identify** a community health need (for example, low vaccination, high blood pressure cases).
2. **Plan** a service (vaccination camp, screening camp, awareness talk).
3. **Deliver** the service with correct technique and records.
4. **Educate** the public (correct medicine use, disease prevention).
5. **Report** data and side effects to health authorities.

Textual Diagrams and Flowcharts

Evolution timeline: hospital and clinical pharmacy

```
EARLY STAGE
Pharmacist = compounder and dispenser
Medicines prepared and handed over; little patient contact beyond the counter
        |
        v
HOSPITAL PHARMACY GROWS
Organised departments: purchase, storage, sterile preparation, ward-wise distribution
Pharmacist manages the medicine system of the hospital
        |
        v
CLINICAL PHARMACY EMERGES
Pharmacist at the bedside: medication review, ward rounds, dose checking,
counselling, monitoring of drug therapy
        |
        v
PHARMACEUTICAL CARE
Pharmacist takes responsibility for medicine outcomes – safe, effective therapy
        |
        v
TODAY: FULL HEALTHCARE PROVIDER
Clinical services + public health (vaccination, screening) + role in policymaking
```

Shift in the pharmacist's identity

```
+-------------------------------------------------------+
|  FROM: Product-centred  →  TO: Patient-centred        |
|  FROM: Dispenser        →  TO: Healthcare provider    |
|  FROM: Counter work     →  TO: Bedside + community    |
|  FROM: Working alone    →  TO: Team with doctors      |
+-------------------------------------------------------+
```

Infographic Concept

INFOGRAPHIC CONCEPT: A horizontal timeline titled "The Pharmacist's Journey". Five illustrated milestones from left to right: (1) "The Dispenser" — mortar and pestle, handing over a bottle; (2) "The Hospital Pharmacist" — hospital building, store shelves and sterile preparation room; (3) "The Clinical Pharmacist" — pharmacist with a patient file at a hospital bedside beside a doctor; (4) "The Healthcare Provider" — pharmacist counselling a patient with a shield symbol for safety; (5) "Public Health & Policy" — pharmacist vaccinating in a community camp and advising at a government table. Below the timeline, one line: "From giving medicines → to giving healthcare." Colour theme: white coat white, medicine blue, plus brand accents.

Tables

Table 1: Old role vs new role of the pharmacist

Old role (dispenser)	New role (healthcare provider)
Only hands over medicines	Checks, dispenses, counsels and follows up
Focus on the product	Focus on the patient

Old role (dispenser)	New role (healthcare provider)
Works behind the counter	Works at bedside, clinic and community
Works alone	Works in a team with doctors and nurses
No responsibility for treatment outcome	Shares responsibility for medicine outcomes
Limited to dispensing	Also does screening, vaccination, public health

Table 2: Areas of pharmacy practice and what the pharmacist does there

Practice area	Main work of the pharmacist
Hospital pharmacy	Purchase, storage, dispensing, sterile preparation, distribution
Clinical pharmacy	Medication review, ward rounds, dose advice, monitoring therapy
Community pharmacy	Dispensing, counselling, OTC advice, vaccination, screening
Industrial pharmacy	Manufacturing, quality testing of medicines
Academic pharmacy	Teaching and training future pharmacists
Regulatory pharmacy	Drug approvals, inspections, enforcement of drug laws
Public health pharmacy	Vaccination, health camps, awareness, disease prevention

Examples

1. **Definition in action:** A pharmacist refuses to dispense two medicines together because they interact dangerously, calls the doctor, and gets the prescription changed. That is pharmacy practice — protecting the patient, not just selling.
2. **Scope example:** A pharmacist working in a drug control office inspects a manufacturing unit — this is inside the scope of pharmacy though no patient is present.
3. **Evolution example:** Fifty years ago a hospital pharmacist's main tool was the balance for compounding; today it is the patient file for therapy review.
4. **Dispenser to provider:** A pharmacist notices a patient buying painkillers every week, counsels about stomach-ulcer risk, and refers the patient to a doctor — a provider's action.
5. **Public health role:** A pharmacist organises a free blood-pressure check camp in the market area and refers high-BP cases to the PHC (primary health centre).
6. **Policymaking role:** Pharmacists help the government prepare the list of essential medicines that every public hospital must stock.

Analogies

1. **Pharmacist as a bridge:** A bridge connects two banks of a river. The pharmacist connects the doctor's prescription and the patient's safe recovery — the medicine only helps if this bridge is strong.
2. **Dispenser vs provider (shopkeeper vs guide):** A shopkeeper just sells you a map; a guide walks with you and keeps you from getting lost. The old pharmacist was the shopkeeper; the new one is the guide.

3 **Evolution like a tree:** A tree starts as a seed (dispensing), grows a trunk (hospital pharmacy systems), then branches (clinical pharmacy, public health, policy). Same roots — wider shade.

4 **Public health role like a lighthouse:** A lighthouse warns all ships, not one. A pharmacist's awareness talks protect the whole community, not one patient.

