

Israilova I.X., Israilov J.D.



Tashkent-2025

**MINISTRY OF HIGHER EDUCATION, SCIENCE AND INNOVATIONS,
OF THE REPUBLIC OF UZBEKISTAN
MINISTRY OF HEALTH OF THE REPUBLIC OF UZBEKISTAN
TASHKENT STATE MEDICAL UNIVERSITY**

Israilova I.X., Israilov J.D.

FOREIGN LANGUAGE IN MEDICINE (MASTERING MEDICAL TERMINOLOGY)

Textbook

Field of knowledge:	900 000	–	Health care and social affairs
Field of education:	910 00	–	Healthcare
Direction of education:	60910700	–	Pharmacy

“TIB NASHR”

TOSHKENT-2025

Israilova I.X., Israilov J.D. // Foreign language in medicine (Mastering medical terminology) // O‘quv darsligi. Toshkent: «TIB NASHR» nashriyoti, 2025y

Mualliflar:

Israilova I.X.

Toshkent davlat tibbiyot universiteti dotsenti

Israilov J.D.

Toshkent davlat tibbiyot universiteti katta o‘qituvchisi

Taqrizchilar:

Babayeva M.X.

Toshkent davlat pedagogika universiteti professori
(DSc)

Tashxodjayeva P.B.

Toshkent davlat tibbiyot universiteti
“1 son- O‘zbek va xorijiy tillar” katta o‘qituvchisi

Toshkent davlat tibbiyot universitetining Kengashida muhokama qilindi va tasdiqlandi.

Majlislar bayonnomasi № “4” 29 oktyabr 2025-yil

Kengash kotibi



G.A.Ismailova

ISBN: 978-9910-8476-2-2

© **Israilova I.X., Israilov J.D.**
© «TIB NASHR» nashriyoti, 2025

Foreword

In the twenty-first century, the rapid expansion of medical knowledge and the globalization of healthcare systems have made the command of medical terminology not merely a desirable skill but an essential requirement for every future healthcare professional. Among them, pharmacists occupy a unique position at the crossroads of science, medicine, and patient care. Their professional success depends not only on their ability to compound, dispense, and monitor medications but also on their capacity to communicate accurately and responsibly with physicians, patients, and colleagues across linguistic and cultural borders.

This textbook, Foreign language in medicine (*Mastering Medical Terminology*) has been designed specifically for students of pharmacy. It addresses one of the central challenges of pharmaceutical education: how to integrate specialized medical vocabulary into practical, clinical, and research contexts. While many resources provide definitions of medical terms, far fewer offer students the tools to *understand*, *internalize*, and *apply* terminology in authentic professional scenarios. The present volume seeks to fill this gap by combining linguistic precision with real-world pharmaceutical practice.

The structure of the textbook reflects the logic of professional growth. Each unit introduces students to a core domain of pharmacy and medicine—ranging from anatomy and physiology to pharmacology, pathology, and clinical communication. Terms are not presented as isolated items but are embedded in professional texts, case studies,

prescriptions, and patient instructions. This approach allows learners to see how terminology functions as a living system of knowledge that guides diagnosis, treatment, and therapeutic decision-making. In addition, exercises are designed to reinforce active vocabulary use through reading, writing, speaking, and translation tasks.

A particular strength of this book lies in its intercultural perspective. The globalization of healthcare has created multilingual and multicultural environments in which pharmacists must adapt their knowledge to diverse contexts. By drawing attention to Latin and Greek roots, international drug nomenclature, and culture-specific expressions in medical discourse, the textbook prepares students to engage in cross-cultural communication with competence and confidence.

It is hoped that this textbook will serve as a reliable guide for students at medical universities, a practical companion for lecturers, and a source of inspiration for those who seek to master the language of medicine. By acquiring fluency in medical terminology, future pharmacists will not only strengthen their academic and professional skills but also contribute to safer, more effective, and more humane healthcare for all.

The editors and authors extend their gratitude to colleagues, students, and medical professionals who shared their insights and experience during the preparation of this volume. Their contributions have ensured that *Mastering Medical Terminology!* reflects both academic rigor and practical relevance.

May this book accompany its readers on their journey towards excellence in pharmaceutical education and practice, helping them transform terminology into meaningful knowledge and professional action.



O'ZBEKISTON RESPUBLIKASI
SOG'LIQNI SAQLASH VAZIRLIGI
TOSHKENT DAVLAT TIBBIYOT
UNIVERSITETI

NASHR RUXSATNOMASI



O'QUV ADABIYOTINING NASHR RUXSATNOMASI

O'zbekiston Respublikasi Sog'liqni saqlash vazirligi
Toshkent davlat tibbiyot universiteti rektorining 2025 - yil
12-noyabr dagi 1646 - sonli buyrug'iga asosan

I.X.Israilova, J.D.Israilov

(muallif(lar) familiyasi, ismi, sharifi)

60910700 - Farmatsiya

(ta'lim yo'nalishi (mutaxassisligi))

ta'lim yo'nalishi ning

talabalari uchun tavsiya etilgan

Foreign language in medicine (Mastering medical terminology)

(o'quv adabiyotining nomi va turi: darslik, o'quv qo'llanma)

Darslik ga

O'zbekiston Respublikasi Vazirlar Mahkamasi
tomonidan litsenziya berilgan nashriyotlarda nashr
etishga ruxsat berildi.

Rektor Sh.A.Boymuradov
(imzo)



Ro'yxatga olish raqami

2025-032



Contents

Unit 1. Foundations of Pharmacy Education and Professional Development	_
Unit 2. Historical and Global Perspectives on Pharmacy	___
Unit 3. The Pharmacist's Role in Healthcare	___
Unit 4. At the Pharmacy	___
Unit 5. Prescription Writing	___
Unit 6. Medications	___
Unit 7. The Chemical Laboratory	___
Unit 8. Pharmacy as a Science	___

Independent / Self-Study Tasks

Topic 1. Organization of Pharmaceutical Work	___
Topic 2. History of Pharmacy	___
Topic 3. Pharmaceutical Economics	___
Topic 4. Management in Pharmaceutics	___
Topic 5. Pharmaceutical Technology	___
Topic 6. Standardization of Medicines	___
Topic 7. Pharmaceutical Deontology	___
Topic 8. Ibn Sina's Teaching in Modern Pharmaceuticals	___
Topic 9. Work in Pharmacies	___
Topic 10. Pharmaceutical Support	___
Topic 11. Pharmaceutical Hygiene	___
Topic 12. Pharmaceutical Ecology	___
Topic 13. Technology of Medical Preparations	___
Topic 14. Methods of Instrumental Analysis of Drugs	___

Topic 15. Pharmaceutical Biotechnology	___
Topic 16. The History of Penicillin	___
Topic 17. Antibiotics	___
Topic 18. At the Chemist's	___
Topic 19. Hypertensive Drugs	___
Topic 20. Hypotensive Drugs	___
Topic 21. The Main Instructions of Drugs	___
Topic 22. Folk Medicine	___
Topic 23. The Role of Herbal Drugs	___

UNIT 1.FOUNDATIONS OF PHARMACY EDUCATION AND PROFESSIONAL DEVELOPMENT

Pharmacy is one of the oldest and most respected healthcare professions. It combines knowledge of chemistry, biology, and medicine with patient-centered care. Pharmacists do not simply count pills; they are essential healthcare providers who ensure the safe and effective use of medicines, prevent harmful drug interactions, and guide patients in managing their health.

To study pharmacy, students must master a specialized set of terms used in universities, hospitals, research laboratories, and pharmacies worldwide. Understanding these words is the first step in becoming a confident professional.

Vocabulary & Scrub up

Pharmacy integrates science, safety, and service. Beyond dispensing, pharmacists prevent medication errors, monitor therapy, educate patients, and coordinate with the healthcare team. Mastery of core terminology is the first step to competent practice.

A. Task: Match the terms (1–20) with the definitions (A–T). Write the correct letter in the right column.

№	Term	Match (Letter)
1	Pharmacist	...
2	Pharmacy	...
3	Prescription	...
4	OTC (over-the-counter)	...
5	Dosage	...
6	Dose	...
7	To compound	...
8	To dispense	...
9	Counseling	...
10	Adherence	...
11	Contraindication	...
12	Adverse effect	...
13	Drug interaction	...
14	Label	...
15	Leaflet	...
16	Expiry (expiration) date	...
17	Storage conditions	...

18	Formulary	...
19	Refill	...
20	Internship	...

Definitions

- A.** A patient-friendly insert with information about use, risks, storage, side effects, and when to seek medical help.
- B.** A licensed medicine expert responsible for safe use of drugs, counseling, monitoring, and preventing interactions.
- C.** Temperature, light, and moisture requirements for keeping medicines safe (e.g., 2–8 °C; protect from light).
- D.** The last date guaranteeing full potency and safety of a medicine under stated storage conditions.
- E.** An authorized order specifying drug, strength, dose, route, frequency, duration, and instructions.
- F.** A facility where medicines are prepared, stored, and dispensed (community, hospital, or industrial).
- G.** Supervised practice in a community or hospital pharmacy focusing on real-world competence.
- H.** A harmful or unintended response to a medicine at normal doses.
- I.** A single measured quantity of a medicine taken at one time.
- J.** The quantity of medicine per administration and per day, including dosing frequency.
- K.** Providing a medicine to a patient according to a prescription with verification and documentation.
- L.** A structured patient education process to improve safe use and adherence.
- M.** A situation where a drug should not be used (absolute vs. relative).
- N.** To prepare customized formulations, such as pediatric syrups or dermatologic creams.
- O.** Medicines that are safe and effective without a prescription when used

correctly.

P. Modification of drug effect when combined with another drug, food, or herb.

Q. A professional list of medicines approved in a healthcare system, insurer, or hospital.

R. An authorized additional supply of a medicine without a new prescription.

S. The degree to which patient behavior matches the agreed treatment regimen.

T. Primary container information including name, strength, directions, warnings, expiry, and batch.

B. Collocations & Precision Use (fill-in):

Choose the best collocation: *adverse reaction* / *adverse effect* / *side effect*; *patient counseling* / *patient conversation*; *dose* / *dosage*.

1. Pharmacists document any serious _____ in the record.
2. Effective _____ increases adherence and reduces misuse.
3. The pediatric _____ is 10 mg/kg/day divided into two _____.

C. Word Family & Part of Speech:

Complete the table (verb / noun / adjective / person).

- to **dispense** → _____ / _____ / _____
- to **counsel** → _____ / _____ / _____
- to **adhere** → _____ / _____ / _____

D. Categorize (5 buckets):

Place terms into: *Settings (...)*, *Processes (...)*, *Documents (...)*, *Safety & Quality (...)*, *Patient Support (...)*.

E. Micro-Case: Label Audit (error-spotting):

A sample label reads: “Amoxicillin 500 mg. Take 1 capsule daily for sore throat.

Expires: 12/2028. Store above 25 °C.”

Identify at least 5 issues (dose/frequency; indication phrasing; storage; duration; auxiliary warnings; batch/lot).

F. Create-a-Label:

Write a safe label for “Ibuprofen 200 mg tablets” for an adult with acute pain. Include name, strength, dose, maximum daily dose, warnings, storage, expiry space, batch space.

G. Mini-Reflection (100–120 words):

“How precise language prevents real-world harm in pharmacy.”

¹Listening: Pharmacy Programs



Scan the QR code and complete the task.

After you watch the video, do the following:

1. List **three components** of the Pharmacy Bachelor’s programme mentioned in the video (e.g. subject areas, skills, settings).
2. What are **two admission requirements** discussed for entering the pharmacy programme?
3. Identify **one advantage** and **one challenge** of studying pharmacy as mentioned.
4. Fill in the blanks using words you heard in the video:
 - The pharmacy programme includes _____, _____, and hands-on training.
 - Students are expected to _____ with clinical labs and _____ research.
5. True or False:
 - a) The video says you do *not* need any prior science background.
 - b) It mentions that students will take internships or work placements.
 - c) The programme only focuses on theoretical learning.

¹ <https://www.youtube.com/watch?v=H-r5Ems2Gfw>

6. Discussion:

In pairs, discuss: *How would you prepare if you were to apply for a similar pharmacy programme?* Think about academic preparation, skills, and personal qualities.

Language Spot: Present Simple Tense

1) Why Pharmacists Use It

We describe **routines, protocols, general truths, and job roles** in Present Simple.

2) Form Recap

- **Affirmative:** *The pharmacist checks prescriptions.*
- **Negative:** *Hospital pharmacies do not sell cosmetics.*
- **Questions:** *Does the clinic pharmacy stock insulin?*
- **3rd person -s:** *A hospital formulary defines coverage.*

Time markers: always, usually, often, sometimes, rarely, never; every day/week; on Mondays; as a rule.

3) Domain Examples

- Pharmacists **review** prescriptions and **identify** potential interactions.
- A prescription **includes** patient identifiers and directions.
- Community pharmacies **provide** OTC counseling and **manage** refills.
- The hospital pharmacy **supplies** wards and **monitors** high-alert medicines.

4) Extended Practice

A. Controlled Gap-Fill (forms + adverbs of frequency):

1. The pharmacist _____ (verify) allergies before dispensing.

2. Our pharmacy _____ (open) at 9 a.m. and _____ (close) at 7 p.m.
3. We _____ (often / check) fridge temperatures twice a day.
4. The team _____ (not dispense) expired medicines.
5. _____ the formulary _____ (include) this antibiotic?

B. Error Correction (agreement & countability):

1. The pharmacist record patient advices.
2. Each prescription include dosage and frequency.
3. OTC drugs requires doctor authorization.

C. Transformations (frequency & rules):

Change meaning by adding adverbs: *Pharmacists counsel patients.* → *Pharmacists always counsel patients on new prescriptions.* (Make 5 variations.)

D. Yes/No & Wh-Questions from Prompts:

– “inventory audits / weekly” → *Do you perform inventory audits weekly? / When do you perform...?* (Write 6.)

E. SOP Sentences (use Present Simple):

Write 8 one-line SOP rules for receiving, storing, dispensing, and documenting a cold-chain vaccine.

F. Mini-Writing (120–150 words):

Describe “A typical day in a community pharmacy” using Present Simple and 6 domain verbs (dispense, counsel, verify, label, record, document).

Reading: *My Journey to Becoming a Pharmacist*

I chose pharmacy because it connects rigorous science with direct patient impact. In my first year, foundational courses in general chemistry and human biology built the language and logic I now apply daily. Later, pharmaceutical chemistry

taught me how molecular structure shapes pharmacological action, while pharmacology linked receptor mechanisms to real treatment decisions. Microbiology, pathophysiology, and public health expanded my view of risk, prevention, and community wellbeing.

During my hospital internship, I learned that safety is systematic: we verify patient identity, allergies, dose, route, and timing before a single tablet is dispensed. I saw how a pharmacist's questions can prevent harm—clarifying a renal dose, noticing a duplicate therapy, or explaining why “as needed” does not mean “whenever.” I practiced documenting counseling in the record so any clinician can track what the patient heard and agreed to.

Community practice taught me communication. Many patients come with fears, incomplete knowledge, or conflicting advice from the internet. Clear, respectful, and structured counseling transforms confusion into understanding. I learned to use simple language, to check comprehension, and to invite questions. My preceptor repeated one principle: “Accuracy without empathy is not enough.”

I now read clinical guidelines, attend seminars, and maintain a vocabulary journal of new terms and abbreviations. My goal is to be a pharmacist who protects patients not only by dispensing correctly but by educating effectively—turning terminology into safe action.

Reading Tasks

A. Pre-Reading Prediction:

List 5 topics you expect (courses, safety checks, communication, documentation, professional growth).

B. While-Reading (MCQ – choose one):

1. The author highlights safety as:
 - a) a single final check
 - b) a multi-step system
 - c) a nurse's task only

2. “Accuracy without empathy is not enough” implies pharmacists must:
 - a) prioritize speed
 - b) balance precision with communication
 - c) avoid counseling
3. Vocabulary development is maintained by:
 - a) memorizing random lists
 - b) keeping a focused journal
 - c) ignoring abbreviations

C. Short-Answer (2–3 sentences each):

1. Which courses built the author’s scientific language?
2. Give two examples of how pharmacists prevent harm.
3. Why is documentation of counseling important?

D. Evidence Hunt:

Underline (or list) two sentences that show **systematic safety** and two that show **patient-centered communication**.

E. Summary (80–100 words):

Write a concise abstract of the text including: motivation, key learning, impact on practice.

F. Application Task (150–180 words):

Write your own “mini-journey”: one scientific concept you mastered, one safety habit you practice, and one communication strategy you value.

Speaking: Pictures Based on Speaking

A. Guided Picture Description (checklist):

Use this 6-point checklist when describing a pharmacy photo: *setting, actors, actions, equipment/medicines, safety steps, communication cues*. Speak for 90 seconds.

B. Role-Play 1 — New Prescription Counseling (OSCE-style):

- **Goal:** Explain *Amoxicillin 500 mg*, 1 capsule **three times daily for 7 days**.
- **Pharmacist card:** verify allergies; check indication; explain dose, timing, food, missed dose, common side effects (GI upset, rash); red flags; storage; adherence tip (set phone reminders).
- **Patient card:** first antibiotic; mild penicillin rash in childhood? (ask if true allergy vs. intolerance); anxious; asks about alcohol.
- **Deliverable:** 2–3 minute counseling + teach-back (“Can you repeat how you’ll take it?”).

C. Role-Play 2 — OTC Request:

- **Scenario:** Patient asks for “something for heartburn.”
- **Pharmacist objective:** differentiate indigestion vs. alarm signs; recommend lifestyle plus suitable OTC; give 3 clear instructions; advise when to seek medical care.

D. Problem-Solving Discussion (pairs):

“Your pharmacy receives two prescriptions with a potential interaction (warfarin + new NSAID). Discuss a plan: verify, contact prescriber, patient counseling, documentation.”

E. Mini-Presentation (2 minutes):

“Five daily routines that keep a pharmacy safe.” Use Present Simple. Include one real example from your practice or studies.

F. Pronunciation Focus (word stress):

Practice aloud: *pharmacist*, ***dosage***, *interaction*, ***adherence***, *contraindication*, *label*, ***leaflet***, *expiration*, ***formulary***. Record and self-assess clarity.