5 **Policymaking like writing traffic rules:** Drivers need traffic rules to stay safe; the medicine system needs policies. Pharmacists help write these "traffic rules" for medicines.

Pharmacy Relevance

Every topic in this chapter is the foundation of the subject: if a student understands what pharmacy practice is and how wide its scope is, all later chapters (hospital organisation, drug distribution, clinical services, counselling) become easy to place. In exams, "define pharmacy practice", "describe the scope" and "explain the evolution" are classic short and long questions. In career, this chapter answers the interview question "what does a pharmacist actually do?" — the shift from dispenser to healthcare provider is the identity of the modern pharmacist.

India Context

In India, pharmacy practice is growing fast: hospital pharmacies are becoming organised departments, clinical pharmacy services are starting in teaching hospitals, and community pharmacists are being involved in vaccination and health-screening services. Pharmacy practice regulations in India exist — always follow "as per the latest guidelines/notifications — confirm the current edition" before quoting any rule in exams or practice. India's large population and the easy reach of pharmacies make the pharmacist's public-health role especially valuable — from rational medicine use campaigns to supporting government health programmes.

Key Points

1 Pharmacy practice = the pharmacist's professional work to ensure safe, effective medicine use.

2 Scope of pharmacy covers hospitals, community, industry, teaching, research, regulatory work and public health.

3 Hospital pharmacy evolved: medicine store → dispensing unit → organised department → clinical services.

4 Clinical pharmacy grew to prevent medicine-related harm at the patient's bedside.

5 The pharmacist's role shifted from dispenser (product-centred) to healthcare provider (patient-centred).

6 In public health, pharmacists do vaccination, screening, awareness and rational-use promotion.

7 In policymaking, pharmacists advise governments on drug laws, essential medicines and quality.

Common Confusions

1 **Pharmacy practice vs pharmaceutics:** Pharmaceutics is the science of making medicines (formulation); pharmacy practice is the professional service work with medicines and patients. Different subjects.

2 **Hospital pharmacy vs clinical pharmacy:** Hospital pharmacy manages the medicine system of the hospital (supply, storage, distribution); clinical pharmacy works directly with patients and doctors on therapy. They overlap but are not the same.

3 **Dispenser vs pharmacist:** Every pharmacist can dispense, but dispensing is only one small part of a pharmacist's work today.

4 **Public health vs treating patients:** Public health works for the whole community (prevention); treating patients is one-to-one care. Pharmacists do both.

5 **Scope vs job:** "Scope" means the full field of possible work — wider than any single job a person holds.

Common Mistakes

1 Writing "pharmacy practice means selling medicines" — it is much wider: dispensing, checking, counselling, monitoring, public health.

2 Confusing hospital pharmacy with clinical pharmacy in answers — keep their definitions separate.

3 Forgetting the public-health and policymaking roles when describing the modern pharmacist.

4 Quoting regulation details without the "latest guidelines" caution — rules change; always confirm the current edition.

5 In evolution answers, listing stages without explaining *why* the change happened (complex medicines → harm noticed → pharmacist moved to bedside).

Mnemonics

- **Pharmacy practice core duties — "D-C-C-M": D**ispense correctly, **C**heck prescriptions, **C**ounsel patients, **M**onitor therapy.
- **Evolution stages — "S-D-O-C" ("See Doctors Organise Care"): S**tore room → **D**ispensing unit → **O**rganised department → **C**linical services.
- **Modern pharmacist roles — "H-C-P-P" ("Help Communities, Protect People"): H**ospital & clinical work, **C**ommunity service, **P**ublic health, **P**olicymaking.
- **From dispenser to provider:** think "product → patient": the focus moved from the **product** to the **patient**.

Exam Summary

Pharmacy practice is the pharmacist's professional work ensuring safe and effective medicine use. Its scope is wide: hospital, community, clinical, industrial, academic, regulatory and public-health pharmacy. Hospital pharmacy evolved from a simple medicine store to an organised department with clinical services; clinical pharmacy grew to prevent medicine-related harm through bedside services like medication review and ward rounds. The pharmacist's role shifted from dispenser (product-centred, working alone) to healthcare provider (patient-centred, team worker, responsible for outcomes). Pharmacists serve public health through vaccination, screening, awareness and rational medicine use, and they shape policymaking by advising governments on drug laws, essential medicines and quality standards.

One-Minute Revision

- Pharmacy practice = pharmacist's work for safe medicine use.
- Scope: hospital, community, clinical, industry, teaching, regulatory, public health.
- Evolution: store room → dispensing unit → organised department → clinical services → pharmaceutical care.
- Role shift: dispenser (product) → healthcare provider (patient).
- Public health: vaccination, screening, awareness, rational use.
- Policymaking: expert advice on drug laws, essential medicines, quality.

Questions

Short answer questions

1 Define pharmacy practice.

2 Define hospital pharmacy and clinical pharmacy.

3 What is meant by "scope" of the pharmacy profession? List any four areas.

4 What is pharmaceutical care?

5 Name the stages in the evolution of hospital pharmacy.

6 Who is a healthcare provider?

7 What is public health?

8 What is policymaking in the context of health?

Long answer questions

1 Define pharmacy practice and describe its scope in detail.

2 Explain the evolution of hospital pharmacy and clinical pharmacy.

3 Describe how the pharmacist's role has shifted from dispenser to healthcare provider, with examples.

4 Discuss the role of the pharmacist in public health.

5 Discuss the role of the pharmacist in policymaking.

MCQs (with answer key)

1 Pharmacy practice mainly means:

a) Only selling medicines b) Professional work of the pharmacist to ensure safe and effective medicine use c) Only manufacturing medicines d) Only teaching pharmacy **Answer: b**

1 Which of the following is NOT inside the scope of pharmacy?

a) Hospital pharmacy b) Industrial pharmacy c) Regulatory pharmacy d) Civil engineering **Answer: d**

1 The earliest stage of hospital pharmacy was mainly:

a) Clinical ward rounds b) A medicine store room for storage and handing out medicines c) Vaccination camps d) Policymaking **Answer: b**

1 Clinical pharmacy grew mainly because:

a) Medicines became cheaper b) Medicine-related harm (wrong doses, interactions, side effects) needed bedside checking c) Pharmacists wanted longer working hours d) Hospitals had extra rooms **Answer: b**

1 "Pharmaceutical care" means:

a) Caring for medicine bottles b) The pharmacist takes responsibility for the patient's medicine outcomes c) Only dispensing quickly d) Cleaning the pharmacy **Answer: b**

1 A pharmacist running a blood-pressure screening camp is doing:

a) Industrial pharmacy b) Public health work c) Manufacturing d) Policymaking **Answer: b**

1 Helping the government prepare the essential drug list is an example of:

a) Dispensing b) Policymaking contribution c) Compounding d) Advertising **Answer: b**

1 The correct order of evolution of the pharmacist's role is:

a) Healthcare provider → dispenser → compounder b) Dispenser → distributor → clinical adviser → healthcare provider c) Policymaker → dispenser → compounder d) Provider → storekeeper → compounder **Answer: b**

Viva questions

1 What is pharmacy practice in one sentence?

2 Name three areas in the scope of pharmacy.

3 What is the difference between hospital pharmacy and clinical pharmacy?

4 What made clinical pharmacy necessary?

5 Give one example of a pharmacist's public-health role.

6 Give one example of a pharmacist's policymaking role.

7 What does "product-centred to patient-centred" mean?

Application-based questions

1 A patient asks you for a strong painkiller without a prescription, saying "just give it, you are the medicine expert." As a modern healthcare provider (not just a dispenser), how do you respond?

2 Your hospital wants to start a diabetes awareness camp in the nearby community. List five tasks a pharmacist can do in this camp.

3 A new hospital is being built in your town. The management asks what the pharmacy department should do beyond "giving medicines to wards." Write your answer as five points.

References

- Hassan
- Harman
- Merchant & Qadry
- Parmar
- Parthasarathi/Hansen/Nahata
- Shargel

CHAPTER 2: Hospital and Clinical Pharmacy — Guidelines, Regulations, Settings and Levels of Care

Learning Objectives

After studying this chapter, the student will be able to:

1 Describe the WHO and FIP guidelines on pharmacy practice in general terms (as per the latest editions — confirm the current edition).

2 Describe pharmacy practice regulations in India (as per the latest guidelines/notifications — confirm the current edition).

3 Explain the concept of rational use of medicines.

4 Explain the concept of Good Pharmacy Practice (GPP).

5 Compare inpatient and outpatient pharmacy practice settings.

6 Explain the healthcare delivery system and interprofessional collaboration.

7 Describe the levels of care — primary (PHC), secondary (CHC) and tertiary care — and the pharmacist's role at each level.

Definitions

- **Guideline:** An official document that advises how something should be done correctly. It is guidance, not always a strict law.
- **WHO (World Health Organization):** The United Nations agency for health, which gives health guidance to countries.
- **FIP (International Pharmaceutical Federation):** The global organisation representing pharmacists and pharmacy, which issues guidance on pharmacy practice.
- **Regulation:** A rule made by an authority (government or council) that must be followed; breaking it can be punished.

- **Rational use of medicines:** Giving the right medicine, in the right dose, for the right patient, for the right length of time, at an affordable cost. The opposite — wrong drug, wrong dose, unnecessary use — is called "irrational use".
- **Good Pharmacy Practice (GPP):** A set of standards describing how pharmacy services should be provided so that medicines are safe, effective and of good quality.
- **Inpatient:** A patient admitted to the hospital who stays overnight (or longer) in a ward.
- **Outpatient:** A patient who visits the hospital or clinic for treatment and goes home the same day, without admission.
- **Healthcare delivery system:** The organised network of people, hospitals, clinics and services that delivers healthcare to the population.
- **Interprofessional collaboration:** Different health professionals (doctors, pharmacists, nurses) working together as a team for the patient.
- **Primary care (PHC):** First-level care — the first place a patient goes for basic health needs (Primary Health Centre).
- **Secondary care (CHC):** Second-level care — bigger centres with specialists for problems the PHC cannot handle (Community Health Centre).
- **Tertiary care:** Third-level, highly specialised care — district hospitals and medical colleges with advanced facilities.