Language Spot: Present Continuous Tense

1) What it is (and why pharmacists need it)

The **Present Continuous** (also called Present Progressive) describes:

- actions **happening now** or **around now**: *The pharmacist is checking a high-alert prescription right now.*
- **temporary** or **short-term** situations: *I'm working in a hospital pharmacy this semester.*
- **current trends/changes** in data: *Adverse event reports are increasing this quarter.*
- **planned near-future arrangements** (with a time reference): *I'm meeting the preceptor at 2 p.m.*

Pharmacy practice often needs precise timing and status updates—this tense lets you report *what is happening at this moment* or *what is arranged next*.

2) Form

- **Affirmative:** Subject + am/is/are + V-ing
*The clinical pharmacist **is reviewing** the medication chart.*
- **Negative:** Subject + am/is/are + not + V-ing
*They **are not dispensing** controlled drugs without verification.*
- **Questions:** Am/Is/Are + subject + V-ing?
*Are you **counseling** the patient now?*

Spelling (-ing):

make → making; write → writing; stop → stopping; lie → lying

3) Present Continuous vs Present Simple (in pharmacy contexts)

- **Habit / Routine (Present Simple):** *We **dispense** insulin daily.*

- **Now / Temporary (Present Continuous):** *We **are dispensing** insulin for Ward 5 right now.*
- **Permanent job role (Present Simple):** *She **works** in community practice.*
- **Temporary placement (Present Continuous):** *She **is working** in oncology for 6 weeks.*
- **General truth (Present Simple):** *A prescription **includes** patient identifiers.*
- **Ongoing process (Present Continuous):** *The team **is conducting** a double-check.*

4) Typical pharmacy signal words

now, right now, currently, at the moment, this week/semester, today, these days, for the time being

Near-future arrangements: **this afternoon, tomorrow at 9, next Monday**

5) Common pitfalls (and quick fixes)

- Don't use Present Continuous with **state** verbs for permanent states: *We **know** the policy* (not *are knowing*).
- Use Present Continuous for **live actions** even if the action is short: *I'm **labeling** the bottle now.*
- For **timetables** (fixed schedules), prefer Present Simple: *The pharmacy **opens** at 9.*

Practice:

A. Now vs. Habit (choose the tense and complete)

1. The pharmacist usually (**verify**) interactions before dispensing, but right now she (**focus**) on anticoagulants.

2. We **(receive)** a controlled shipment every Monday; today we **(book in)** a new batch of morphine amps.
3. I **(study)** pharmacology this semester and **(attend)** hospital rounds twice a week.

B. Live OPS Log (fill in Present Continuous)

Your team is performing a live inventory check:

1. We **(count)** refrigerated insulin pens.
2. The preceptor **(observe)** the double-check process.
3. I **(record)** temperatures in the cold-chain log.

C. Error Correction

1. The pharmacist is know the patient's allergy history.
2. We are always checking the vaccine schedule at 9 a.m.
3. The pharmacy is opening at 8 a.m. today (regular schedule, not a special arrangement).

D. Transformations (arrangements)

Rewrite using Present Continuous + time reference:

- *We meet the inspector at 10:00 tomorrow.* →

- *The class visits the hospital next week.* →

E. Mini-writing (100–120 words)

Describe *what your team is doing this hour* during a busy shift (at least 8 Present Continuous verbs, 4 pharmacy nouns, 3 time expressions).

²Listening: Working as a Pharmacist



Scan the QR code and complete the task.

1. **List 4 job responsibilities** the pharmacist performs in the video.
2. **Identify the settings** where the pharmacist works (e.g. hospital, community pharmacy, lab, etc.). List at least two.
3. **Mention two skills** the pharmacist uses or refers to in the video (communication, technical, interpersonal, etc.).
4. **Fill in the blanks** with words you heard in the video (choose the correct ones):
 - The pharmacist is currently _____ prescriptions for patients.
 - She is _____ patients about side effects.
 - He is checking the _____ of medications.
 - They are collaborating with the _____ team.
5. **True or False:**
 - a) The pharmacist mentions having to verify allergies before dispensing.
 - b) The pharmacist works only with medications, not with patients.
 - c) The video shows the pharmacist using electronic systems.
6. **Detail Task:**

In 3–4 sentences, describe **one challenging moment** shown in the video (e.g. a medication error risk, a communication issue, etc.) and how the pharmacist dealt with it.
7. **Role-Play Preparation:**

Imagine you are shadowing a pharmacist as in the video. Prepare for a role-play:

 - Your role: a patient with multiple medications who wants to understand how to avoid drug interactions.

² <https://www.youtube.com/watch?v=Wjkr-YbytmM>

- The pharmacist's role: explain drug interactions, advise how to manage them, ask for medication and medical history.

Write the script of about 150 words.

8. **Reflection (120-150 words):**

After watching, reflect on *what surprised you about the pharmacist's daily work*. Include aspects like multitasking, patient relations, safety measures, etc. How does this compare to what you expected?

Reading: Licensing, Certification, and Career Advancement

1) Overview

Becoming a pharmacist involves **licensing** (legal permission to practice), optional **certifications** (proven competence in a specialty), and a continuous path of **career advancement** (clinical roles, management, academia, or industry). While details vary by country, successful candidates share common steps: education, supervised training, examination, professional conduct, and lifelong learning.

2) Typical pathway (generic model)

1. **Accredited degree in pharmacy** (e.g., BPharm/MPharm/PharmD) with core sciences, pharmacology, pharmaceuticals, patient safety, ethics, and practice labs.
2. **Supervised practical training/internship** (community/hospital), documented competencies: dispensing accuracy, counseling, documentation, teamwork.
3. **Licensing exam(s)** assessing science knowledge and clinical judgement; sometimes language proficiency and jurisprudence (pharmacy law).
4. **Registration with the national council/board**, meeting legal and ethical requirements, good standing, and fees.

5. **Continuing Professional Development (CPD)** to retain registration (credits/points, reflective portfolios, revalidation).
6. **Optional certifications/specialist training** (e.g., clinical pharmacy, oncology, infectious diseases, pharmacotherapy, compounding, regulatory affairs, pharmacovigilance).
7. **Advancement:** senior pharmacist, clinical specialist, manager, residency/fellowship, research/teaching roles, or industry/regulatory careers.

3) Core licensing documents and checkpoints

- **Identity & eligibility:** degree transcripts, internship logbook, good standing letter.
- **Examination evidence:** pass letters for knowledge/skills/law exams.
- **Language requirements** (where applicable): standardized test results.
- **Professional conduct:** declarations, no disciplinary actions, ethics pledges.
- **Fees & timelines:** application windows, issuance period, renewal cycles.
- **CPD proof:** certificates, reflective statements.

4) Certification vs. licensure

- **Licensure** = legal permission to practice (mandatory, jurisdiction-specific).
- **Certification** = expertise in a focused area (optional but career-boosting; often time-limited and requires re-certification).

Value of certification: credibility, advanced roles, higher responsibility, and better alignment with specialized services (e.g., antimicrobial stewardship).

5) Career advancement routes (illustrative)

- **Clinical track:** residency → clinical specialist (ICU, oncology, ID) → advanced practice / independent prescribing (where legal) → leadership.
- **Community track:** lead pharmacist → store/regional manager → training lead → corporate quality/safety roles.

- **Regulatory/industry:** quality assurance, pharmacovigilance, medical information, regulatory submissions.
- **Academia/education:** lecturer → senior lecturer → researcher → program director.

6) Ethics and professional image

Trust underpins practice. Documentation, confidentiality, conflict-of-interest disclosure, and transparency in counseling and reporting are not optional—they are professional duties. Advancement without ethical integrity is unsustainable.

Reading Tasks

A. Pre-reading organizer (KWL)

- *Know:* list 5 things you already know about licensing.
- *Want to know:* 5 questions.
- *Learned:* complete after reading.

B. Structure mapping

Create a flowchart of the **generic pathway**. Include decision points (e.g., exam retakes, missing documents, CPD non-compliance) and outputs.

C. MCQs (choose one)

1. Licensure primarily grants:
 - a) specialty status
 - b) legal right to practice
 - c) academic credit
2. CPD is used to:
 - a) replace licensure
 - b) maintain/renew competence
 - c) skip exams
3. Certification is:
 - a) mandatory everywhere
 - b) always permanent
 - c) optional expertise recognition

D. Short answer (3–4 sentences each)

1. Why is internship evidence critical for licensing bodies?
2. How can certification accelerate a clinical career?
3. Name three ethical responsibilities that directly affect public trust.

E. Case analysis (two scenarios)

- **Case 1 (missing proof):** A graduate lacks internship documentation but wants rapid registration. Outline a **3-step remediation plan**.
- **Case 2 (career pivot):** A community pharmacist is moving to infectious diseases. Propose a **12-month roadmap** (courses, shadowing, certification attempt, CPD focus).

F. Vocabulary in context (find and paraphrase)

Locate and paraphrase in your own words: *good standing*, *jurisprudence*, *revalidation*, *pharmacovigilance*, *residency*. Write one original sentence for each in a pharmacy context.

G. Synthesis summary (180–220 words)

Summarize the reading, then add one recommendation for a new graduate in your country.

H. Comparative note (120–150 words)

Compare advantages of a **clinical** vs **community** advancement route for your goals.

Writing: Becoming a Pharmacist

1) Genre focus A: Process explanation (“How to become a pharmacist”)

Purpose: explain a clear, ordered pathway with criteria, checkpoints, and outputs.

Audience: prospective students/peers.

Tone: clear, neutral, precise.

Structure (model):

- **Intro (purpose + scope):** “This guide explains the pathway from admission to licensure and early specialty choices.”
- **Body (stages):** education → internship → exams → registration → CPD → optional certification → first role.
- **Conclusion (next steps):** timelines, pitfalls, documentation checklist.

Language toolkit:

- Sequence: *first, next, then, afterwards, finally; at this stage; prior to; upon completion*
- Requirements: *must, need to, are required to, is mandatory to*
- Evidence: *submit, provide, demonstrate, verify, document*
- Warnings: *ensure, avoid, double-check, common error, risk of delay*

Model paragraph (body – internship stage)

After completing core coursework, candidates **are completing** a supervised internship that focuses on dispensing accuracy, patient counseling, and documentation. Preceptors **are observing** real-time performance and **are signing** competency checklists. Candidates **are recording** activities in a logbook, which later **is serving** as evidence for licensure.

(Note how Present Continuous highlights live, ongoing actions in this stage.)

Process Writing Task (Extended):

Write a **450–600-word** “How to Become a Pharmacist” guide for your context.

Include:

- 7–9 clearly labeled steps (with verbs).
- At least **10** precise pharmacy terms (e.g., formulary, counseling, reconciliation).
- **Two** risk alerts (e.g., missing law exam; expired documents).
- **One** mini-timeline (textual) with target dates.

2) Genre focus B: Personal statement / motivation

Purpose: show your motivation, readiness, and alignment with pharmacist values.

Tone: professional, reflective, specific (avoid clichés).

Structure: hook → motivation → evidence of preparation → goals → fit.

Useful verbs: *am pursuing, am learning, am contributing, am seeking, aim to, intend to, plan to*

Value themes: patient safety, communication, collaboration, ethics, lifelong learning.

Model opening (80–100 words)

I am choosing pharmacy because it unites rigorous science with patient safety. In my current placement, I am counseling patients daily and documenting teach-back outcomes. I am developing a vocabulary notebook and attending pharmacotherapy seminars. These experiences are showing me that accuracy without empathy is incomplete, and they are shaping my goal to practice as a clinical pharmacist focused on safe transitions of care.

Personal Statement Task (Extended):

Write **300–350 words** on “Why I am becoming a pharmacist.” Include:

- One **current** activity in Present Continuous (e.g., *I am volunteering in a community pharmacy...*).
- One concrete example of **patient counseling** or **error prevention** you took part in.

- A **near-future arrangement** (Present Continuous with time): *I'm meeting my mentor next Friday...*
- A closing sentence linking your goals to public health impact.

3) Micro-tasks for accuracy & style

A. Sentence surgery (improve clarity)

Rewrite to be concise and professional:

1. *I want this because it is interesting and kind of cool.*
2. *I am doing many, many things that are helpful.*
3. *We are telling patients some information.*

B. Cohesion upgrade

Insert connectors (*therefore, as a result, in addition, however, consequently*) into a 6-sentence paragraph about exam preparation.

C. Checklist (self-edit)

- Does each paragraph have a clear topic sentence?
- Did you vary Present Simple (facts) and Present Continuous (ongoing work/arrangements)?
- Are pharmacy terms used correctly (dose vs dosage; label vs leaflet)?
- Proofread for subject–verb agreement and article use.

UNIT 2. HISTORICAL AND GLOBAL PERSPECTIVES ON PHARMACY

Vocabulary & Scrub Up

Before modern laboratories and randomized trials, pharmacy grew from **herbal knowledge**, trade routes, and local practitioners. Apothecaries extracted active principles with water, alcohol, heat, and pressure; physicians and herbalists compiled **materia medica**—catalogues of remedies. Understanding this vocabulary clarifies how today's dosage forms and standards evolved.

Vocabulary & Scrub Up

Task: Match each term (1–25) with the correct definition (A–Y). Write the letter in the right column.

№	Term	Match (Letter)
1	apothecary	...
2	materia medica	...
3	pharmacopoeia	...
4	decoction	...
5	infusion	...
6	tincture	...
7	elixir	...
8	syrup	...
9	salve/ointment	...
10	poultice	...
11	maceration	...
12	percolation	...
13	distillation	...
14	alkaloid	...

15	glycoside	...
16	galenicals	...
17	monograph	...
18	crude drug	...
19	remedy	...
20	nostrum	...
21	panacea	...
22	trade route	...
23	formulary	...
24	standardization	...
25	assay	...

Definitions

- A.** Semisolid fatty base for **topical** delivery.
- B.** Analytical test to **measure** active content or purity.
- C.** Pathway (e.g., **Silk Road**) enabling movement of spices, herbs, and knowledge.
- D.** Supposed **cure-all**; cautionary concept against over-claiming.
- E.** **Nitrogen-containing** natural compound (e.g., morphine, quinine, atropine) with strong pharmacologic effects.
- F.** Prolonged **soaking at room temperature** to extract actives.
- G.** Concentrated **sugar solution** used as a vehicle and to mask taste.
- H.** **Alcoholic extract**; increases solubility/stability of many plant actives.
- I.** Official standard book of drug names, qualities, tests, and preparations authorized by a state or body.
- J.** Extraction by **boiling** plant material in water; suited to tough barks/roots.
- K.** Warm, moist mass applied to skin to **draw inflammation**.
- L.** Separation by **evaporation/condensation**; used to obtain essential oils.
- M.** Detailed standard for a specific substance (identity, purity, **assays**).
- N.** Preparations following methods associated with **Galen**; classical compounded remedies.

- O.** Pre-modern pharmacist; **dispensed** and **compounded** remedies in shops using balances, mortars, and alembics.
- P.** **Sugar-linked** compound (e.g., digoxin from foxglove) affecting heart contractility.
- Q.** Extraction by **hot water steeping** (no boil); used for delicate leaves/flowers.
- R.** **Approved list** of medicines in a system; modern descendant of authoritative lists.
- S.** Establishing **consistent strength/quality** for reproducible dosing.
- T.** Dried, minimally processed plant/animal material used as the **starting** source of actives.
- U.** General term for a **therapeutic preparation**; pre-scientific but still used colloquially.
- V.** Historical term for a **patent medicine** of doubtful efficacy, often heavily advertised.
- W.** Solvent **passes through** powdered drug in a column for efficient extraction.
- X.** **Sweetened hydro-alcoholic** liquid dosage form used historically to improve palatability.
- Y.** Facility where medicines are **prepared, stored, and dispensed** (community, hospital, industrial).

3) Deep-Practice Tasks

A. Categorize the Past (five buckets)

Sort the 25 terms into: *Extraction Methods*, *Dosage Forms*, *Standards & Documents*, *Natural Actives*, *Historical Practice & Trade*. Add one modern analogy per term (e.g., **tincture** → modern ethanol extract).

B. Collocations & Functions

Complete with the best collocation: **official**, **sweetened**, **hydro-alcoholic**, **identity**, **topical**, **boiling**, **steeping**, **assay**.

1. A pharmacopoeia is an _____ standard.
2. An elixir is a _____ vehicle.
3. Decoction relies on _____; infusion on _____.

4. A monograph specifies _____ tests and an _____ for potency.
5. Salves/ointments are _____ preparations.

C. Process Mapping (extraction)

Create a numbered flow for **maceration**, **percolation**, and **distillation**: materials, solvent, time/temperature, separation, storage. Note **two risks** per method (e.g., degradation, microbial growth) and **one control**.

D. Mini-Monograph Card (template)

Fill for **Willow bark** → **salicin/salicylic acid** or **Cinchona bark** → **quinine**:

- **Identity** (botanical name, part used)
- **Traditional preparation** (decoction/tincture; typical ratios)
- **Active principles** (class: alkaloids/glycosides)
- **Indications** (historical vs modern)
- **Safety** (contraindications, dose cautions)
- **Modern standardization** (assay target)

E. Spot the Red Flags

You receive a 19th-century advertisement for a “panacea elixir” claiming to cure **all** diseases. List **7** reasons a regulator would reject it today (e.g., lack of evidence, undisclosed actives, pediatric risk).

F. Timeline Drill

Place these on a line and annotate each with 1–2 sentences: **Dioscorides (De Materia Medica)** → **Galen’s compounding** → **Ibn Sina (Avicenna, Canon of Medicine)** → **first national pharmacopoeias** → **isolation of morphine (1804)** → **aspirin (1899)** → **penicillin mass production (1940s)**.

Reading: Pharmacy in the Past — Herbal Remedies and Early Drug Development

Text (extended, ~600–700 words)

For centuries, pharmacy advanced as a craft rooted in observation, trial, and the careful transmission of knowledge. In bustling markets and quiet monastic gardens, apothecaries cultivated and traded herbs—lavender for calm, willow bark for pain, foxglove for failing hearts. Their tools were simple: mortars and pestles for comminution, cauldrons for decoctions, and glass vessels for tinctures and

distillations. Yet the principles they practiced—extraction, dose, stability—prefigured modern pharmaceutical science.

Ancient compilations such as **Dioscorides' De Materia Medica** organized natural substances by appearance and effect, guiding practitioners across the Mediterranean. **Galen**, centuries later, refined compounding and emphasized balance among bodily humors, a framework now superseded but historically influential in shaping dosage forms like ointments and syrups. In the Islamic Golden Age, scholars including **Ibn Sina (Avicenna)** synthesized Greek and Persian knowledge, stressing clinical observation, comparative evaluation of remedies, and ethical duties of practitioners. Trade routes—the **Silk Road** and maritime corridors—moved spices, resins, and seeds, along with recipes and techniques. Pharmacy was global long before it was industrial.

The nineteenth century transformed remedies into **drugs** through isolation of active constituents. From **opium**, chemists obtained **morphine**; from **cinchona**, **quinine**; from **Atropa belladonna**, **atropine**. Each discovery enabled measured dosing and reproducible effects, but also demanded a shift from anecdote to **assay** and standardization. With the birth of national **pharmacopoeias** and monographs, states stipulated identity tests, purity limits, and preparation methods. This move protected patients from adulteration and **nostrums** that promised panaceas without proof.

Early **drug development** remained rudimentary by today's standards. Safety was inferred from tradition and small clinical experience; quality varied with harvests and storage. Yet incremental innovations—improved extraction (percolation), better solvents (ethanol, ether), and primitive stability studies—set the stage for modern pharmaceuticals. The leap from willow bark to **acetylsalicylic acid** (aspirin) exemplified the journey: ethnobotanical observation → active principle recognition → chemical modification for tolerability and stability.

As laboratories expanded, pharmacy's identity matured from shop craft to evidence-based profession. Pharmacies became nodes in a system: procuring standardized ingredients, compounding where needed, and, increasingly, dispensing **manufactured dosage forms** with labeled strengths and leaflets. The old vocabulary survived, but with new meanings: **monograph** now implied validated methods; **formulary** signaled governance and cost-effectiveness; **assay** meant instrumental precision rather than simple tasting or color change.

The historical record warns against over-confidence. Panaceas reappeared in different guises; **adulteration** and **counterfeit** goods followed demand. The lesson is not to dismiss tradition but to test it. Herbal knowledge remains a vital starting point—many modern medicines descend from plants—but only when **standardization**, rigorous **assay**, and clinical evaluation translate remedies into reliable therapy. In this way, the past remains present: every labeled bottle, every validated method, and every patient leaflet bears the imprint of centuries of learning, refined by science and safeguarded by standards.

Reading Tasks

A. Preview & Predict

From the title and first paragraph, predict **5** concepts you expect (e.g., extraction methods, trade routes). After reading, check predictions.

B. Focused Note-taking

Make a two-column table: *Historical practice* ↔ *Modern descendant* (e.g., **tincture** ↔ standardized ethanol extract; **materia medica** ↔ pharmacopoeia/monographs).

C. MCQs (choose one)

1. The shift from remedies to drugs was driven primarily by:
a) advertising b) isolation of actives + standardization c) larger shops
2. A **monograph** in modern usage is:
a) a general recipe book b) an identity/purity/assay standard c) a patient leaflet
3. The text presents herbal knowledge as:
a) obsolete b) useful if standardized and tested c) superior to synthetic drugs

D. Short Answer (3–4 sentences each)

1. How did trade routes shape pharmacy?
2. Why did isolation of alkaloids matter for dosing and safety?
3. What risks persisted in early development despite progress?

E. Evidence Hunt

Quote two sentences showing the importance of **standardization**; paraphrase them in your own words.

F. Application

Choose **one** plant (willow, foxglove, cinchona) and trace its path to a modern medicine in **150–180 words** (traditional use → active → modern dosage form → safety).

Listening — Term Description (Pharmacopeia & Monographs)

A. Before Watching (Activation & Predictions)

1. Brainstorm (2 min): What **three words** do you associate with *pharmacopeia*?
2. ³Predict (write 3–4 bullets): What problems do **standards** solve in pharmacy?

Scan the QR code and complete the task.



B. First Pass (Global Understanding)

1. Tick the main idea (choose one):
 - ☐ History of retail pharmacies
 - ☐ **Standards that define medicine quality**
 - ☐ How to counsel patients on OTC
2. List **four** stakeholders mentioned or implied (e.g., patients, manufacturers, regulators, pharmacists).

C. Second Pass (Detail Capture)

1. Note three **attributes** that a pharmacopeia standard can define (e.g., identity, ...).
2. Monograph focus: write **two** things a monograph typically includes.
3. Complete the notes (key words/phrases you hear):
 - “Standards help to _____ quality and _____ trust.”
 - “A monograph specifies tests for _____ and _____.”

³ <https://www.youtube.com/watch?v=i4Trcw0fAZY>

- “Manufacturers use the pharmacopeia to _____ compliance.”
-

D. Targeted Comprehension (MCQs)

1. In the video, a pharmacopeia is best described as:
 - a) a patient information leaflet
 - b) **an official reference of quality standards and tests**
 - c) a pharmaceutical dictionary [YouTube](#)
 2. Monographs primarily:
 - a) promote brands
 - b) **define identity/purity/strength tests for a substance**
 - c) train pharmacists in counseling [Quality Matters](#)
 3. Standards matter because they:
 - a) increase marketing reach
 - b) **protect public health via consistency and reliability**
 - c) replace clinical trials
-

E. While-Listening Cloze (play once more; pause after each line)

Fill the blanks with exact words from the video:

1. “A pharmacopeia provides _____ and _____ for medicines.”
 2. “Monographs describe _____ tests and _____ requirements.”
 3. “Following these standards helps ensure patients receive _____ products.”
-

F. Matching (Term → Definition)

Write the letter for each number.

Terms

1. Pharmacopeia
2. Monograph
3. Standardization
4. Identity test
5. Purity limit
6. Assay
7. Strength
8. Quality standards
9. USP–NF (context)
10. Compliance

Definitions (scrambled)

- A. A combined compendium used by industry and regulators to access official standards.
 - B. Numerical specification of how much active ingredient a product must contain.
 - C. A validated method confirming the substance truly is what it claims to be.
 - D. Conformance with official requirements documented by tests and records.
 - E. Official specifications ensuring medicines are consistent, safe, and effective.
 - F. The official reference that publishes legally recognized specifications and tests.
 - G. A document for a single substance that sets identity, purity, assay, and methods.
 - H. Establishing uniform quality so dose and performance are reproducible batch to batch.
 - I. Maximum allowable level of contaminants or related substances.
 - J. A quantitative analytical procedure to measure active content.
-

G. Note-Taking to Paragraph (Guided Summary, 120–150 words)

Use your notes from C–F to write a coherent paragraph explaining:

- what a pharmacopeia is,
- what a monograph contains,
- why standards protect patients,
- how manufacturers demonstrate compliance.

Include 5 key terms (bold them).

H. Pronunciation & Stress (quick drill)

Practice aloud: **phar-ma-co-poe-ia**, **mo-no-graph**, **as-say**, **iden-ti-ty**, **pu-ri-ty**, **stan-dard-i-za-tion**.

Record yourself saying: “**Pharmacopeia** monographs **standardize identity**, **purity**, and **strength** tests.”

Speaking: Picture-Based Discussion

A. Guided Description (90 seconds each)

Use the 6-point checklist: *setting, tools, material, method, safety, outcome*.

1. A medieval apothecary shop.
2. A still for distillation (alembic).
3. A herbarium sheet (dried plant specimen).
4. A trade map (Silk Road spices/herbs).

B. Compare & Contrast (pairs)

Compare **decoction vs infusion**; **tincture vs syrup**. Discuss **when** each is appropriate, **why**, and **what risks** exist.

C. Role-Play (historical)

Physician (1650) requests a foxglove preparation; *Apothecary* explains form (infusion vs tincture), dose caution (toxicity), and preparation time. Perform with **technical terms** and then re-explain in **plain language**.

D. Mini-Presentation (2 minutes)

“From Materia Medica to Pharmacopoeia: Why standards changed pharmacy.”
Include **one** historical example and **one** modern regulation effect.

E. Pronunciation Focus

Practice: **pharmacopoeia**, **galenicals**, **maceration**, **percolation**, **glycoside**, **Dioscorides**, **Avicenna**. Mark primary stress and record for self-assessment.

Language Spot: Past Simple

1) Use

- **Completed events** at a **specific time** in the past: *Chemists **isolated** morphine in 1804.*
- **Finished series** of actions: *Apothecaries **macerated**, then **filtered**, then **labeled** the extract.*
- **Historical facts**: *The first national pharmacopoeias **appeared** in the 16th–17th centuries.*

2) Form

- Regular: **-ed** (*standardize → standardized*).
- Irregular: *go → went; make → made; write → wrote; become → became; find → found; build → built; sell → sold; teach → taught; read → read (/red/).*
- Negative: *did not + base: They **did not use** sterile technique.*

- Questions: *Did + subject + base? Did merchants **transport** cinchona by sea?*

3) Time markers

in 1804, in the 17th century, yesterday, last week/year, then, afterwards, later, finally.

4) Contrast tip (Past Simple vs Present Perfect – brief)

- Scientists **isolated** quinine in the 1820s. (finished, dated)
- Scientists **have isolated** many plant alkaloids. (experience up to now; no time stated)

Practice (large set)

A. Fill-in (regular/irregular)

1. Avicenna (**compile**) a comprehensive medical text.
2. Chemists (**discover**) the analgesic effects of salicylates.
3. Pharmacists (**prepare**) tinctures and (**label**) them carefully.
4. Trade networks (**bring**) spices and resins across continents.
5. Galen (**influence**) compounding for centuries.

B. Error Correction

1. Apothecaries maked syrups and ointments.
2. The first pharmacopoeias appears in the 1500s.
3. Merchants did not transported herbs by land routes.
4. Chemists wroteed monographs for crude drugs.

C. Transform to Past Simple

Now: *Apothecaries steep herbs, boil barks, and document recipes.*

Past: _____

D. Timeline Narrative (8–10 sentences)

Describe the sequence from **willow bark** to **aspirin** using Past Simple and time markers.

E. Question Formation

Create 6 Past Simple questions you could ask a museum guide about a historical pharmacy (Who/What/When/Why/How).

F. Short Writing (120–150 words)

“Why standardization **changed** patient safety in the 19th century.”

Writing: Access to Medicine

1) Knowledge Builder

Access to medicine refers to people’s ability to **obtain safe, effective, affordable, and quality-assured** medicines when needed. Historically, access depended on **geography** (distance to an apothecary), **wealth**, **monopoly control** (guilds/trade), and **knowledge** (who held recipes). Today, access hinges on **supply chains**, **regulation**, **pricing**, **insurance/coverage**, **essential medicines lists**, and **counterfeit control**.

Key phrases: essential medicines; affordability; availability; quality assurance; supply chain; stock-outs; formulary inclusion; price regulation; procurement; counterfeit/falsified medicines; universal health coverage.

2) Language Frames

- **Problem statements:** *Many rural patients **lacked** access because... / In the 19th century, pharmacies **charged** fees that...*
- **Causes & effects:** *Because trade monopolies **controlled** bark supplies, prices **rose** and patients **suffered**.*

- **Solution frames:** *To improve access, authorities **established** formularies and **standardized** prices; today, systems **procure** essential medicines centrally.*

3) Writing Tasks

Task A — Comparative Essay (350–450 words)

Access to Medicine: Then and Now.

- **Paragraph 1:** Define access; name 3 historical barriers.
- **Paragraph 2:** Explain 3 modern barriers (cost, supply chain, regulation gaps).
- **Paragraph 3:** Compare roles of **formularies** and **pharmacopoeias** in improving access/quality.
- **Paragraph 4:** Propose 2 realistic improvements for your setting (e.g., better cold-chain, e-procurement).

Use at least **12** terms from Vocabulary & Scrub Up.

Task B — Policy Memo (200–250 words)

To a regional health authority: *Reducing Stock-Outs of Essential Medicines.*

Include: problem, evidence (2 sentences), 3 actions (procurement reform, buffer stock, inventory dashboards), metric for success.

Task C — Historical Voice (180–220 words)

Write a first-person letter (year **1700**) from a rural patient describing difficulties obtaining remedies and the role of the local apothecary. Then add a 2-sentence modern annotation commenting on safety and standardization.

Task D — Visual Outline (bullet map)

Sketch a cause→effect chain for **counterfeit risk**: weak regulation → opportunistic suppliers → poor labeling → patient harm. Add **four** safety interventions (track-and-trace, licensed wholesalers, inspections, public reporting).

Task E — Definition & Examples (120–150 words)

Explain “**essential medicines**” and give **three** examples of how formularies **improved** access in your country or a comparable system.

Language Spot: Present Perfect

1) What it expresses (with pharmacy-specific scope)

The **Present Perfect** links **past events to the present result/relevance**. It’s essential in professional updates, audits, pharmacovigilance reports, CPD logs, and research summaries.

- **Life/experience up to now:** *Our hospital **has implemented** a barcode system.*
- **Recent news with present relevance:** *The regulator **has issued** a new labeling guideline.*
- **Change over time/trend:** *Stock-outs **have decreased** since the new procurement policy.*
- **Achievements/results:** *The team **has standardized** 40 compounded formulations this year.*
- **Unfinished time periods:** *This quarter, we **have documented** 12 adverse events.*

Signal words: ever, never, already, yet, just, recently, so far, since, for, over the past (year/quarter/week).

2) Form

- **Affirmative:** *Subject + have/has + past participle*
*Pharmacists **have reported** unexpected side effects.*
- **Negative:** *Subject + have/has not + past participle*
*We **haven’t completed** the stability study yet.*

- **Questions:** *Have/Has + subject + past participle?*

*Has the supplier **provided** the CoA yet?*

Past participle tips: *dispense → dispensed; standardize → standardized; write → written; do → done; go → gone; see → seen; build → built.*

3) Present Perfect vs Past Simple (in practice)

- **Finished, dated past (Past Simple):** *USP **published** the monograph in 2015.*
- **Unfinished period / still relevant (Present Perfect):** *USP **has updated** several monographs **this year**.*
- **Specific time stated → Past Simple:** *We **audited** the cold chain **last Friday**.*
- **No specific time; result matters → Present Perfect:** *We **have improved** our adherence counseling.*

4) Present Perfect Continuous (brief but useful)

Use it for **ongoing processes with duration/emphasis on activity:**

*We **have been monitoring** refrigerator temperatures **since** Monday.*

*She **has been training** interns **for** three weeks.*

Practice — large set

A. Contrast & Complete (choose Present Perfect or Past Simple)

1. The pharmacist _____ (implement) a double-check step **this month**.
2. Our team _____ (conduct) the last recall drill **in May 2024**.
3. Since the new SOP, error reports _____ (drop) by 30%.
4. The regulator _____ (issue) an alert **yesterday**.
5. We _____ (not finalize) the validation protocol **yet**.

B. “Ever / Never / Already / Yet / Just / Recently / So far”

Complete with a suitable adverb and verb form.

1. Have you _____ (**ever/see**) an insulin labeling mismatch?
2. We have _____ (**already/submit**) the CPD portfolio.
3. The supplier hasn’t sent the CoA _____.
4. Pharmacists have _____ introduced teach-back in counseling.
5. **So far**, the stability study _____ (**show**) no degradation.

C. Since/For (durations & starting points)

Fill in **since** or **for**.

1. We have monitored ADRs _____ 2022.
2. She has managed the formulary _____ six months.
3. The pharmacy has used e-prescriptions _____ three years.

D. Error Correction (tense choice & participles)

1. We have completed the validation yesterday.
2. The committee has wrote a new guideline.
3. Have you ever dispensed a high-alert med without a second check?
4. I didn’t finished the audit yet.

E. Transformations

Rewrite to **Present Perfect** with a focus on present result.

1. *We installed the new fridge alarm last week.* →

2. *They introduced a patient leaflet in 2023.* →

3. *The intern checked temperatures in the morning.* →

F. Mini-writing (120–150 words)

“Quality Improvements We Have Achieved So Far” — write a short internal update using at least **8** Present Perfect forms and **4** pharmacy terms (e.g., assay, batch, leaflet, interaction).

Speaking: Picture-Based Discussion

Use the 6-point checklist for each image: **setting, actors, action, tools, safety, outcome.**

A. Guided Description (90 sec each)

1. **Ancient apothecary** weighing roots with a balance.
2. **Colonial-era compounding** table (mortar, pestle, tincture bottles).
3. **Modern community pharmacy** with e-prescriptions and barcode scanners.
4. **Vaccination station** (cold-chain fridge, PPE, sharps disposal).

B. Compare & Contrast (pairs)

- Apothecary shop **then** vs. pharmacy **now**: procedures, documentation, safety, standardization.
- Paper leaflets vs. digital counseling screens: accessibility, accuracy, updates.

C. Role-Play (2–3 min each)

1. *Historian* asks *Pharmacist* about what practices **have changed** and what **have remained**.
2. *Patient traveler* asks how pharmacies **have improved** access and safety compared to the past.

D. Mini-Presentation (2 min)

“**How pharmacy practice has evolved** (three changes that **have transformed** patient safety).”

E. Vocabulary Challenge

Use 5 Present Perfect sentences to integrate historical terms (decoction, tincture, pharmacopoeia) with modern practice (monograph, standardization).

⁴Listening: Ancient Medicines

A. Before Watching

Brainstorm (2 min): Write three ancient remedies you know (plant/mineral/animal).

Predict: How could willow bark relieve pain? Write two hypotheses (chemistry / physiology).

Scan the QR code and complete the task.



B. First Pass (Gist)

1. Choose the main idea (one):
 - ☐ The biography of a scientist
 - ☐ **How an ancient remedy became a modern medicine**
 - ☐ Manufacturing tablets
2. List **three stages** in the story (e.g., traditional use → isolation of active → modification/synthesis).

C. Second Pass (Details)

⁴ <https://www.youtube.com/watch?v=uRhkDN2WjzI>

1. Note down: **salicin, salicylic acid, acetylsalicylic acid** — where do they appear in the process?
2. Write two **reasons** why raw willow bark/extracted salicylic acid were problematic for patients.
3. Complete the notes:
 - “Chemical _____ improved tolerability.”
 - “Standardization and _____ led to reproducible dosing.”
 - “The drug later _____ widespread medical use.”

D. Cloze (Exact Words from Video)

Fill the blanks after replaying critical lines:

1. “For thousands of years, people used _____ from willow to treat pain and fever.”
2. “Chemists isolated _____, the compound responsible for the effect.”
3. “By _____ the molecule, they created acetylsalicylic acid.”