Terminology Table

Term	Meaning
Guideline	Official advice on how work should be done correctly
Regulation	A binding rule from an authority that must be followed
WHO	World Health Organization — UN agency giving global health guidance
FIP	International Pharmaceutical Federation — global body for pharmacists
Rational use of medicines	Right medicine, right dose, right patient, right duration, affordable cost
Irrational use	Wrong/unnecessary use of medicines — wrong drug, dose, or duration
GPP (Good Pharmacy Practice)	Standards for providing safe, effective, quality pharmacy services
Inpatient	Admitted patient staying in the hospital ward
Outpatient	Patient treated and sent home the same day
Healthcare delivery system	Organised network delivering health services to the population
Interprofessional collaboration	Teamwork between doctors, pharmacists, nurses and others
PHC	Primary Health Centre — first-level basic care
CHC	Community Health Centre — second-level care with specialists
Tertiary care	Highly specialised care — district hospitals, medical colleges

Simple Explanations

Concept 1: WHO and FIP guidelines on pharmacy practice

Simple explanation: WHO and FIP publish guidelines — official advice documents — telling countries how pharmacy services should be organised so patients get safe and effective medicines. They cover things like: pharmacists should check prescriptions, counsel patients, keep medicine quality, keep proper records, and work with doctors. These guidelines are described here in general terms only — for the exact current text, always refer to the latest editions (confirm the current edition).

Example: A guideline may say "every prescription should be checked by a pharmacist before dispensing." A hospital follows this by making the pharmacist verify each inpatient prescription — this is WHO/FIP guidance put into action.

Textual diagram/flowchart:

```
WHO / FIP publish pharmacy practice guidelines (general global advice)
        |
Countries adapt them into national rules and standards
        |
Hospitals and pharmacies follow them in daily work
        |
Result: safer dispensing, better counselling, quality medicines
```

Key takeaway: WHO and FIP guidelines give the world a common standard for good pharmacy services — countries then adapt them locally (always check the latest edition).

Concept 2: Pharmacy practice regulations in India

Simple explanation: "Regulations" are binding rules. In India, pharmacy practice is governed by laws and rules made by the government and pharmacy authorities — for example, who can practise as a pharmacist (registration requirements), how drug stores must be run, and how prescriptions must be handled. Because rules are updated over time, always write and follow "as per the latest guidelines/notifications — confirm the current edition" instead of quoting old details.

Example: A drug store in India must be run under the supervision of a registered pharmacist, and certain records must be maintained. These are regulatory requirements — the exact current wording must be confirmed from the latest notifications.

Textual diagram/flowchart:

```
Government / pharmacy authorities issue regulations
        |
Rules cover: who may practise → how stores run → how medicines are dispensed → records
        |
Pharmacists follow them in daily practice
        |
(Note: always confirm the current edition — regulations are updated)
```

Key takeaway: Pharmacy practice in India works under official regulations — learn the framework, and always confirm the current edition before quoting any rule.

Concept 3: Rational use of medicines

Simple explanation: "Rational" means sensible and reasonable. Rational use of medicines means every patient gets the right medicine, in the right dose, for the right disease, for the right length of time, at a cost the patient can afford. Irrational use is the opposite: antibiotics for a viral cold, injections when tablets would do, wrong doses, or stopping treatment too early.

Example: A child has a simple viral fever. Rational use: paracetamol syrup in the correct dose by weight, plus fluids and rest — no antibiotic needed. Irrational use: giving an antibiotic "just in case", which does not help the virus and builds antibiotic resistance.

Textual diagram/flowchart:

```
RIGHT medicine + RIGHT dose + RIGHT patient + RIGHT duration + AFFORDABLE cost
        = RATIONAL USE
WRONG medicine / WRONG dose / UNNECESSARY drug / TOO LONG or TOO SHORT / WASTEFUL cost
        = IRRATIONAL USE → harm, resistance, waste of money
```

Key takeaway: Rational use = the 5 "rights" (medicine, dose, patient, duration, cost). The pharmacist is a guardian of rational use.

Concept 4: Good Pharmacy Practice (GPP)

Simple explanation: GPP is a set of quality standards for pharmacy services — like a "good conduct book" for pharmacies. It says: medicines must be of good quality and stored properly, prescriptions must be checked, patients must be counselled, records must be kept, the premises must be clean and suitable, and pharmacists must keep updating their knowledge. Following GPP means the pharmacy gives safe, reliable service every time.