E. MCQs

1. The key step that made aspirin more tolerable was:
 - a) drying willow faster b) **acetylating salicylic acid** c) adding sugar
2. A modern pharmacopeia/monograph helps by:
 - a) advertising brands b) **defining identity, purity, and strength tests** c) replacing clinicians (link to earlier pharmacopeia lesson). [YouTube](#)
3. The story illustrates that ancient remedies can:
 - a) never lead to modern drugs b) **inspire evidence-based medicines after isolation & modification** c) work only via placebo

F. Matching (Term → Description)

Terms: 1) **salicin**, 2) **salicylic acid**, 3) **acetylsalicylic acid**, 4) **extraction**, 5) **standardization**, 6) **assay**, 7) **tolerability**, 8) **analgesic**, 9) **antipyretic**, 10)

monograph.

Definitions (scrambled A–J):

A. pain-relieving effect B. fever-reducing effect C. original glycoside in willow
D. chemically modified form with improved GI profile E. intermediate
compound causing irritation F. lab test measuring active content G. making
dose/quality uniform across batches H. pulling the active from plant material I.
documented standard for identity, purity, tests J. degree to which patients can
handle adverse effects

(Teacher key suggestion: 1-C, 2-E, 3-D, 4-H, 5-G, 6-F, 7-J, 8-A, 9-B, 10-I.)

G. Short Answer (3–4 sentences each)

1. Why did **chemical modification** matter scientifically and clinically?
2. How do **standards** and **assays** turn a remedy into a reliable medicine?
3. Which step in the video most improved **patient safety**, and why?

H. Timeline Task

Arrange and annotate (one sentence each): **Traditional willow use → Isolation of salicin → Salicylic acid identified → Acetylation → Standardization/assay → Widespread adoption.**

I. Transfer & Speaking (Pair work)

Role-play “**Ancient to Modern**”:

- Student A (historian): defends the value of traditional knowledge.
- Student B (pharmacist): explains why **isolation, acetylation, standardization, and monographs** are essential today.

Speak 2–3 min; use at least **6** target terms.

J. Reflection (120–150 words)

“What have we **learned** from ancient medicines that still guides pharmacy today?”

Use **Present Perfect** at least four times (*have shown / has influenced / have adopted / has improved*).

Reading: *Pharmacy's Role in Global Health and Public Policy*

Text (~650–700 words)

Pharmacy contributes to global health by translating standards into safe, effective access. Pharmacists operate where science, regulation, and patient need intersect, and their influence extends from the dispensary to national policy. Essential medicines lists shape what populations can receive; formularies connect budgets with evidence; and pharmacovigilance systems convert individual reports into collective safety.

At the **health-system level**, pharmacists help define and maintain **quality standards**. They interpret pharmacopeial monographs, verify suppliers, and guard against substandard or falsified products. In supply chains, pharmacy professionals develop storage, cold-chain, and inventory controls to prevent stock-outs and wastage. Each controlled temperature reading, each batch record, and each stability check aggregates into system resilience.

Public policy increasingly relies on **evidence-based selection and stewardship**. Antimicrobial stewardship programmes, often co-led by pharmacists, align prescribing with resistance data, reducing inappropriate use while preserving access for those who truly need antibiotics. In noncommunicable diseases, pharmacists support screening, adherence, and counseling, helping translate guidelines into daily life. When policies define co-payments or insurance coverage, pharmacists witness the results at the counter: affordability can convert a guideline into reality—or a barrier.

Access is not guaranteed by discovery alone. It depends on governance, financing, and procurement. Pharmacists contribute to transparent tendering, vendor

qualification, and **track-and-trace** solutions that reduce diversion and counterfeits. They advocate for reliable **health information**: clear leaflets, multilingual counseling, and digital reminders. During emergencies, pharmacists help design contingency formularies, buffer stocks, and risk-based substitutions that keep therapy continuous.

Education and **professional development** sustain these functions. CPD frameworks keep practice current; standard operating procedures make quality repeatable. In policy spaces—committees, regulatory hearings, public consultations—pharmacists bring end-user insight: how a dosing change affects workflow, how a label revision affects comprehension, how a supply delay translates into clinical risk. The profession’s credibility rests on documentation, transparency, and ethics: declaring conflicts, reporting errors, and prioritizing patient safety over short-term convenience.

Ultimately, pharmacy’s role in global health is **pragmatic leadership**. It is a discipline that has **moved from apothecary craft to system thinking**. Each policy win—a safer label, a better formulary, a funded cold-chain—accumulates into population outcomes. The instruments are familiar—monograph, assay, batch release, counseling—but the scope is public: protecting the right medicine, in the right quality, to the right patient, at the right time.

Reading Tasks

A. KWL Organizer

- **K:** List 5 things you already know about pharmacy’s role in public policy.
- **W:** List 5 questions you want answered.
- **L:** After reading, write 5 things you learned.

B. Structure Map (diagram)

Create a **systems map** linking: *standards* → *procurement* → *storage* →

dispensing → *pharmacovigilance* → *feedback to policy*. Add two measurable indicators to each node.

C. MCQs

1. Pharmacists help public policy primarily by:
a) marketing brands b) **translating standards into safe access** c) replacing prescribers
2. Antimicrobial stewardship aims to:
a) reduce all antibiotic use indiscriminately b) **optimize appropriate use**
c) increase sales
3. Track-and-trace supports access by:
a) slowing deliveries b) **reducing diversion/counterfeits** c) bypassing quality checks

D. Short Answer (3–4 sentences)

1. How do formularies balance evidence and budgets?
2. Why is pharmacovigilance a population-level safety tool?
3. Give two examples where pharmacists' documentation influences policy decisions.

E. Case Analysis (2 scenarios)

- **Case 1 (Stock-outs):** A regional hospital experiences insulin interruptions. Draft a **4-step plan** covering procurement, buffer stock, temperature monitoring, and reporting.
- **Case 2 (Label confusion):** A new label increases dosing errors. Propose **three** corrective actions (human-factors review, retraining, patient test-reading) and a metric to track improvement.

F. Vocabulary in Context

Define in your own words and give an example for: **essential medicines, formulary, procurement, pharmacovigilance, stewardship, track-and-trace.**

G. Policy Brief (200–250 words)

Write a brief to your health department: “**Improving Continuity of Medicines During Emergencies.**” Include problem, proposed actions, and indicators.

H. Synthesis Summary (180–220 words)

Summarize the article focusing on **how** pharmacy operational tools (monograph, assay, SOPs) scale up to **public** outcomes (safety, access, equity).

Writing: *Describing a Pharmacy from Ancient Times to Modern Times*

1) Genre Focus — Descriptive & Comparative Narrative

Purpose: portray change across eras with concrete detail (tools, processes, roles, safety).

Organization:

- **Para 1: Ancient scene** (apothecary shop, tools, extraction methods).
- **Para 2: Transitional era** (early standards, isolation of actives, first pharmacopoeias).
- **Para 3: Modern scene** (automation, barcodes, leaflets, SOPs, pharmacovigilance).
- **Para 4: Reflection** (what has **changed/has remained**; impact on safety and access).

Language toolkit:

- Present Perfect for change/results: *Pharmacies **have adopted** e-prescriptions; labeling **has become** clearer.*

- Past Simple for the past scene: *Apothecaries **macerated** herbs and **recorded** recipes by hand.*
- Adjectives & sensory detail: *brass balance, bitter tincture, glass vials, fluorescent lighting.*

2) Model Opening (70–90 words)

The apothecary weighed roots on a brass balance and boiled barks in a blackened pot. Today, a barcode scanner beeps, a leaflet prints with standardized warnings, and a refrigerator log updates automatically. Pharmacy **has travelled** from craft to system: the tools **have changed**, but the aim—safe, effective therapy—**has remained**. This description follows that journey from mortar and pestle to monograph and assay.

3) Writing Tasks

Task A — Descriptive Essay (350–450 words)

“**From Apothecary to Automated Dispensary**” — Include: at least **10** specific objects/processes; **4** Present Perfect changes; **4** Past Simple details; and a concluding evaluation of patient safety.

Task B — Timeline Caption Set (6–8 captions, 30–40 words each)

Create museum-style captions for images showing: decoction, tincture bench, first pharmacopoeia, isolation of morphine, early tablet press, modern cleanroom.

Task C — Compare/Contrast Table

Build a two-column table (**Ancient vs Modern**) for: *tools, extraction/production, documentation, standards, safety checks, patient communication*. Add **one** example per row.

Task D — Short Reflection (120–150 words)

“What **has remained** constant in the pharmacist’s role despite all changes?”

UNIT 3. THE PHARMACIST'S ROLE IN HEALTHCARE

Speaking: Picture-Based Discussion

Language Box (use in every task)

Permission/Request: *May I ask...? Can you tell me...*

Advice: *You **should**...*

Obligation/Rule: *You **must**... / You **must not**...*

Possibility/Risk: *This medicine **may**...*

Teach-back: *Can you repeat how you will take it?*



Task 1 — Picture Talk (3–4 sentences per picture)

Picture A — Community Pharmacy Counter



Starters: *I can see...* / *The pharmacist is...* / *The patient may...* / *We should...*

Guiding questions:

1. What is happening at the counter?
2. What **must** the pharmacist check before dispensing?
3. What label points **should** be explained?
4. What side effects **may** occur?

Picture B — Hospital Ward Round



Starters: *They are...* / *The pharmacist should...* / *We must...* / *This change may...*

Guiding questions:

1. What checks are being done (dose, allergies, interactions)?
2. What **should** be documented now?
3. What **must** happen before administration?
4. How **may** kidney function affect dosing?

Picture C — Compounding Bench



Starters: *We must...* / *The technician is...* / *The label should...* / *The batch may...*

Guiding questions:

1. Which steps **must** be measured and recorded?
2. What **should** appear on the label (name, strength, directions, expiry, lot)?
3. What risks **may** occur during compounding?
4. Which PPE **must** be used?

Picture D — Vaccine Station



Starters: *We must keep...* / *The vaccine may...* / *You should...* / *Can you...?*

Guiding questions:

1. What cold-chain rules **must** be followed?
2. What after-care advice **should** patients receive?
3. Which reactions **may** happen?
4. What consent/ID steps **must** be done?

Picture E — OTC Aisle



Starters: *May I ask...? / You should... / You must not... / This product may...*

Guiding questions:

1. What information **should** you ask (symptoms, duration, red flags)?
 2. When **must** you refer to a doctor?
 3. What **may** interact with common OTCs?
 4. What storage/use tips **should** you give?
-

Task 2 — “Three Lines Only” (mini-dialogues)

How to use: In pairs, create **three lines** using the target modal shown.

1. Advice (should)

A: You **should** take this with food.

B: Should I avoid coffee?

A: Yes, you **should** limit it while on this medicine.

2. Rule (must/must not)

A: You **must not** exceed two tablets in 24 hours.

B: Must I stop if I feel dizzy?

A: Yes, you **must** stop and call us.

3. Permission/Risk (may/can)

A: May I confirm your allergies?

B: Penicillin.

A: We **can** choose a safe alternative; this one **may** cause a rash.

Task 3 — Role-Play Cards (very short, 6 lines)

Card 1 — New Antibiotic

- Pharmacist: *dose + timing (should), finish course (must), common effect (may)*
- Patient: asks one question (food? dairy?).
- Pharmacist: teach-back: *“Can you repeat how you will take it?”*

Card 2 — Painkiller OTC

- Pharmacist: ask symptoms (may I), give dose (should), max dose (must not), risk (may).
- Patient: asks about driving.
- Pharmacist: final advice + teach-back.

Card 3 — Inhaler Use

- Pharmacist: 2 steps (should), rule to rinse (must), possible effect (may).
- Patient: repeats steps (teach-back).
- Pharmacist: *“You **can** call us if you forget a step.”*

Task 4 — Fill-and-Say Starters (students add 1–3 words)

1. You **must** _____ before we dispense. (confirm your name and DOB)
 2. You **should** take this with _____. (food)
 3. This medicine **may** cause _____. (drowsiness)
 4. You **can** call us if _____. (you miss a dose / you have questions)
 5. May I ask about _____? (your allergies / your symptoms)
-

Task 5 — 4-Sentence Micro-Talk (30–40 seconds)

Topic cards: **Safe storage, Missed dose, Common side effects, When to seek help.**

Template:

1. **Rule (must/mustn't)** — *You **must** keep it at 2–8 °C.*
2. **Advice (should)** — *You **should** check the expiry date monthly.*
3. **Risk (may)** — *It **may** lose potency if left warm.*
4. **Help (can/may)** — *You **can** call the pharmacy if the fridge fails.*

Vocabulary & Scrub Up

Task: Match each term (1–20) with the correct definition (A–T). Write the letter in the right column.

№	Term	Match (Letter)
1	Medication reconciliation	...
2	Counseling	...
3	Formulary	...
4	High-alert medication	...
5	Independent double-check	...
6	Contraindication	...
7	Precaution	...
8	Adherence	...
9	Adverse drug reaction (ADR)	...
10	Drug interaction	...
11	Look-alike sound-alike (LASA)	...
12	Batch record	...
13	Certificate of Analysis (CoA)	...
14	Cold-chain	...
15	Antimicrobial stewardship	...

16	Scope of practice	...
17	Jurisprudence	...
18	Near-miss	...
19	SOP (Standard Operating Procedure)	...
20	OTC triage	...

Definitions (scrambled order)

- A. Structured patient education to support safe and effective use of medicines.
- B. Process of creating a complete, accurate medication list across care transitions and resolving discrepancies.
- C. A curated, approved list of medicines used by a health system, insurer, or hospital.
- D. Drugs with a heightened risk of significant harm if used in error; require extra safeguards.
- E. Two verifiers independently confirm critical details before proceeding.
- F. A situation in which a drug must not be used because risks outweigh benefits.
- G. A condition that calls for caution, monitoring, or dose adjustment rather than absolute avoidance.
- H. The degree to which a patient's behavior matches the agreed regimen.
- I. A harmful or unintended response to a medicine at normal doses.
- J. A change in a drug's effect caused by another drug, food, or herb.
- K. Names/packaging so similar they are prone to confusion and selection errors.
- L. Complete manufacturing documentation for a specific lot from start to release.
- M. Document reporting analytical results showing a specific lot meets specifications.
- N. Temperature-controlled storage/transport (e.g., 2–8 °C) to preserve product quality.
- O. Coordinated strategies to optimize antibiotic use, improve outcomes, and limit resistance.
- P. Legally defined professional activities permitted to a pharmacist in a

jurisdiction.

Q. The body of pharmacy law and ethics; knowledge often examined for licensure.

R. An error that was detected and corrected before reaching the patient.

S. Stepwise written instructions to perform a routine task consistently and safely.

T. Structured assessment of minor symptoms to recommend safe self-care or referral.

Listening 1: Key Responsibilities of a Pharmacist

Scan the QR code and complete the task.



Task 1 — Gist MCQ (choose ONE)

1. What is the main focus of the video?
 - A. Advertising a retail store
 - B. How a pharmacist safeguards medication therapy as part of a healthcare team
 - C. History of pharmacy

Task 2 — Tick All That Apply (information mentioned/shown)

- ☐ Counseling / patient education
- ☐ Verification of allergies/interactions
- ☐ Medication reconciliation
- ☐ Documentation / record keeping
- ☐ Collaboration with prescribers/nurses
- ☐ Antimicrobial stewardship
- ☐ Storage / expiry checks

Task 3 — Matching (Responsibilities → Outcomes)

Write the letter next to each number.

Responsibilities (1–10)

1. Verify allergies and interactions
2. Reconcile medications at discharge
3. Provide counseling with teach-back
4. Contact prescriber about a dosing issue
5. Check storage conditions and expiry
6. Review labs to adjust therapy
7. Document changes in the record
8. Promote appropriate antibiotic use
9. Teach correct device technique (inhaler/pen)
10. Report suspected adverse reactions

Outcomes (A–J, scrambled)

- A. Reduced readmissions and fewer transition errors
- B. Improved adherence and understanding
- C. Prevented adverse events; safer dispensing
- D. Evidence-based dose agreed with the team
- E. Maintained potency; avoided temperature excursions
- F. Better fit for renal/hepatic function
- G. Continuity of care; team awareness
- H. Optimized antibiotic use; lower resistance risk
- I. Fewer technique errors; effective self-administration
- J. System learning and safety signals captured

Task 4 — Note Completion (cloze)

Complete with exact words or close synonyms from the video:

1. “Pharmacists help _____ medication safety.”
 2. “We _____ prescriptions and patient histories.”
 3. “Clear _____ improves adherence.”
 4. “Documentation _____ communication across the team.”
 5. “We _____ with prescribers to optimize therapy.”
-

Task 5 — Table Completion (keywords only)

Responsibility heard	Tool / Evidence mentioned	Immediate purpose
e.g., Verify allergies	patient profile / EHR	avoid reactions

(Complete 4–5 rows using phrases you hear.)

Task 6 — True / False / Not Given

1. The pharmacist works alone without the healthcare team.
 2. The video shows checking for drug–drug interactions.
 3. Documentation is mentioned as part of safe practice.
 4. The pharmacist selects health insurance for patients.
 5. Teaching correct device technique is shown or mentioned.
 6. The video states the pharmacist performs radiology scans.
-

Task 7 — Sequence the Workflow (1–6)

Put the steps in the order they appear or are implied in the video:

- ___ Counseling / education
- ___ Verification (allergies, interactions, dose)
- ___ Collaboration with prescriber

- ___ Dispensing / providing the medicine
 - ___ Documentation
 - ___ Monitoring / follow-up signals (e.g., ADR reporting)
-

Task 8 — Identify Stakeholders (select all you hear/see)

- ☐ Patients ☐ Pharmacists ☐ Prescribers ☐ Nurses ☐ Quality/QA staff ☐ Regulators
-

Task 9 — Label the Process Diagram (word bank)

Word bank: verification • counseling • documentation • collaboration • dispensing • monitoring

Label each stage in this linear flow:

[1] → [2] → [3] → [4] → [5] → [6]

Task 10 — Key Phrases (recognition)

Tick the phrases you hear exactly (or very close):

- ☐ “medication safety” ☐ “patient counseling” ☐ “verify allergies” ☐ “work with the team”
- ☐ “documentation” ☐ “optimize therapy” ☐ “antibiotic stewardship”

1) Meanings in Pharmacy

- **must / mustn’t** (obligation/legal requirement; prohibition): *Labels **must** include strength; controlled drugs **mustn’t** be dispensed without verification.*
- **should / shouldn’t** (strong recommendation/best practice): *You **should** perform an independent double-check for high-alert meds.*

- **can / can't** (ability/possibility/permission): We **can** extend refills if the prescriber authorizes; insulin **can't** be left at room temp beyond X hours.
- **may / may not** (possibility/formal permission): This antibiotic **may** cause photosensitivity; interns **may** counsel under supervision.

Epistemic vs deontic: “This error **may** occur” (possibility) vs “You **must** document counseling” (duty).

2) Form & Politeness

- Requests/permission: *May I verify your allergies? / Can you confirm your DOB?*
- Risk hedging: *This regimen **may** increase bleeding risk; you **should** avoid NSAIDs.*

3) Practice (large set)

A. Complete with the best modal:

1. Pharmacists _____ verify identity before dispensing.
2. Patients with severe rash _____ stop the drug and seek care immediately.
3. You _____ experience mild nausea; take with food.
4. Interns _____ counsel alone (policy requires supervision).
5. Vaccines _____ be stored at 2–8 °C.

B. Transformations (duty → advice / advice → duty). Rewrite each sentence changing **must** ↔ **should** and adjust meaning accordingly.

C. Counseling Cards (OSCE-style):

Write 8 lines using modals for: **amoxicillin, warfarin, salbutamol inhaler** (permissions, prohibitions, precautions).

D. Policy Lines (SOP):

Draft 10 SOP rules with **must/must not** for receiving, storing, labeling, and documenting controlled medicines.

E. Error Correction:

1. You must to check the interaction list.
2. Patient may to discontinue therapy without advice.
3. Staff can't to enter the cleanroom without gowning.

F. Mini-Writing (120–150 words):

“How modals shape patient-safe language in counseling.”

Reading: Pharmacy Practice Settings — Community, Hospital, Industrial, and Clinical Roles

Pharmacists contribute across diverse settings that share the same safety goal but differ in workflows and priorities. **Community practice** places the pharmacist at the front line of access, where counseling, OTC triage, and adherence support translate guidelines into patient action. Electronic prescriptions and barcoding improve accuracy, but time pressure and fragmented histories challenge decision-making.

In **hospital pharmacy**, the focus shifts to complex regimens, sterile preparations, and team-based care. Medication reconciliation at admission and discharge prevents errors across transitions. Pharmacists join ward rounds, recommend dose adjustments for renal or hepatic function, and coordinate high-alert processes with independent double-checks.

Industrial pharmacy aligns science with regulation. Quality assurance teams review batch records, oversee assays, release product only when specifications are met, and investigate deviations. Procurement and supply chain teams maintain continuity and prevent temperature excursions. Regulatory affairs translate

scientific evidence into submissions, labels, and risk management plans.

Clinical pharmacy emphasizes direct patient care through specialized knowledge—infectious diseases, oncology, ICU, cardiology. Clinical pharmacists interpret labs, monitor for interactions, and design therapeutic plans in collaboration with prescribers. Across settings, stewardship programs optimize antimicrobial use, while pharmacovigilance converts individual reports into system learning.

Regardless of location, pharmacy practice rests on **standards, documentation, and communication**. The tools differ—a laminar hood versus a counseling booth—but the professional promise is the same: the right medicine, in the right quality, for the right patient, at the right time.

Tasks

A. Note-Map: Fill a 4-column table (Setting | Core tasks | Typical tools/docs | Key risks).

B. MCQs (choose one):

1. Hospital pharmacists primarily mitigate errors by:
a) advertising brands b) **reconciling meds & managing high-alert processes** c) ignoring prescriber orders
2. Industrial QA releases batches when:
a) marketing approves b) **assays meet monograph specs and deviations are resolved** c) sales forecast is high

C. Short Answer (3–4 sentences):

3. One way community pharmacists improve adherence.
4. Two reasons clinical pharmacists attend ward rounds.
5. How documentation supports safety across settings.

D. Matching: Pair setting with **unique responsibility** (e.g., community ↔ OTC triage; hospital ↔ sterile compounding; industrial ↔ batch release; clinical ↔ therapy optimization).

E. Scenario: A patient transitions from hospital to community with multiple changes. Write a **6-step handover plan** (reconciliation, counseling, contact info, follow-up).

F. Synthesis (150–180 words): Compare two settings you are interested in and justify your preferred career path.

Writing: Pharmacist's Job

1) Task A — Job Description (Process-focused, 200–250 words)

Write a clear description titled “**Pharmacist — Key Responsibilities and Outcomes.**”

Include: patient counseling, verification, documentation, interactions, stewardship, quality checks, teamwork. Use **at least 10** target terms and **8** modal verbs.

2) Task B — Personal Statement (300–350 words)

“**Why I’m Becoming a Pharmacist.**”

- Hook (motivation) → preparation (courses, internship) → responsibilities you value → near-future arrangement (*I’m starting a hospital rotation next month*) → public health contribution. Use **Present Perfect** for achievements and **modals** for values/duties.

3) Task C — OSCE Reflection (180–220 words)

Describe one counseling or error-prevention moment: context, action, language choices (**must/should/may/can**), result, lesson.

4) Self-Edit Checklist

- Clear topic sentences?
- Correct tense choices (Past vs Present Perfect vs Present)?

- Accurate terminology (dose vs dosage; label vs leaflet)?
- Modals used precisely (duty vs advice vs possibility)?
- Proofread for subject–verb agreement and article use.

⁵Listening 2: Pharmacists' Responsibility



Scan QR code and make the exercises:

Instructions: Watch once for gist,

once for detail. Do not pause unless instructed. Write keywords; close synonyms are acceptable.

Task 1 — Gist MCQ (choose ONE)

1. The video mainly describes:
 - A. The history of pharmacy in ancient times
 - B. Core responsibilities pharmacists have toward patient safety and therapy outcomes**
 - C. How to open a pharmacy business
-

Task 2 — Tick All That Apply (information mentioned/shown)

- ☐ Verifying prescriptions (dose, route, frequency)
- ☐ Checking drug–drug or drug–food interactions
- ☐ Counseling and teach-back
- ☐ Documentation/record keeping
- ☐ Collaboration with prescribers/nurses

⁵: <https://www.youtube.com/watch?v=nccpebe7MJc> YouTube

- ☐ Vaccination/immunization services
 - ☐ Inventory/expiry control
-

Task 3 — Matching (Responsibility → Purpose)

Write the letter next to each number.

Responsibilities (1–10)

1. Verify patient identity and allergies
2. Check clinical appropriateness (dose, renal/hepatic adjustments)
3. Screen for interactions
4. Provide patient counseling
5. Educate on device technique (e.g., inhaler/pen)
6. Ensure storage and expiry compliance
7. Document interventions
8. Collaborate with prescribers
9. Support adherence strategies
10. Report suspected adverse reactions

Purposes (A–J, scrambled)

- A. Avoid hypersensitivity and identity errors
- B. Improve safety and effectiveness for organ function
- C. Prevent harmful combinations
- D. Increase understanding and correct use
- E. Reduce technique-related failures
- F. Maintain product quality and potency
- G. Create traceability and team communication
- H. Optimize therapy plans
- I. Reduce missed doses and improve outcomes
- J. Contribute to system-wide safety monitoring

Task 4 — Cloze (while-listening note-completion)

Complete with exact words or close synonyms from the video:

1. “Pharmacists _____ prescriptions before dispensing.”
 2. “They _____ for potential interactions.”
 3. “Clear _____ helps patients use medicines safely.”
 4. “Accurate _____ supports the healthcare team.”
 5. “Pharmacists _____ with prescribers to optimize therapy.”
-

Task 5 — Table Completion (keywords only)

Responsibility heard **Tool / Evidence mentioned** **Immediate purpose**

e.g., Verify allergies patient profile / EHR avoid reactions

(Complete 4–5 rows using phrases from the video.)

Task 6 — True / False / Not Given

1. The video shows pharmacists working alone without the healthcare team.
 2. Interaction checks are part of the pharmacist’s role.
 3. Patient education is not necessary for safe use.
 4. Storage and expiry are mentioned as safety factors.
 5. Reporting adverse reactions is outside the pharmacist’s responsibility.
-

Task 7 — Sequence the Workflow (1–6)

Put the steps in the order they appear or are implied:

- ___ Verification (identity, allergies, dose)
 - ___ Collaboration with prescriber
 - ___ Counseling / education
 - ___ Documentation
 - ___ Dispensing / providing the medicine
 - ___ Monitoring / safety feedback (e.g., ADR reporting)
-

Task 8 — Stakeholder Identification (select all that appear)

☐ Patients ☐ Pharmacists ☐ Prescribers ☐ Nurses ☐ Caregivers ☐ Regulators

Task 9 — Process Diagram Labeling (word bank)

Word bank: verification • counseling • collaboration • dispensing • documentation
• monitoring

Label each stage in the linear flow:

[1] → [2] → [3] → [4] → [5] → [6]

Reading: Ethical and Legal Considerations of Pharmacy

Text (~650 words)

Pharmacy practice rests on a dual foundation: **ethics**, which guides what professionals ought to do, and **law**, which defines what they must do. While systems differ across countries, shared principles apply wherever medicines are dispensed or managed.

At the ethical core are the classic principles: **beneficence** (act to benefit the patient), **non-maleficence** (avoid harm), **respect for autonomy** (honor informed choices), and **justice** (fair access and fair processes). For pharmacists, beneficence means more than handing over a product; it means selecting and explaining therapy that is likely to help in the real life of a patient. Non-maleficence drives verification—dose checks, interaction screening, allergy confirmation, and clarity about warnings and storage. Respect for autonomy requires understandable information and **informed consent** for services such as immunization or medication reviews. Justice extends to formulary design, triage for scarce medicines, and policies that prevent inequity.

Legal duties translate principles into enforceable requirements. **Confidentiality and privacy** rules protect patient data in records, counseling spaces, and electronic systems. **Jurisprudence** defines licensing, scope of practice, record retention, and inspection powers. **Controlled substance** laws govern storage, documentation, security, and accountability for high-risk items. **Labeling and leaflet** regulations set minimum information—name, strength, directions, warnings, batch/lot, and expiry—to support safe use. **Quality and safety** regulations require procurement from authorized sources, temperature control, stock rotation, and investigation of **near-misses** and dispensing errors. In many systems, pharmacists have a **duty to warn** when therapy poses foreseeable risks and a duty to **report** serious adverse reactions.

Conflicts of interest deserve explicit attention. Financial incentives, targets, or relationships with suppliers can distort professional judgment. Ethically, pharmacists should disclose conflicts, favor evidence over promotion, and document the rationale for product selection. When a patient's values conflict with recommended therapy, respectful dialogue is essential; coercion undermines autonomy, but silence can endanger safety. Clear records of counseling and shared decisions protect patients and professionals.

Special care is needed with **vulnerable populations**: children, older adults, pregnant or lactating patients, people with limited literacy, or language barriers. Ethically responsible practice adapts counseling to the person—plain language, pictograms, translated materials, or teach-back—and confirms understanding before dispensing. Legally, accessible information and non-discrimination obligations often apply.

When errors occur, ethical practice demands **disclosure**, apology where appropriate, prompt remedial action, and system learning. Legally, incident reporting procedures and timelines may be mandated. Documentation should be factual and complete: what happened, immediate actions, notifications, and follow-up. A **Just Culture**—one that differentiates human error, at-risk behavior, and reckless behavior—supports learning while maintaining accountability.

Digital transformation adds responsibilities: secure passwords, role-based access, careful e-prescription handling, and vigilance for cyber-risks that could alter directions or doses. Remote counseling must still protect privacy and provide adequate verification and safety checks.

Ultimately, ethical and legal considerations converge on a single promise: **the right medicine, in the right quality, for the right patient, at the right time—safely and respectfully**. Policies, SOPs, and audits exist not to create paperwork but to make that promise reliable in daily practice.

Reading Tasks

Task 1 — MCQ (choose ONE per item)

1. The principle that focuses on **avoiding harm** is:
A. Justice B. Autonomy C. **Non-maleficence**

2. A pharmacist's **duty to warn** supports which ethical principle most directly?
A. Beneficence B. Justice C. Fidelity
 3. **Confidentiality and privacy** rules primarily protect:
A. Inventory levels B. Patient data and dignity C. Pricing policies
 4. Handling **controlled substances** typically requires:
A. No special steps B. Enhanced security and documentation C. Only verbal logs
-

Task 2 — Short Answer (3–4 sentences each)

1. How do labeling and leaflet rules protect autonomy and safety at the same time?
 2. What steps should be taken after a **near-miss** is detected during dispensing?
 3. Give two examples of **conflicts of interest** and how to manage them ethically.
-

Task 3 — Matching (Concept → Example)

Write the letter next to each number.

Concepts (1–10)

1. Beneficence
2. Non-maleficence
3. Autonomy
4. Justice
5. Confidentiality
6. Duty to warn
7. Informed consent

8. Controlled substances compliance
9. Just Culture
10. Pharmacovigilance reporting

Examples (A–J, scrambled)

- A. Explaining bleeding risks before dispensing an anticoagulant
 - B. Locking narcotics, maintaining logs, reconciling stock
 - C. Offering translated materials and fair access regardless of income
 - D. Providing patient-centered counseling that aims at real benefit
 - E. Submitting a serious ADR to the national system
 - F. Using private spaces and limiting who views records
 - G. Respecting a patient's choice after clear counseling
 - H. Analyzing an error to fix the system rather than blame individuals
 - I. Screening for interactions to prevent harm
 - J. Obtaining agreement for a vaccine after clear explanation
-

Task 4 — Case Vignettes (read and answer)

1. **Label Confusion:** A label prints “1 tab daily” instead of “1 tab twice daily.” What are the **ethical** and **legal** steps you take immediately?
 2. **Privacy in a crowded pharmacy:** A patient describes sensitive symptoms at the counter. What actions maintain confidentiality while ensuring safe care?
 3. **Supply shortage:** Two patients need the last available pack of a critical medicine. Which **justice** considerations guide your allocation, and how do you document the decision?
-

Task 5 — True / False / Not Given

1. Pharmacists may ignore privacy if the queue is long.
 2. Documenting counseling can support both ethics and legal defense.
 3. Conflicts of interest are solved by hiding financial relationships.
 4. Reporting ADRs contributes to public safety systems.
-

Task 6 — Table Completion

Ethical/Legal element	Concrete pharmacist action	Evidence/Record
e.g., Confidentiality	Use a counseling room for sensitive topics	Note in record: “Private counseling provided”

(Complete 4–5 rows from the reading.)

UNIT 4. AT THE PHARMACY

Vocabulary & Scrub Up

Task: Match each term (1–20) with the correct definition (A–T). Write the letter next to each number.

№	Term	Match
1	workflow	...
2	work queue	...
3	triage (in dispensing)	...
4	priority script	...
5	turnaround time (TAT)	...
6	inventory turnover	...
7	perpetual inventory	...
8	cycle count	...
9	FEFO (First-Expired, First-Out)	...
10	lot / batch number	...
11	temperature excursion	...
12	reverse distribution	...
13	discrepancy	...
14	reconciliation (stock)	...
15	controlled substances log	...
16	near-miss	...
17	deviation report	...
18	CAPA (Corrective & Preventive Action)	...
19	handoff	...
20	audit trail	...

Definitions

A. Documented path showing who did what and when in a system.

- B. Real-time record of on-hand stock that updates with each transaction.
- C. The set of steps a prescription follows from drop-off to pick-up.
- D. Selecting which tasks must be processed first based on risk/time.
- E. A queue of prescriptions/tasks awaiting a defined step.
- F. A prescription flagged to be completed ahead of routine items.
- G. The time from receipt of order to completion/ready-for-pickup.
- H. Ratio indicating how quickly stock is sold/used and replaced.
- I. Counting a subset of items regularly to verify records.
- J. Dispensing items with earlier expiry dates before later ones.
- K. Identifier that links a product to its manufacturing record.
- L. Temperature out of specified range during storage/transport.
- M. Returning unsaleable/expired items to authorized handlers.
- N. A mismatch between records and actual stock.
- O. Process of resolving mismatches to restore accuracy.
- P. Legally required book or e-log for controlled drugs.
- Q. Event that could have reached the patient but was intercepted.
- R. Record used to describe and investigate out-of-spec events.
- S. Structured plan to fix a problem and prevent recurrence.
- T. Transfer of responsibility between staff or shifts.

Listening 1: Pharmacy Workflow ⁶



Instructions: Watch once for gist, once for detail. Don't pause unless instructed.
Use keywords; close synonyms are fine.

⁶ <https://www.youtube.com/watch?v=eak5z2Gi8Xk>

Task 1 — Gist MCQ (choose ONE)

1. The video mainly explains:
 - A. The history of community pharmacies
 - B. The main steps and roles in a pharmacy workflow
 - C. How to choose pharmacy software

Task 2 — Tick All That Apply (information mentioned/shown)

- ☐ Drop-off / intake ☐ Data entry & clinical check ☐ Filling / counting ☐ Verification / DUR
- ☐ Bagging & staging ☐ Patient contact / pick-up ☐ Inventory/expiry control

Task 3 — Matching (Step → Purpose)

1. Intake 2) Data entry 3) Clinical check 4) Filling 5) Verification 6) Staging 7) Pick-up
- A. ensure accurate profile & insurance B. confirm dose/interaction safety
- C. prepare medication D. final check vs label & order E. cue for patient collection F. greet, ID, counsel, collect payment G. capture prescriber/patient info

Task 4 — Cloze (while-listening note completion)

1. “The team _____ prescriptions into a _____ to track progress.”
2. “A pharmacist _____ clinical appropriateness before final check.”
3. “Clear _____ reduces rework and delays.”

Task 5 — Table Completion (keywords only)

Workflow step heard	Tool / Evidence mentioned	Immediate purpose
e.g., Verification	barcode scan	final safety check

Task 6 — True / False / Not Given

1. The video shows barcoding during verification.
2. Cycle counting is the same as perpetual inventory.
3. Staging helps organize ready-for-pickup orders.

Task 7 — Sequence (1–7)

___ Verification ___ Pick-up ___ Data entry ___ Intake ___ Staging ___ Filling ___
Clinical check

Task 8 — Key Phrases (recognition)

Tick if you hear: “workflow,” “verification,” “DUR,” “staging,” “counseling.”

Language Spot: Imperatives (labels, SOPs, safety signage)

What imperatives do in pharmacy: give clear, concise actions for safety and efficiency on labels, posters, and SOP steps.

- Label: “**Shake well.** *Store at 2–8 °C.* **Do not** freeze.”
- Cleanroom sign: “**Wear** gown and gloves. **Report** spills immediately.”
- SOP step: “**Scan** the NDC. **Compare** strength and dosage form.”