Example: Two pharmacies: one stores insulin in a proper refrigerator, checks expiry dates monthly and counsels every patient. The other keeps medicines in a hot room and never counsels. The first follows GPP; the second does not.

Textual diagram/flowchart:

```
GPP standards
  +-- Quality medicines, correct storage
  +-- Prescription checking before dispensing
  +-- Patient counselling
  +-- Proper records
  +-- Suitable premises and equipment
  +-- Pharmacist's updated knowledge
        |
        v
Safe, effective, trustworthy pharmacy service
```

Key takeaway: GPP is the quality standard for pharmacy services — quality medicines, checked prescriptions, counselled patients, proper records.

Concept 5: Practice settings — inpatient vs outpatient

Simple explanation: A "setting" is the place and situation of work. Inpatient pharmacy serves admitted patients in wards — medicines go through the hospital's distribution system, nurses administer them, and

the pharmacist reviews therapy on rounds. Outpatient pharmacy serves patients who go home the same day — the pharmacist dispenses take-home medicines and counselling is very important, because the patient will take medicines without a nurse's help.

Example: Inpatient: a post-surgery patient in the ward gets injections through the ward nurse; the pharmacist checks the chart daily. Outpatient: a diabetes patient collects a month's tablets from the hospital pharmacy counter; the pharmacist explains dose timing and storage at home.

Textual diagram/flowchart:

```
INPATIENT setting                          OUTPATIENT setting
Patient admitted to ward                   Patient visits and goes home
        |                                          |
Medicines via hospital                     Medicines dispensed to take home
distribution system                                |
Nurse administers                          Patient self-administers
        |                                          |
Pharmacist: chart review,                Pharmacist: counselling is critical
ward rounds, monitoring                  (no nurse at home to help)
```

Key takeaway: Inpatient pharmacy works through wards and nurses; outpatient pharmacy hands medicines to patients who manage them at home — so counselling matters even more.

Concept 6: Healthcare delivery system and interprofessional collaboration

Simple explanation: The healthcare delivery system is the whole organised network — PHCs, CHCs, hospitals, pharmacies, doctors, nurses, pharmacists — that delivers care to people. "Interprofessional collaboration" means these different professionals work as one team instead of working separately. The doctor diagnoses, the pharmacist ensures safe medicines, the nurse gives care and monitors — together the patient gets the best result.

Example: A tuberculosis patient: the doctor prescribes the correct regimen, the pharmacist counsels on taking medicines for the full 6 months without missing doses, and the nurse/health worker follows up. If any one of them works alone and the others are missing, treatment can fail.

Textual diagram/flowchart:

```
        PATIENT (centre of care)
       /      |       \
  DOCTOR  PHARMACIST  NURSE
diagnoses  ensures safe   gives care,
prescribes medicines,     monitors,
           counsels       follows up
       \      |       /
    TEAMWORK → better outcomes
```

Key takeaway: Healthcare is a team game — doctor, pharmacist and nurse each play a part, and collaboration gives the patient the safest result.

Concept 7: Levels of care — PHC, CHC, tertiary

Simple explanation: Care is organised in levels, like steps of a ladder. Primary care (PHC — Primary Health Centre) is the first step: basic treatment, immunisation, minor illnesses, referrals. Secondary care

(CHC — Community Health Centre) is the next step: specialists and small surgeries for problems the PHC cannot handle. Tertiary care (district hospitals, medical colleges) is the top step: highly specialised treatment, advanced surgery, intensive care. Patients move up only when needed.

Example: A villager with fever first visits the PHC. If tests show a complicated condition, the PHC refers to the CHC. If heart surgery is needed, the CHC refers to the medical college hospital (tertiary). At each level, a pharmacist manages medicines — from basic drug supply at the PHC to clinical pharmacy services at the tertiary hospital.

Textual diagram/flowchart (care-level pyramid):

```
          /\
         /  \          TERTIARY CARE
        /    \         District hospitals, medical colleges
       /------\        Highly specialised, advanced facilities
      /        \
     / SECONDARY\      CHC — specialists, small surgeries
    /------------\
   /   PRIMARY    \    PHC — first contact, basic care,
  /________________\   immunisation, referral
 Most patients treated here; fewer referred upward
```

Key takeaway: Care rises in steps — PHC (basic) → CHC (specialist) → tertiary (highly specialised) — and pharmacists have medicine-related roles at every level.

Classifications

Classification of pharmacy practice settings

1. **Inpatient setting** — wards of a hospital; admitted patients; distribution through nurses; chart review and ward rounds.
2. **Outpatient setting** — OPD counters, community pharmacies; take-home medicines; counselling is central.

Classification of levels of care

1. **Primary care** — PHC; first contact; basic treatment, immunisation, health education, referral.
2. **Secondary care** — CHC; specialist consultation, basic surgeries, diagnostic support.
3. **Tertiary care** — district hospitals, medical colleges; highly specialised and advanced care.

Types of medicine use

1. **Rational use** — right medicine, dose, patient, duration, affordable cost.
2. **Irrational use** — wrong drug, wrong dose, unnecessary medicines, wrong duration.