Recognition Tasks (receptive)

A. Identify the imperatives (underline the base-form verbs):

1. “Check patient ID and allergies before dispensing.”
2. “Do not reuse syringes.”
3. “Record the lot number and expiry.”

B. Classify the function (Safety / Storage / Documentation / Process) for each sentence above.

C. Choose the best imperative for the situation (A, B, or C).

1. Vaccine fridge door left open → A) Close gently B) **Close immediately**
C) Consider closing
2. Child-resistant cap needed → A) **Lock cap firmly** B) Maybe lock cap
C) Lock if possible
3. Spilled hazardous drug → A) **Evacuate area and follow spill kit SOP** B)
Wipe with tissue C) Ignore

D. Spot the non-imperative (circle one that is **not** an imperative):

1. A) Keep refrigerated. B) The item is cold. C) Do not shake.
2. A) Use dry hands. B) You used dry hands. C) Replace desiccant.

Reading: Pharmacy Operations & Management

(Inventory, record-keeping, workflow management)

Text (~650 words)

Efficient pharmacy operations convert clinical intent into safe, timely access for patients. A well-defined **workflow** prevents bottlenecks, distributes tasks across roles, and makes safety checks observable. Intake captures accurate identities, prescribers, and directions; **data entry** standardizes information; a **clinical check** screens dose, duplications, interactions, and allergies; **filling** prepares the product; and **verification** confirms that the label, product, and order match. Finally, **staging** organizes completed orders for pickup or delivery, with counseling prompts to ensure understanding.

Inventory is the second pillar. Without reliable stock control, even excellent counseling cannot overcome a missing or degraded product. **Perpetual inventory** updates counts with every transaction and works best when supported by **cycle counts**, barcode scanning, and alerts for **FEFO** picking. **Inventory turnover** shows how effectively stock moves; too slow implies capital is trapped and expiry risk rises. Logs for **temperature excursions** document both problems and corrective actions. When medicines expire or are recalled, **reverse distribution** removes them safely from circulation and provides auditable credit and destruction records.

Record-keeping binds the system together. Every action leaves a **trace**—a dispensing record, a counseling note, a **lot** number and **expiry** on the label, a **controlled substances log**, a deviation or incident report, and if needed **CAPA**. Good records are more than paperwork: they are a safety net when questions arise weeks later, and they allow the team to measure performance. If turnaround times spike or near-misses cluster around a workstation, managers can re-balance staff, retrain, or change the process.

Workflow management also means attention to **handoffs**. Shift changes and lunch breaks should not hide work in progress. Clear work queues, timestamps, and responsibility markers reduce dropped tasks. Physical layout matters: placing counting, printing, and verification in a logical path lowers error risk. Technology can help—barcodes, will-call bins, messaging—but does not replace thoughtful design and staff communication.

Ultimately, operations and management exist to support the clinical goal: the **right medicine, right patient, right time, right quality**—with a traceable story that shows how the team achieved it.

Reading Tasks (no keys)

A. MCQ (choose ONE each)

1. The main reason to track temperature excursions is to:
 - A. compare brands B. assess staff speed C. document quality risks and actions
2. Perpetual inventory works best when combined with:
 - A. annual counts only B. cycle counts and barcode scans C. no counting
3. A spike in TAT and near-misses suggests:
 - A. process imbalance B. perfect staffing C. fewer patients

B. True / False / Not Given

1. Reverse distribution is used for recalled/expired medicines.
2. Staging is performed before verification.
3. Lot numbers are optional on labels.

C. Table Completion

Operations element	Concrete practice mentioned	Evidence/Record
Inventory control		
Record-keeping		
Workflow step		
Quality signal		

D. Matching (Concept → Example)

1. FEFO 2) Handoff 3) CAPA 4) Cycle count 5) Verification
 - A. Counting a subset daily to detect errors B. Investigate error and implement preventive change C. Pick earliest expiry first D. Transfer responsibility between staff E. Final check vs label/order

E. Sequence (1–6)

___ Verification ___ Intake ___ Staging ___ Clinical check ___ Filling ___ Data entry

Vocabulary & Scrub Up (Patient Interaction & Communication)

Task: Match each term (1–18) with the correct definition (A–R). Write the letter next to each number.

№	Term	Match
1	open-ended question	...
2	closed question	...
3	teach-back	...
4	plain language	...
5	signposting	...
6	summarizing	...
7	empathy statement	...
8	reassurance (appropriate)	...
9	non-verbal cue	...
10	health literacy	...
11	pictogram	...
12	cultural sensitivity	...
13	red-flag symptom	...
14	adherence barrier	...
15	confidentiality	...
16	shared decision-making	...
17	escalation (clinical)	...
18	consent (verbal)	...

Definitions

- A. Asking the patient to repeat instructions in their own words.
- B. A short preview of what you will do next in the conversation.
- C. A direct yes/no or single-word response type of question.

- D. Respectful acknowledgement of feelings or concerns.
- E. Using everyday words instead of technical jargon.
- F. An image-based aid to explain dosing or timing.
- G. The capacity to obtain, process, and understand basic health information.
- H. A question that invites a longer answer and explores context.
- I. Behavior or signal without words (posture, eye contact).
- J. A symptom suggesting the need for urgent referral.
- K. A factor that makes following the regimen difficult.
- L. Protection of private information and conversations.
- M. A brief recap of key points to check mutual understanding.
- N. A respectful approach to beliefs, language, and preferences.
- O. Agreement to proceed after the patient understands what will happen.
- P. Choosing among options together, based on evidence and values.
- Q. Moving a case to a higher level of care or urgent review.
- R. Comforting statement that is honest and evidence-based (not dismissive).

Reading: Patient Interaction and Communication

Text (~600 words)

Every safe dispensing ends with a conversation. Communication transforms a correct product into a therapy the patient can actually use. The most efficient pattern is simple: ask, explain, confirm. **Open-ended questions** reveal context—other medicines, routines, goals. **Closed questions** pin down specifics—dose times, allergies, devices. Clear **plain language** avoids confusion; **signposting** tells patients what comes next (“First, I’ll check your allergies; then we’ll go over how to take this”). **Empathy statements** keep trust: “That cough sounds exhausting; let’s see how this medicine fits your routine.”

Understanding varies, so **teach-back** is a safety tool. Asking, “Can you show me how you’ll use the inhaler?” confirms readiness without blame. **Pictograms** and demonstrations help when **health literacy** or language is limited. **Cultural**

sensitivity means adapting examples and avoiding assumptions. Some issues demand escalation: **red-flag symptoms** (e.g., chest pain, severe shortness of breath) or suspected adverse reactions should be referred promptly.

Communication also protects privacy. **Confidentiality** requires suitable spaces and voices; sensitive topics should move away from a crowded counter. Summaries close the loop: “To recap, one tablet morning and evening, with food; avoid NSAIDs; call us if you feel dizzy.” The pharmacist documents key points—what was explained, barriers discussed, and any **shared decision-making** outcomes. When the plan does not fit the patient’s life, the best counseling fails; when the plan fits, adherence follows naturally.

Reading Tasks (no keys)

A. MCQ (choose ONE each)

1. The main purpose of teach-back is to:
A. test memory B. confirm understanding and correct technique C. speed up the queue
2. Moving to a private room addresses which concept primarily?
A. Cultural sensitivity B. Confidentiality C. Health literacy
3. A red-flag symptom leads to:
A. reassurance only B. pictogram use C. **clinical escalation** or referral

B. True / False / Not Given

1. Closed questions are better than open ones for building context.
2. Signposting helps the patient follow the structure of the talk.
3. Summarizing is unnecessary if teach-back is used.

C. Matching (Strategy → Example)

1. Empathy 2) Signposting 3) Teach-back 4) Plain language
 - A. “First, we’ll check your devices; next, we’ll set times.”
 - B. “This tablet may cause drowsiness—take it at night.”
 - C. “That pain sounds worrying; we’ll make a plan together.”
 - D. “Can you show me how you’ll measure the dose?”

D. Table Completion

Communication element	Concrete phrase from the text	Purpose
Open-ended question		
Teach-back		
Confidentiality		
Summary		

Language Spot: Polite Requests

1) What is a “polite request” and why it matters in pharmacy

A **polite request** asks someone to do something while protecting their comfort, dignity, and autonomy. In pharmacy, politeness is not decoration—it:

- increases **patient cooperation** (adherence, accurate histories);
- supports **inter-professional teamwork** (fast, conflict-free decisions);
- reduces **risk** (people comply more when they feel respected);
- meets **ethical** and **legal** standards (informed consent, confidentiality).

Rule of thumb: be **clear first**, then **kind**—politeness must not hide the safety-critical instruction.

2) Four core forms (from most formal to most everyday)

A) May I / May we...? (permission; formal, respectful)

- *May I confirm your allergies?*
- *May we step into the counseling room for privacy?*
- Good for **patients** and **prescribers** when you need **permission**.

B) Could you / Would you...? (request; neutral-polite to formal)

- *Could you please bring your insulin pen so I can check the technique?*
- *Would you mind waiting two minutes while I verify your dose?*
- “**Would you mind + -ing**” = more delicate:
*Would you mind **showing** me how you use the inhaler?*
(Typical positive response is: *Not at all.*)

C) Can you / Can I...? (everyday polite; widely acceptable in healthcare)

- *Can you tell me how many tablets you have left?*
- *Can I check your BP while you're here?*
- Appropriate for **friendly, efficient** tone—still respectful.

D) Softened imperatives (when clear action is needed quickly)

- *Please take a seat and I'll call you in one minute.*
- *Please do not exceed two tablets in 24 hours.*
- Use for **safety rules, signage, labels**, or **time-critical** situations.

3) Building a professional-sounding request: the 5-part recipe

1. **Polite opener:** *Could you please... / May I... / Would you mind...*
2. **Action in clear verbs:** *confirm / bring / show / wait / sign / step into...*
3. **Reason/rationale** (because/so that): *...so we can avoid interactions.*
4. **Benefit to patient/team:** *...to keep you safe / to speed things up.*

5. **Thank/close** (optional): *Thank you—I appreciate it.*

Example (patient):

*Could you please **bring** all your medicines next time **so that** we can check for interactions? **Thank you.***

Example (prescriber):

*Would you **review** the dose for creatinine clearance 28 mL/min **so that** we avoid accumulation?*

4) Tone controllers: how to sound polite without being vague

- **Please + modal:** *Could you **please**...* (polite, neutral).
- **Softeners:** *a moment / a quick check / just / possibly*
(*Could I **just** confirm your date of birth?*)
- **Hedging (use sparingly):** *It seems / It might be safer if...*
- **Reason-first:** *To protect your privacy, could we step into the room?*
- **“We” for shared goals:** *We should check your device together.*

Avoid: blunt imperatives with no context (*“Give ID.”*), modal stacking (*“Please, could you maybe possibly...”*), or apologies that weaken safety (*“Sorry to bother you, but if you want...”*).

5) Choosing the right level of directness (safety vs. face needs)

Context	Best form	Example
<i>Life-threatening / time-critical</i>	Clear imperative (+ brief reason)	<i>“Stop the infusion now—possible anaphylaxis.”</i>

High-risk counseling point	Soft imperative / “must not”	“Please do not take ibuprofen with warfarin— <i>bleeding risk.</i> ”
Routine permission	May I / Could I	“ <i>May I confirm your allergies?</i> ”
Requesting patient action	Could you / Would you mind	“ <i>Could you bring your glucose log tomorrow?</i> ”
Inter-professional adjustment	Could you / Would you	“ <i>Could you change to renal dosing? eGFR 28.</i> ”

Principle: Escalate clarity as risk increases. Be kind, but never ambiguous about safety.

6) Special pharmacy frames (ready-to-use)

A) Privacy & consent

- *Would you mind stepping into the counseling room **so we can discuss this privately?***
- *May I record your blood pressure? It takes under a minute.*

B) Allergy/interaction checks

- *Could you **confirm** any allergies, including to penicillin?*
- *Can I **check** what vitamins or herbal products you are using?*

C) Device technique & teach-back

- *Would you mind **showing** me how you use the inhaler?*
- *Could you **repeat** how you'll take this, just to be sure I explained it well?*

D) Time management (busy counter)

- *Could you please **wait one minute** while I verify the interaction alert?*
- *Can I **call you** in 15 minutes when your prescription is ready?*

E) Safety rules & prohibitions

- For your safety, **please do not** exceed two tablets in 24 hours.
 - Please **store** this insulin at 2–8 °C and **do not** freeze.
-

7) Grammar essentials (avoid classic mistakes)

- **Would you mind + -ing** (not *to* + verb):
✓ *Would you mind **waiting** here?* ✗ *Would you mind to wait...*
 - **Mind** expects a **negative** acceptance:
—*Would you mind waiting?* — *No, not at all.* (means **Yes, I'll wait.**)
 - **Could you please / Please could you** are both fine; keep the sentence simple.
 - **May I...?** asks **permission**; **Could you...?** asks **someone to act**.
 - **Do you mind if I + base verb** vs. **Would you mind if I + past**:
*Do you mind if I **check** your BP?* / *Would you mind if I **checked** your BP?*
(more tentative).
-

8) Rewriting “hard” sentences into polite requests (pharmacy examples)

- **Hard:** *Give me your ID.*
Polite: *May I **see** your ID, please?*
- **Hard:** *Don't take more than two tablets.*
Polite: *Please **do not** take more than two tablets in 24 hours.*
- **Hard:** *Wait.*
Polite: *Could you **wait** one minute while I verify the dose?*
- **Hard:** *Bring all your medicines next time.*
Polite: *Could you **bring** all your medicines next time **so that** we can check for interactions?*

- **Hard:** *Change the dose to 2.5 mg.*

Polite (to prescriber): *Could you **adjust** the dose to 2.5 mg for eGFR 28, so that we reduce accumulation risk?*

9) Polite refusal & alternatives (patient and team)

Sometimes you cannot comply; decline **clearly + kindly + with an option**:

- *I'm afraid I **can't** dispense this early **because** the insurance will reject it. **Could we** contact your prescriber for an override?*
 - *I'm sorry, I **can't** change the brand without authorization. **May I** call the prescriber now?*
 - *I'm afraid we **can't** vaccinate today without consent. **Would you** like to book a slot for tomorrow?*
-

10) Non-verbal & prosody tips (small changes, big effect)

- **Face & posture:** open stance, eye level, slight forward lean = engaged, respectful.
 - **Voice:** steady pace, warm tone, rising intonation for questions, falling for clear rules.
 - **Pauses:** leave space after a request; silence invites cooperation.
 - **Smile with the eyes:** even behind a mask, kindness travels in voice and posture.
-

11) Written vs spoken requests

- **Spoken:** use *May I / Could you...* + reason + thank you.

- **Written (labels/SOP/signage):** short **imperatives** + icons + rationale when needed.

“Store at 2–8 °C. Do not freeze. Protect from light.”

12) Quick recognition practice (no keys)

A. Identify the request type (Permission / Request / Soft imperative / Prohibition)

1. *May I verify your date of birth?*
2. *Could you please sign here?*
3. *Please keep this refrigerated.*
4. *Please do not crush this tablet.*

B. Improve the tone (rewrite each line into a polite request)

1. *Tell me your allergies.*
2. *Wait here.*
3. *Bring all your medicines next time.*
4. *Don't take ibuprofen with warfarin.*

C. Add a reason (append “because/so that”)

1. *Would you mind stepping into the counseling room...*
 2. *Could you bring your glucose log tomorrow...*
 3. *Please scan the barcode...*
-

13) Mini phrasebank (copy to your notebook)

- **Permission:** *May I confirm...? / May we discuss this in private?*
- **Neutral request:** *Could you please...? / Would you mind... -ing?*
- **Very polite:** *Can you... please? / I will check...?*

- **Safety rule:** *Please do not... / Please keep/store/return...*
 - **Reason add-ons:** *...so that we keep you safe / ...because the law requires it / ...to avoid interactions / ...to speed up your visit.*
 - **Soft close:** *Thank you—I appreciate your help.*
-

Final principle

Clarity + Respect = Safe Care.

Choose the **most courteous form** that still **delivers the instruction clearly**, especially for high-risk steps.

⁷Listening : Patient Counseling Demo

Instructions: Watch once for gist, once for detail. Don't pause unless instructed.
Use keywords.



Task 1 — Gist MCQ (choose ONE)

The video mainly shows:

- A. Inventory software B. **A counseling interaction for a new prescription** C. A hospital tour

Task 2 — Tick All That Apply (information shown/said)

- ☐ Opening questions (indication/expectations) ☐ Directions for use
☐ Side effects / red flags ☐ Teach-back prompt ☐ Privacy/room move
☐ Follow-up plan / contact info

⁷ <https://www.youtube.com/watch?v=Ub0yWvU7Dtc>

Task 3 — Matching (Counseling step → Purpose)

1. Opening & rapport 2) Verify allergies/meds 3) Explain dose/timing
 2. Side-effects/warnings 5) Teach-back 6) Close & follow-up
- A. ensure fit with current therapy B. confirm understanding C. safety advice
- D. invite questions & provide contact E. build trust and context F. enable correct daily use

Task 4 — Cloze (note completion)

1. “To start, could you _____ what your doctor told you this is for?”
2. “Take _____ tablet(s) _____ times a day _____ food.”
3. “Common effects include _____; seek help if _____.”
4. “Can you _____ how you will take it?”

Task 5 — Table Completion (keywords only)

Step heard	Exact phrase you caught	Why it matters
Opening		
Directions		
Warning		
Teach-back		

Task 6 — True / False / Not Given

1. The pharmacist checks for interactions.
2. The patient repeats instructions.
3. The video shows moving to a private room.
4. The pharmacist schedules a follow-up call.

UNIT 5.PRESCRIPTION WRITING

Vocabulary & Scrub up: Abbreviations and Latin Phrases

Prescriptions often contain Latin abbreviations that save time but may cause confusion if misunderstood. Below is a list of commonly used abbreviations:

- **Rx** – recipe / take
- **q.d.** – once a day (*quaque die*)
- **b.i.d.** – twice a day (*bis in die*)
- **t.i.d.** – three times a day (*ter in die*)
- **q.i.d.** – four times a day (*quater in die*)
- **p.o.** – by mouth (*per os*)
- **p.r.n.** – as needed (*pro re nata*)
- **a.c.** – before meals (*ante cibum*)
- **p.c.** – after meals (*post cibum*)
- **stat.** – immediately (*statim*)
- **h.s.** – at bedtime (*hora somni*)

✂ **Task 1.** Match the Latin abbreviation with its English meaning.