Mechanisms / Processes

How rational use is promoted — the process

1. **Correct diagnosis** by the prescriber.
2. **Correct prescription** — right drug, dose, duration.
3. **Pharmacist checking** — verify safety, interactions, duplication.
4. **Correct dispensing and labelling.**
5. **Patient counselling** — how to take, what to avoid, when to return.
6. **Follow-up** — is the treatment working? Any side effects?

How a prescription moves in the inpatient setting — the process

1. Doctor writes the order on the medication chart.
2. Pharmacist reviews the chart (dose, interactions, duplication).
3. Pharmacy supplies medicines to the ward.
4. Nurse administers to the patient.
5. Pharmacist monitors therapy on rounds.

How interprofessional collaboration works — the process

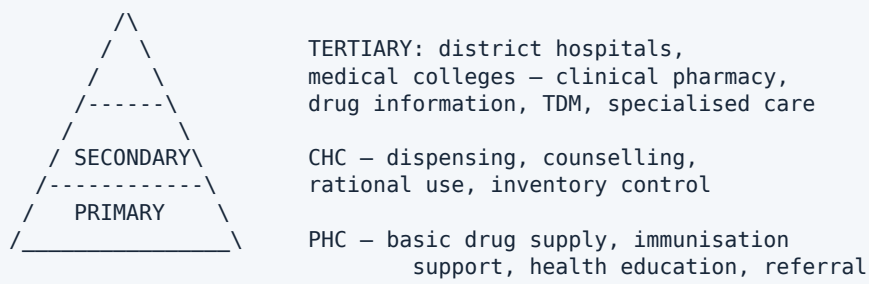
1. **Shared goal** — the patient's best outcome.
2. **Clear roles** — doctor diagnoses, pharmacist manages medicines, nurse delivers care.
3. **Communication** — rounds, notes, discussions.
4. **Mutual respect** — each profession's expertise is valued.
5. **Joint decisions** — therapy adjusted together.

Textual Diagrams and Flowcharts

The 5 rights of rational medicine use

```
+-------------------------------------------------+
|  1. RIGHT medicine (correct drug for the disease)|
|  2. RIGHT dose (correct amount and frequency)   |
|  3. RIGHT patient (safe for this person)        |
|  4. RIGHT duration (not too short, not too long)|
|  5. RIGHT cost (affordable to the patient)      |
+-------------------------------------------------+
```

Levels of care pyramid with pharmacist roles



From guidelines to practice

```
WHO/FIP guidelines (global advice)
        |
National regulations (as per latest notifications — confirm current edition)
        |
Hospital/pharmacy policies
        |
Daily practice: checking, dispensing, counselling, records
```

Infographic Concept

INFOGRAPHIC CONCEPT: A three-step pyramid titled "Levels of Care — Where the Pharmacist Works". Bottom step (widest, green): "PRIMARY — PHC: first contact, basic medicines, immunisation support, health education". Middle step (blue): "SECONDARY — CHC: specialists, dispensing, counselling, rational use". Top step (narrow, purple): "TERTIARY — district hospitals & medical colleges: clinical pharmacy, ward rounds, drug information". A pharmacist figure climbs the steps carrying a medicine bag; side panel shows the "5 Rights of Rational Use" as five checkmarks. Footer note: "Regulations: as per the latest guidelines/notifications — confirm the current edition."

Tables

Table 1: Inpatient vs outpatient pharmacy setting

Point	Inpatient	Outpatient
Patient type	Admitted, stays in ward	Visits and goes home same day
Who gives the medicine	Nurse administers	Patient self-administers
Pharmacist's main work	Chart review, ward rounds, monitoring	Dispensing, counselling, labelling
Importance of counselling	Important	Even more critical (no nurse at home)
Example	Post-surgery ward patient	Diabetes patient collecting monthly tablets

Table 2: Levels of care

Level	Facility	Services	Pharmacist's role
Primary	PHC	Basic treatment, immunisation, referral	Basic drug supply, health education

Level	Facility	Services	Pharmacist's role
Secondary	CHC	Specialists, small surgeries	Dispensing, counselling, rational use, inventory
Tertiary	District hospital, medical college	Highly specialised care	Clinical pharmacy, ward rounds, drug information

Table 3: Rational vs irrational use of medicines

Rational use	Irrational use
Right medicine for the disease	Wrong medicine (e.g., antibiotic for viral cold)
Correct dose and duration	Overdose, underdose, too long/too short
Affordable cost	Wasteful, expensive combinations
Patient counselled	Patient uninformed
Result: cure, safety, savings	Result: harm, resistance, waste

Examples

1. **Guidelines:** A hospital writes its dispensing policy starting from WHO/FIP guidance — "every prescription checked by a pharmacist before supply."
2. **Regulations:** A new drug store opens only after meeting the legal requirements and under a registered pharmacist — as per the latest notifications (confirm current edition).
3. **Rational use:** Doctor prescribes ORS and zinc for a child's diarrhoea instead of an unnecessary antibiotic — rational.
4. **Irrational use:** An injection prescribed where a tablet would work equally well — irrational and costlier.
5. **GPP:** A pharmacy checks expiry dates every month, stores vaccines in a refrigerator, and counsels every patient — GPP in action.
6. **Inpatient:** Pharmacist on ward rounds notices a kidney patient's dose is too high and gets it corrected.
7. **Outpatient:** Pharmacist explains to an asthma patient how to use an inhaler correctly — technique counselling.
8. **Collaboration:** Doctor, pharmacist and nurse jointly adjust a patient's blood-thinner dose — teamwork.
9. **Levels of care:** Fever treated at PHC → complicated malaria referred to CHC → severe case to medical college (tertiary).

Analogies

1. **Guidelines vs regulations (guidebook vs law):** A travel guidebook advises the best route (guideline); traffic law punishes wrong driving (regulation). Both keep the journey safe.
2. **Rational use like cooking:** Right ingredients, right quantity, right cooking time = tasty food. Wrong ingredients or wrong time = spoiled dish. Same with medicines.

3 **GPP like a restaurant hygiene rating:** You trust a restaurant with a good hygiene rating. GPP is the "hygiene rating" of a pharmacy.

4 **Inpatient vs outpatient (hotel vs takeaway):** Inpatient is like dining in a hotel — staff serve you. Outpatient is like takeaway — you carry the food home and must handle it yourself; so the packing (counselling) matters more.

5 **Levels of care like school classes:** Primary school (basic), high school (deeper), university (specialised). You go up only when ready — patients move up the care levels only when needed.

6 **Healthcare team like a cricket team:** Batsman, bowler and fielder have different jobs but one goal — winning. Doctor, pharmacist and nurse have different jobs but one goal — the patient's health.

Pharmacy Relevance

This chapter gives the rules and structure of practice: guidelines tell us the standard, regulations tell us the law, rational use and GPP tell us the quality goal, and settings and levels of care tell us where we work. In exams, "rational use of medicines", "GPP", "inpatient vs outpatient" and "levels of care" are favourite questions. In practice, every prescription you check and every patient you counsel is an application of rational use and GPP — and knowing the levels of care tells you what role is expected of you at a PHC versus a medical college.

India Context

India's healthcare delivery system runs on the PHC → CHC → tertiary ladder, and pharmacists are posted at each level — from managing basic drug supply and immunisation support at PHCs to clinical pharmacy services in medical colleges. Rational use of medicines is a national concern in India (for example, avoiding unnecessary antibiotics and injections), and pharmacists are key promoters of it. Pharmacy practice regulations in India are updated through official notifications — in exams and in practice, always add "as per the latest guidelines/notifications — confirm the current edition" rather than quoting outdated details.

Key Points

1 WHO and FIP issue global guidelines on pharmacy practice — described generically; confirm the current edition.

2 Pharmacy practice in India works under official regulations — confirm the current edition before quoting.

3 Rational use = right medicine, right dose, right patient, right duration, affordable cost.

4 GPP = quality standards for pharmacy services (quality medicines, checking, counselling, records).

5 Inpatient = admitted patients, ward-based work; outpatient = take-home medicines, counselling is critical.

6 Healthcare delivery system = organised network of care; interprofessional collaboration = teamwork of doctor, pharmacist, nurse.

7 Levels of care: primary (PHC) → secondary (CHC) → tertiary (district hospitals, medical colleges).

Common Confusions

1. **Guideline vs regulation:** A guideline advises; a regulation binds and can punish. Do not use the words interchangeably.
2. **WHO vs FIP:** WHO is the UN health agency for all health matters; FIP is the global body specifically for pharmacists and pharmacy.
3. **Inpatient vs outpatient:** Inpatient = admitted and staying; outpatient = visiting and going home. Not "in-coming vs out-going".
4. **PHC vs CHC:** PHC is primary (first level, basic); CHC is secondary (next level, specialists). CHC is bigger than PHC.
5. **Rational use vs GPP:** Rational use is about the correct use of medicines; GPP is about the quality standard of pharmacy services. Related but different.

Common Mistakes

1. Claiming specific WHO/FIP guideline version numbers or years — describe them generically and note "confirm the current edition".
2. Quoting Indian regulation details without the "latest notifications" caution.
3. Defining rational use incompletely — all five rights (medicine, dose, patient, duration, cost) should appear.
4. Mixing up PHC (primary) and CHC (secondary) in the levels-of-care answer.
5. Forgetting the pharmacist's role at each level of care when asked "role of pharmacists at various levels".

Mnemonics

- **Rational use — "5 Rights" / "M-D-P-D-C": M**edicine, **D**ose, **P**atient, **D**uration, **C**ost — "My Doctor Prescribes Drugs Carefully".
- **Levels of care — "P-S-T": P**rimary (PHC) → **S**econdary (CHC) → **T**ertiary (medical college) — "Patients Step up Treatment".
- **GPP pillars — "Q-C-C-R": Q**uality medicines, **C**hecking prescriptions, **C**ounselling patients, **R**ecords.
- **Healthcare team — "D-P-N": D**octor diagnoses, **P**harmacist protects (medicines), **N**urse nurtures.