✂ **Task 2.** Use the abbreviations to write sample instructions for a patient with hypertension, diabetes, and bronchitis.

Language Spot: Comparatives & Superlatives

Prescription guidelines often require comparing drugs, dosages, and effects.

- **Comparatives:** stronger, weaker, safer, more effective, less toxic.
- **Superlatives:** the safest, the most effective, the least toxic.

Examples:

- *Ibuprofen is stronger than acetaminophen in reducing inflammation.*
- *Among antibiotics, amoxicillin is one of the most frequently prescribed.*

✂ **Task 1.** Compare two painkillers (aspirin vs. ibuprofen) using comparatives and superlatives.

✂ **Task 2.** Complete sentences:

1. Paracetamol is _____ (safe) than many NSAIDs.
 2. Insulin is _____ (effective) treatment for type 1 diabetes.
 3. This drug is _____ (toxic) in large doses than in small ones.
-

Listening 1: Doctor Explains a Prescription

Pre-listening (Before watching)

1. Discuss in pairs: Why is prescription writing important for patient safety?
2. Look at the list of common prescription abbreviations (Rx, b.i.d., t.i.d., p.o., stat.). Which of them do you expect to hear in the video?
3. Predict: Which parts of a prescription do you think will be explained?



While-listening (During the video)

1. Write down the **six main components** of a prescription mentioned in the video.
2. Identify at least **three examples of instructions** (dose, frequency, route).
3. Circle/underline all **medical terms in Latin** or abbreviations you hear.
4. Fill in the table while watching:

Component of Prescription	Example from the video	Function in practice
Superscription	Rx	introduces the prescription
...	...	...

Post-listening (After watching)

1. Summarize the video in 4–5 sentences: *What is a prescription and why must it be clear?*
2. Role-play: One student acts as a doctor, the other as a patient. The doctor explains how to take the prescribed drug (use abbreviations, Latin phrases, comparatives/superlatives).
3. Writing task: Compose a short sample prescription for a patient with bronchitis (include drug name, dose, frequency, route, duration, and signatura).
4. Critical thinking: What are the **risks of unclear prescriptions**, and how can electronic prescribing systems help?

Doctor: *“Take one tablet of amoxicillin 500 mg t.i.d. for 7 days. Remember to take it after meals. This medicine is stronger than the one you used before. It is the most effective choice for your infection. If you experience any allergic reaction, stop immediately and call me.”*

✂ **Task 1.** Listen and identify all abbreviations.

✂ **Task 2.** Answer:

- What is the dosage?
- How long should the patient take the medicine?
- What comparative and superlative forms are used?

Reading: Components of a Prescription

Prescription as a Medical Document

A prescription is not merely an instruction to obtain medicine; it is a legal and professional document that establishes a link between the physician, the pharmacist, and the patient. Every prescription must be clear, accurate, and complete to avoid medical errors.

The main components of a prescription include:

1. **Superscription (Rx)** – the symbol that introduces the prescription, derived from the Latin *recipe*, meaning “take”.
2. **Inscription** – the body of the prescription, containing the name and amount of the drug prescribed.
3. **Subscription** – directions to the pharmacist, for example how to compound or prepare the medication.
4. **Signatura (Sig.)** – instructions to the patient, indicating how the medicine should be taken: dose, route, frequency, duration.
5. **Prescriber’s information** – name, professional title, registration number, and signature.
6. **Patient’s information** – full name, age, and in some countries, address and diagnosis.

Errors may occur if one of these components is incomplete or illegible. A missing patient age can lead to an overdose; unclear handwriting may result in dispensing the wrong drug; and omitted instructions can cause misuse of medication. For this reason, electronic prescribing systems are increasingly used worldwide. They improve legibility, minimize ambiguity, and provide built-in alerts about drug interactions.

According to the World Health Organization, medication errors are responsible for thousands of preventable deaths annually. Clear, standardized prescription writing is therefore a cornerstone of patient safety.

 **Tasks:**

1. Identify and underline the six components in the text.
 2. Make a diagram showing the structure of a prescription.
 3. Discuss: Which part of the prescription is most critical for patient safety? Why?
-

Vocabulary & Scrub up: Countable Nouns

In English, **nouns** can be divided into two main groups: **countable** and **uncountable**. Understanding this difference is very important in medical English because prescriptions, dosage instructions, and patient communication often depend on correct usage.

Countable Nouns

Countable nouns are objects or items that we can count one by one. They usually have singular and plural forms.

- **Examples in medicine:** *tablet, capsule, pill, injection, drop, dose, prescription.*
- **Singular/plural forms:** *one tablet – two tablets; one injection – several injections.*
- Articles and numbers can be used: *a tablet, three capsules, two prescriptions.*

💡 In practice:

- *Take two tablets every six hours.*
- *The patient received three injections today.*

Uncountable Nouns

Uncountable nouns are substances, concepts, or general categories that cannot be separated or counted individually. They do not usually have plural forms.

- **Examples in medicine:** *medicine, information, equipment, advice.*
- We cannot say: “*two medicines*” (in this meaning), “*three advices.*”
- Instead, we use quantifiers or partitive expressions: *a piece of advice, a piece of equipment, a bottle of medicine, some information.*

💡 In practice:

- *The doctor gave me useful advice about the treatment.*
- *The hospital has new equipment for surgery.*
- *This medicine is very effective.*

Key Difference in Medical Context

- **Countable** → usually concrete items prescribed or administered (tablets, pills, injections).
- **Uncountable** → usually general concepts, materials, or knowledge (medicine as a substance, advice from a doctor, equipment in a hospital).
- **Countable nouns:** tablet, capsule, pill, injection, drop, dose, prescription.
- **Uncountable nouns:** medicine, information, equipment, advice.

Examples:

- *The patient received three injections.*
- *This prescription contains useful advice.*

✂ **Task 1.** Sort the following into countable/uncountable: *ointment, tablet, water, antibiotic, syringe, health.*

✂ **Task 2.** Write five sentences using both types of nouns in the context of prescriptions.

- Correct: *Two prescriptions were given.*
- Incorrect: *Two advices were given. (→ pieces of advice).*

✂ **Task 1.** Correct the mistakes:

1. The doctor gave me three advices.
2. He wrote two medicines.
3. She prescribed a tablet of cough syrup.

Reading: Avoiding Errors in Prescription Writing

Medication errors represent one of the most significant challenges in modern healthcare. Among them, prescription writing errors are both common and highly preventable. According to the World Health Organization (WHO), millions of patients worldwide are exposed to unsafe prescriptions every year, leading to avoidable complications, hospitalizations, and even fatalities.

One major cause of prescription errors is **illegible handwriting**. Traditionally, doctors have been notorious for unclear scripts, which can result in pharmacists dispensing the wrong drug or dosage. For instance, confusion between “mg” (milligram) and “mcg” (microgram) has led to serious overdoses. Another frequent problem is the misuse of **abbreviations**. While abbreviations such as *b.i.d.* (twice a day) or *p.o.* (by mouth) save time, many of them are ambiguous and can be misinterpreted. The Institute for Safe Medication Practices has even published a “Do Not Use” list to reduce such risks.

In addition to handwriting and abbreviations, **incorrect dosages** remain a widespread source of error. Children and elderly patients are particularly vulnerable, as their dosages often require precise calculations. A single misplaced decimal point can increase the intended dose tenfold, creating life-threatening situations.

Modern healthcare systems increasingly rely on **electronic prescribing (e-prescribing)** to reduce these dangers. With computerized systems, prescriptions are typed, standardized, and checked against patient records. Built-in alerts notify doctors about possible drug interactions or allergies, significantly lowering the risk of mistakes. However, e-prescribing is not flawless. Doctors may choose the wrong drug from a drop-down menu, or ignore system alerts when pressed for time. Therefore, technology must complement—rather than replace—professional vigilance.

Ultimately, the best strategy for avoiding prescription errors is a **multi-layered approach**. This includes clear handwriting or digital entry, avoidance of dangerous abbreviations, double-checking dosages, and ensuring effective communication between doctors, pharmacists, and patients. Education and training also play a vital role: medical students should be taught that writing a prescription is not merely a routine task, but a crucial act of patient safety.

Task 1: Multiple Choice

Choose the correct letter A, B, C, or D.

1. According to the passage, which factor is responsible for many prescription errors?
 - A. Poor patient compliance
 - B. Pharmacists' lack of training
 - C. Illegible handwriting
 - D. Overuse of electronic systems
2. Why are children and elderly patients especially at risk?
 - A. They cannot understand prescriptions.

- B. They require precisely calculated dosages.
 - C. They often ignore medical instructions.
 - D. They are allergic to most medications.
-

Task 2: Matching Information

Match the problem with its description (A–E).

Problems:

- 3. Illegible handwriting
- 4. Misuse of abbreviations
- 5. Incorrect dosages
- 6. Electronic prescribing

Descriptions:

- A. Can cause overdoses because of misplaced decimal points.
 - B. Introduces risks if drop-down menus are misused.
 - C. Leads to wrong medicines being dispensed.
 - D. Improves communication between doctor and patient.
 - E. Includes symbols like *b.i.d.* that may be unclear.
-

Task 3: True / False / Not Given

Decide if the following statements agree with the information in the passage.

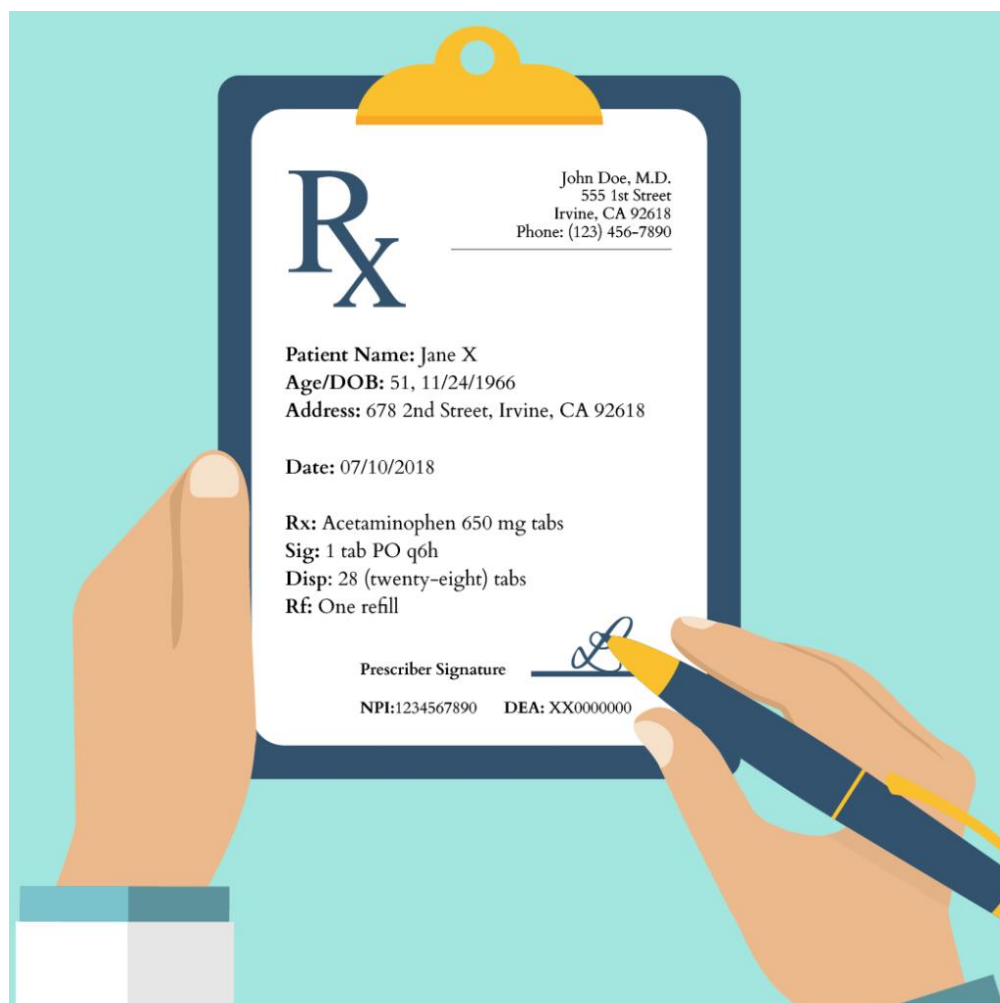
- 7. The WHO has reported that prescription errors are responsible for deaths worldwide.
- 8. Abbreviations are completely banned in medical prescriptions.
- 9. Electronic prescribing guarantees total elimination of mistakes.

10. Medical students should be trained to treat prescriptions as an important responsibility.

Task 4: Short Answer Questions

Answer the questions using NO MORE THAN THREE WORDS.

11. Which organization has created a “Do Not Use” list of abbreviations?
12. What type of system checks prescriptions against patient records?
13. What kind of approach is considered the best strategy for reducing errors?



UNIT 6. MEDICATIONS

Language Spot: Countable Nouns

A modern pharmacy is a place where patients can buy both prescription and over-the-counter drugs. Every day, hundreds of people come to get their medicines, ask for advice, and receive important information about treatment.

Pharmacists often prepare **countable items** such as *tablets, capsules, pills, injections, prescriptions, bottles, and boxes*. For example, a patient may buy *two boxes of antibiotics* or *three prescriptions for chronic diseases*. These objects can be counted easily.

At the same time, pharmacists also work with **uncountable substances and concepts** such as *medicine, equipment, information, advice, knowledge, and research*. For example, the pharmacy may invest in *new equipment*, and pharmacists may give *useful advice* about drug interactions. Patients also need *reliable information* about possible side effects.

The difference between countable and uncountable nouns is very important in pharmacy practice. Saying “*two medicines*” without clarification can confuse a patient. It is more accurate to say “*two types of medicine*” or “*two bottles of medicine.*” Clear language prevents errors and ensures patient safety.

Task 1. Comprehension (Short Answer)

1. What can patients buy in a pharmacy?
 2. Give three examples of countable items from the text.
 3. Which uncountable nouns are connected with knowledge and learning?
 4. Why should pharmacists be careful when saying “two medicines”?
-

Task 2. Vocabulary Sorting

From the text, write all **countable** and **uncountable** nouns into two columns.

Task 3. True / False / Not Given

1. Patients always need prescriptions to buy medicine.
 2. Equipment is an example of an uncountable noun.
 3. A patient may buy two boxes of antibiotics.
 4. Advice is usually expressed in the plural form.
-

Task 4. Gap Fill

Complete the sentences with the correct form:

1. The pharmacy sold ten _____ (tablet) yesterday.
 2. We bought some modern _____ (equipment) for preparing injections.
 3. The pharmacist gave me two pieces of _____ (advice).
 4. The patient received three _____ (prescription).
-

Task 5. Error Correction

Correct the mistakes in these sentences:

1. The pharmacist gave me three advices about antibiotics.
2. This pharmacy has many new equipments.
3. I need an information about side effects.
4. She received five medicines for her headache.

Task 6. Sentence Transformation

Rewrite using correct quantifiers:

1. Wrong: *He needs two medicines for his flu.*
Correct: _____
 2. Wrong: *They bought many advices from the pharmacist.*
Correct: _____
 3. Wrong: *We purchased three equipments for the laboratory.*
Correct: _____
-

Task 7. Writing

⁸Write a short **dialogue** (about 6–7 lines) between a pharmacist and a patient. Use **at least four countable nouns** and **three uncountable nouns**.

Listening 1: Doctor Explains Patient Medication



While-listening Tasks

1. **Note-taking:** Write down the exact number of times
2. the medicine must be taken per day.
3. **Table completion:** Fill in the chart with information from the video.

Medicine Dosage Frequency With food/water? Duration Side effects

3. Multiple choice:

- The patient should take the medicine:
A) once a day

⁸ https://www.youtube.com/watch?v=IwrJ2t_R8Vo&utm

- B) twice a day
- C) three times a day
- D) only when needed

4. **Short answer:**

- What should the patient do if a dose is missed? (NO MORE THAN THREE WORDS)

5. **Identify warnings:** Write down all the warnings about food, drinks, or activities (e.g., alcohol, driving, caffeine).

6. **Keyword listening:** Circle the words you hear:

- nausea, allergy, overdose, sleepiness, injection, tablet, capsule.
-

Post-listening Tasks

1. **Summarizing:** Write 4–5 sentences summarizing the doctor's instructions in your own words.

2. **Error correction:** The sentences below contain mistakes. Correct them based on the video.

- a) The patient must take the medicine only in the morning.
- b) No water is needed with the medicine.
- c) Side effects include high blood pressure.

3. **Discussion:** In small groups, discuss why patients often misunderstand medical instructions. Give real examples.

4. **Role-play:**

- Student A = Doctor, Student B = Patient.
- Doctor explains the medication. Patient asks questions about dosage, food interactions, and side effects.

5. **Writing task:** Write a **patient information leaflet** (70–100 words) for this medicine. Include:

- name of medicine

- dosage and frequency
- how to take it (with food/water)
- possible side effects
- safety warnings

6. **Critical thinking:** Answer in writing:

- Why is it dangerous if a patient confuses “three times a day” with “three tablets at once”?
- How can pharmacists help patients avoid mistakes with medications?

Reading 1: Avoiding Errors in Prescription Writing

Prescription writing is one of the most frequent and important tasks in medical practice. A prescription serves as a legal document, a communication tool between doctors and pharmacists, and a set of instructions for patients. However, despite its routine nature, it is also one of the most error-prone aspects of healthcare. Research suggests that nearly 10% of prescriptions worldwide contain at least one error, ranging from small spelling mistakes to life-threatening dosage miscalculations.

One of the primary causes of prescription errors is **illegible handwriting**. Doctors have traditionally been associated with poor penmanship, and this stereotype is supported by real evidence. When handwriting is unclear, pharmacists may misread drug names, dosage instructions, or routes of administration. For example, confusion between “hydralazine” and “hydroxyzine”—two very different medications—has led to serious clinical consequences. Such mistakes demonstrate that handwriting is not merely a cosmetic issue, but a matter of patient safety.

Another frequent problem involves the **misuse of abbreviations**. Medical professionals often rely on Latin abbreviations such as *b.i.d.* (twice a day) or *t.i.d.* (three times a day). While these save time, they are also vulnerable to misinterpretation. Some abbreviations look similar, while others have multiple meanings. The Institute for Safe Medication Practices (ISMP) has published a list of “dangerous abbreviations” that should not be used in prescriptions.