Exam Summary

WHO and FIP give global guidelines on pharmacy practice (described generically — confirm the current edition), and pharmacy practice in India works under official regulations (as per the latest guidelines/notifications — confirm the current edition). Rational use of medicines means the right medicine, right dose, right patient, right duration and affordable cost; Good Pharmacy Practice (GPP) is the quality standard for pharmacy services. Practice settings are inpatient (admitted patients, ward-based, nurse administers) and outpatient (take-home medicines, counselling critical). The healthcare delivery system is the organised network of care, served best by interprofessional collaboration between doctors, pharmacists and nurses. Levels of care rise from primary (PHC — basic, first contact) to secondary (CHC —

specialists) to tertiary (district hospitals, medical colleges — highly specialised), with pharmacist roles growing from basic supply to clinical services at each step.

One-Minute Revision

- WHO/FIP: global pharmacy practice guidelines (generic; confirm current edition).
- India: pharmacy practice under official regulations (confirm current edition).
- Rational use: 5 rights — medicine, dose, patient, duration, cost.
- GPP: quality standard — quality medicines, checking, counselling, records.
- Inpatient: wards, nurse gives medicine; outpatient: take-home, counselling critical.
- Team: doctor + pharmacist + nurse = collaboration.
- Levels: PHC (primary) → CHC (secondary) → tertiary (medical college).

Questions

Short answer questions

1 What are WHO and FIP? What kind of documents do they issue on pharmacy practice?

2 Define rational use of medicines.

3 Define Good Pharmacy Practice (GPP).

4 Differentiate between inpatient and outpatient pharmacy settings.

5 What is interprofessional collaboration?

6 What is a PHC? What is a CHC?

7 List the levels of care in order.

Long answer questions

1 Describe the WHO and FIP guidelines on pharmacy practice in general terms.

2 Write a note on pharmacy practice regulations in India.

3 Explain the concept of rational use of medicines with examples of rational and irrational use.

4 Explain the concept of Good Pharmacy Practice.

5 Compare inpatient and outpatient pharmacy practice settings.

6 Describe the levels of care (primary, secondary, tertiary) and the role of the pharmacist at each level.

MCQs (with answer key)

1 WHO stands for:

a) World Health Organisation b) World Hospital Organisation c) Western Health Office d) World Herbal Organisation **Answer: a**

1 FIP is:

a) A medicine brand b) The International Pharmaceutical Federation, the global body for pharmacists c) A hospital in India d) A type of injection **Answer: b**

1 Which is correct about guidelines vs regulations?

a) Both are exactly the same b) Guidelines advise; regulations are binding rules that must be followed c) Regulations are only suggestions d) Guidelines punish violations **Answer: b**

1 Rational use of medicines does NOT include:

a) Right medicine b) Right dose c) Unnecessary antibiotic for a viral cold d) Affordable cost **Answer: c**

1 Giving an injection when a tablet would work equally well is an example of:

a) Rational use b) Irrational use c) Good Pharmacy Practice d) Tertiary care **Answer: b**

1 GPP mainly deals with:

a) Quality standards for pharmacy services b) Building design of hospitals c) Doctor's salaries d) Food safety **Answer: a**

1 An admitted patient staying overnight in a ward is called:

a) Outpatient b) Inpatient c) Visitor d) Attendant **Answer: b**

1 In the outpatient setting, counselling is especially important because:

a) The pharmacist has free time b) The patient takes medicines at home without a nurse's help c) Medicines are cheaper d) Doctors are absent **Answer: b**

1 The correct order of levels of care is:

a) Tertiary → secondary → primary b) Primary (PHC) → secondary (CHC) → tertiary c) CHC → PHC → tertiary d) Primary → tertiary → secondary **Answer: b**

1 A Community Health Centre (CHC) provides:

a) Highly specialised heart surgery only b) Secondary care — specialists and small surgeries c) Only vaccinations d) No pharmacist services **Answer: b**

Viva questions

1 What is the difference between a guideline and a regulation?

2 Name the five rights of rational medicine use.

3 What does GPP stand for? Name two of its pillars.

4 Who administers medicines to an inpatient? To an outpatient?

5 What is a PHC? Give its level of care.

6 Name the three members of the core healthcare team and one role of each.

7 Why should you confirm the current edition before quoting a regulation?

Application-based questions

1 A doctor prescribes an antibiotic for a patient's common cold (viral). As a pharmacist promoting rational use, what do you do? List your steps.

2 You are posted as a pharmacist at a PHC. List five medicine-related duties you will perform there.

3 A patient discharged from the ward does not understand how to take three different medicines at home. Design your counselling points as an outpatient pharmacist.

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