Nevertheless, many doctors continue to employ them, either out of habit or due to lack of training.

Dosage errors are another major concern, especially for vulnerable populations such as children and the elderly. In pediatrics, dosages are often calculated according to body weight. A single misplaced decimal point can transform 0.5 mg into 5 mg, which may cause severe toxicity. Elderly patients, who frequently take multiple medications, are at risk of overdosing or harmful drug interactions. Even the choice of measurement units—milligrams versus micrograms—can create dangerous confusion.

To address these problems, many healthcare systems have introduced **electronic prescribing, or e-prescribing**. In these systems, doctors enter prescriptions digitally, which eliminates problems of illegible handwriting. Built-in software can automatically check for allergies, dangerous drug interactions, or incorrect dosages. Electronic records also allow pharmacies to access prescriptions instantly, reducing delays in treatment. However, e-prescribing is not foolproof. Drop-down menus may cause doctors to select the wrong drug or dosage, and alerts can sometimes be ignored if physicians are overwhelmed by information.

Ultimately, the most effective solution is a **multi-layered approach**. This includes writing prescriptions clearly, avoiding ambiguous abbreviations, double-checking dosages, and using electronic systems as supportive tools. Training medical students in safe prescribing practices is essential. They must understand that a prescription is not just a routine piece of paper but a critical document that can directly affect a patient's life. Prescribing errors are preventable, but only if healthcare professionals remain vigilant, well-trained, and committed to patient safety.

Task 1: Multiple Choice

Choose the correct letter A, B, C, or D.

1. What percentage of prescriptions worldwide is estimated to contain an error?
A) About 1%
B) Nearly 10%
C) Around 25%
D) More than 50%
 2. Which of the following illustrates the danger of illegible handwriting?
A) Patients refusing to take medicine
B) Pharmacists not checking expiry dates
C) Confusion between two similar drug names
D) Doctors forgetting to sign the prescription
 3. Why are children particularly at risk of dosage errors?
A) They cannot read the instructions.
B) Their doses depend on body weight.
C) They frequently forget to take medicine.
D) They are allergic to most drugs.
-

Task 2: Matching Information

Match each problem with its description (A–E).

4. Illegible handwriting
5. Abbreviations
6. Dosage errors
7. E-prescribing

Descriptions:

A. Risk of confusion between milligrams and micrograms.

- B. May lead to wrong drug selected from a menu.
 - C. Can cause misreading of drug names.
 - D. May have multiple meanings or be unclear.
 - E. Often ignored if doctors are overloaded.
-

Task 3: True / False / Not Given

Decide if the statements agree with the passage.

- 8. Over 25% of prescriptions worldwide contain serious mistakes.
 - 9. The ISMP discourages the use of certain abbreviations.
 - 10. Electronic systems completely eliminate all prescribing errors.
 - 11. A misplaced decimal point can increase the dose tenfold.
 - 12. Elderly patients are vulnerable to drug interactions.
-

Task 4: Sentence Completion

Complete the sentences using NO MORE THAN THREE WORDS.

- 13. Nearly _____ of prescriptions contain at least one error.
 - 14. Confusion between drug names can occur due to _____.
 - 15. Pediatric dosages are often calculated according to _____.
 - 16. Electronic systems can automatically check for _____.
-

Task 5: Summary Completion

Complete the summary using words from the box.

Box: handwriting – multi-layered – abbreviations – electronic – training – decimal point

Prescription errors may result from illegible (17) _____, misuse of (18) _____, and incorrect calculations such as a misplaced (19) _____. While (20) _____ systems reduce some errors, they are not perfect. The best solution is a (21) _____ approach that also includes improved (22) _____ of medical students.

Task 6: Short Answer Questions

Answer in NO MORE THAN THREE WORDS.

23. Which organization has created a list of dangerous abbreviations?

24. What system allows pharmacies to access prescriptions instantly?

25. What type of approach is considered most effective in preventing errors?

Listening: Patient Medication

While-listening tasks

1. Write down **three key recommendations** mentioned in the video.
2. Complete the table while watching:

Information	Answer
Example of medication	...
Frequency of intake	...
Timing (before/after meals)	...
Missed dose instruction	...
Possible side effects	...



3. Multiple choice:

The video says that medicine should be taken:

- A) Only after meals
 - B) With a full glass of water
 - C) Twice a day
 - D) Only when needed
4. Short answer (NO MORE THAN THREE WORDS):
- What should patients do if they are unsure about drug compatibility?
 - What record should patients keep about their treatment?
-

Post-listening tasks

1. Write a short **patient instruction note** including dosage, timing, warnings, and side effects.
2. Role-play in pairs:
 - Student A = Patient
 - Student B = Pharmacist

The patient asks three clarifying questions about the medication.
3. Writing task: Create a **patient information leaflet** (80–100 words). Include:
 - Name of medicine
 - Dosage and frequency
 - Instructions (with/without food, with water)
 - Side effects
 - Missed dose advice
4. Discussion:
 - Why do patients often forget or misunderstand instructions?
 - What strategies can doctors and pharmacists use to prevent these mistakes?

Reading: Drug Interactions and Side Effects

Drug interactions occur when two or more substances—such as medicines, food, or alcohol—react in a way that changes the effect of the drugs involved. These interactions may either reduce the effectiveness of a medication or increase its toxicity. For example, combining certain antibiotics with oral contraceptives can lower contraceptive effectiveness, leading to unintended pregnancies. Likewise, alcohol taken with sedatives may dangerously enhance drowsiness, increasing the risk of accidents.

Side effects, on the other hand, are unintended or secondary effects of a medication. They range from mild symptoms, such as nausea and dizziness, to severe reactions like liver damage, allergic shock, or cardiac complications. Some side effects appear immediately after the first dose, while others may only develop after long-term use. Importantly, not every patient experiences side effects, but all patients must be informed of the possibility.

Healthcare professionals play a critical role in preventing harm caused by interactions and side effects. Doctors must carefully review a patient's medical history, including any current prescriptions, over-the-counter drugs, and even herbal supplements. Pharmacists also act as a safety barrier by checking for harmful combinations. Increasingly, computer systems are used to provide automatic alerts when dangerous interactions are detected. Still, technology cannot replace professional judgment.

Ultimately, safe medication use requires cooperation between patients and healthcare providers. Patients should follow instructions, report unusual symptoms promptly, and avoid self-medicating. When healthcare professionals and patients communicate effectively, the risks of drug interactions and side effects can be minimized.

Task 1. Multiple Choice

1. What may happen if antibiotics interact with contraceptives?
 - A) They reduce contraceptive effectiveness.
 - B) They increase contraceptive effectiveness.
 - C) They cause dizziness.
 - D) They stop infections immediately.
 2. What is the danger of mixing alcohol with sedatives?
 - A) Reduced drug absorption.
 - B) Stronger drowsiness.
 - C) Increased fertility.
 - D) Improved effectiveness.
-

Task 2. True / False / Not Given

3. All patients will experience some side effects.
 4. Some side effects may take months or years to develop.
 5. Pharmacists are the only professionals responsible for detecting interactions.
 6. Computer systems may provide warnings about drug interactions.
-

Task 3. Matching Information

Match each professional with their role (A–D).

7. Doctors
8. Pharmacists
9. Computer systems

Roles:

- A. Provide automatic alerts.
 - B. Review patient's medical history.
 - C. Check for harmful drug combinations.
 - D. Guarantee that patients never have side effects.
-

Task 4. Sentence Completion

Complete the sentences with NO MORE THAN THREE WORDS.

- 10. Drug interactions may increase a drug's _____.
 - 11. Mild side effects include nausea and _____.
 - 12. Patients should report _____ promptly.
 - 13. Effective medication safety requires cooperation between _____.
-

Task 5. Short Answer Questions

Answer in NO MORE THAN THREE WORDS.

- 14. What type of supplements must doctors also consider?
- 15. What is one severe possible side effect?
- 16. Who must communicate effectively to reduce risks?

UNIT 7.CHEMICAL LABORATORY



Speaking: Laboratory Safety and Equipment

Laboratory safety is a fundamental part of working in any medical or pharmaceutical environment. Students must be familiar not only with the names of equipment but also with its proper use, storage, and cleaning. Safety rules exist to protect both the individual and the entire laboratory team.

Key safety principles:

- Always wear protective equipment: **goggles, gloves, lab coat.**
- Never eat, drink, or apply cosmetics in the laboratory.
- Label all chemicals clearly, including concentration and date.
- Report any accidents immediately to the supervisor.
- Dispose of chemical waste according to protocol.

Key equipment to know:

- **Test tube** – small glass container for reactions.
- **Beaker** – cylindrical container for mixing and heating.
- **Pipette** – tool for transferring small amounts of liquid.
- **Bunsen burner** – gas burner for heating.
- **Fume hood** – ventilated enclosure to handle dangerous chemicals.
- **Balance** – instrument for weighing substances.
- **Centrifuge** – device for separating components by spinning.

Speaking tasks

1. **Pair discussion:** Which of the safety rules do you consider the most important? Why? Give examples of accidents that could happen if this rule is ignored.
2. **Role-play:**
 - Student A is a laboratory instructor.

- Student B is a new student.
 - A explains safety rules and shows equipment.
 - B asks questions (e.g., “What will happen if I spill acid?”).
3. **Group task:** Each group chooses one piece of equipment and prepares a **mini-presentation:**
- What is it used for?
 - How do you handle it safely?
 - What mistakes do beginners often make?
-

◆ **Language Spot 1: Future Simple (“Will”)**

Explanation

The **Future Simple (will)** is used for:

1. **Predictions** about the future.
 - *The experiment will produce carbon dioxide gas.*
2. **Spontaneous decisions.**
 - *I will clean the spill right now.*
3. **Promises and warnings.**
 - *You will get burned if you touch the hot beaker.*

Form:

- Affirmative: *I will mix the solution.*
- Negative: *I will not (won't) mix the solution.*
- Question: *Will you wear gloves?*

Practice tasks

1. **Complete the sentences:**
 - If you add water to the acid, it _____ (explode).

- The instructor _____ (check) our reports tomorrow.
 - Students _____ (not enter) the lab without coats.
2. **Predictions:** Write five predictions about your next laboratory class. Use “will.”
 3. **Warning posters:** Create short laboratory warning phrases using “will.”
Example: *If you inhale the gas, you will feel dizzy.*
-

Reading: Basic Pharmaceutical Formulations

Text (extended)

Pharmaceutical formulations are the different physical forms in which medications are manufactured and administered to patients. The choice of formulation is critical because it determines how quickly and effectively the active substance is absorbed, how long it remains active in the body, and how convenient it is for the patient.

Tablets and Capsules are the most common dosage forms. They are easy to produce, stable during storage, and convenient for patients. Some tablets are coated to protect the stomach or to provide extended release. However, not all patients can swallow solid forms, especially children and the elderly.

Liquid Formulations include solutions and suspensions. They are especially useful for pediatric or geriatric patients. Suspensions must be shaken before use because the drug particles can settle at the bottom. Liquids allow for flexible dosing but often have shorter shelf lives.

Injections deliver medicine directly into the bloodstream or tissues, offering the fastest therapeutic effect. They require sterile preparation and skilled administration. Errors in injection technique can lead to infections or tissue damage.

Topical Preparations such as creams, gels, and ointments act locally. They are commonly used for dermatological conditions, but also for pain relief. Correct application is important: too little may reduce effectiveness, while too much can cause irritation.

Inhalations are essential for respiratory conditions such as asthma or COPD. They deliver the drug directly to the lungs, minimizing systemic side effects. However, patients must be trained to use inhalers correctly.

Suppositories provide an alternative for patients unable to take oral medications. They are absorbed through the rectum, vagina, or urethra. Though less common, they are vital in certain clinical situations.

Pharmacists must carefully select formulations, considering patient compliance, drug stability, and cost. A correct choice ensures effective therapy, while a wrong one can lead to treatment failure or dangerous side effects.

Reading tasks

1. Short answer:

- Why are tablets sometimes coated?
- Which formulation is useful for asthma?
- What must be done before using a suspension?

2. True / False / Not Given:

- All patients can easily swallow tablets.
- Inhalations can minimize systemic side effects.
- Topical creams are only used for children.

3. Matching headings: Match each paragraph to the correct heading:

- A) Liquids
- B) Suppositories
- C) Injections

- D) Tablets and Capsules
 - E) Inhalations
 - F) Topical Preparations
4. **Vocabulary task:** Find synonyms in the text for: *local, flexible, shelf life, systemic, irritation.*
 5. **Discussion writing:** Write a short essay (150 words): *Which pharmaceutical formulation is most important in your country and why?*
-

Writing: Writing up an Experiment

Explanation

Writing up an experiment is a key academic skill. It trains students to describe methods, present results, and make logical conclusions.

Structure of a laboratory report:

1. **Title** – concise, e.g., *Effect of Temperature on Enzyme Activity.*
2. **Objective** – what you wanted to study.
3. **Materials & Equipment** – list of all items.
4. **Procedure** – step-by-step instructions (past tense, passive voice preferred).
5. **Results** – data, tables, graphs, or observations.
6. **Conclusion** – interpretation of results, errors, improvements.

Writing tasks

1. Write up a simple experiment (e.g., *Testing the pH of household liquids*).
2. Peer review: exchange your reports with classmates. Check: clarity, grammar, completeness.
3. Rewrite one experiment using more **formal scientific style** (e.g., “*We heated the solution*” → “*The solution was heated to 70°C*”).

4. Create a template for laboratory reporting to use in future classes.
-

◆ Language Spot 2: “Going to”

Explanation

The phrase “**be going to**” is used for **plans, intentions, and predictions based on evidence**.

- **Plans/intentions:** *We are going to repeat the experiment tomorrow.*
- **Predictions (with evidence):** *The solution is going to turn blue because the reagent has already been added.*

Form: be (am/is/are) + going to + verb.

Practice tasks

1. Complete the sentences:
 - We _____ (analyze) the blood samples tomorrow.
 - This solution _____ (change) color when heated.
 - The students _____ (prepare) tablets in the next lesson.
2. Compare:
 - **will** = spontaneous decision, promise, or general prediction.
 - **going to** = planned future, or evidence-based prediction.
Example: *Look at those dark clouds! It's going to rain.*
3. Writing exercise: Write 5 sentences about your future laboratory plans using “going to.”
4. Role-play: Student A = Instructor, Student B = Lab assistant. The instructor explains what the group is **going to** do in the next class.

Unit 8. Pharmacy is a Science

Vocabulary & Scrub up

Key terms in Pharmacy:

- **Pharmacology** – the study of how drugs interact with the body.
- **Pharmacokinetics** – what the body does to a drug (absorption, distribution, metabolism, excretion).
- **Pharmacodynamics** – what the drug does to the body (mechanism of action, effects).
- **Clinical trials** – studies on humans to test safety and effectiveness.
- **Toxicology** – the study of harmful effects of chemicals.
- **Formulation** – the process of designing the form in which a drug is produced (tablet, injection, cream).
- **Efficacy** – the ability of a drug to produce the desired therapeutic effect.
- **Adverse effect** – unwanted or harmful side effect of a drug.
- **Dosage** – the amount of drug given to a patient at one time.

Tasks:

1. Match each term with its correct definition.
 2. Fill in the blanks:
 - The _____ of a drug describes how it is absorbed and eliminated.
 - If a drug causes harmful reactions, it is studied in _____.
 - The _____ process includes Phase I to Phase IV testing.
 3. Write five sentences using the terms in a medical context.
-

Listening: The Role of Pharmacists in Healthcare

⁹While-listening tasks



Task 1. Note Completion

Complete the notes below. Use NO MORE THAN THREE WORDS.

The role of pharmacists

- Pharmacists are part of the _____.
 - They help patients understand how to take their _____.
 - Pharmacists review all of the patient's _____.
 - They check for dangerous _____.
 - Pharmacists give advice about _____ effects.
-

Task 2. Multiple Choice

Choose ONE correct letter A, B, C, or D.

1. Pharmacists mainly help patients by:
 - A) Selling vitamins
 - B) Explaining how medicines should be taken
 - C) Performing surgery
 - D) Giving psychological counseling
2. What is one responsibility of a pharmacist?
 - A) Conducting blood transfusions
 - B) Checking for drug interactions
 - C) Preparing food for patients
 - D) Writing hospital policies only

⁹ <https://www.youtube.com/watch?v=RW4g-HmDUX0>

Task 3. Short Answer Questions

Answer in NO MORE THAN THREE WORDS.

3. Who do pharmacists often collaborate with in healthcare?
 4. What must patients tell pharmacists about before taking new medicines?
 5. What do pharmacists explain to patients besides dosage?
-

Task 4. Matching

Match the pharmacist's role with the correct description:

6. Patient education
 7. Drug review
 8. Collaboration with doctors
-
- A. Works together to adjust treatment plans.
 - B. Helps patients understand when and how to take drugs.
 - C. Ensures all medications are safe together.
-

Post-listening tasks

1. **Summary writing:** In 5–6 sentences, summarize the main points about pharmacists' roles in patient care.
2. **Discussion in groups:**
 - Why is the pharmacist an important part of the healthcare team?
 - What might happen if patients did not have access to pharmacists?

3. Role-play:

- Student A = Pharmacist, Student B = Patient starting a new medication.
- Pharmacist explains dosage, timing, side effects, and interactions.
- Patient asks 3–4 questions.

4. Essay writing (120–150 words): “*Pharmacists as healthcare professionals: more than dispensing drugs.*”

Reading: Pharmacology and Drug Development

Text (extended academic style)

Pharmacology is the scientific discipline that studies how drugs affect biological systems and how the body responds to them. It is divided into two main areas: pharmacokinetics, which examines how drugs are absorbed, distributed, metabolized, and excreted, and pharmacodynamics, which investigates the mechanisms of drug action and their effects on the body.

Drug development is a long and complex process that transforms a chemical compound into a safe and effective medicine. The process begins with **drug discovery**, where thousands of molecules are screened for biological activity. Promising candidates are then tested in the laboratory and in animal models to evaluate toxicity and potential therapeutic effects.

If a compound shows promise, it enters the stage of **clinical trials**. These are conducted in four phases:

- **Phase I:** Small groups of healthy volunteers test the safety and dosage.
- **Phase II:** Patients with the targeted disease test the drug’s effectiveness and short-term side effects.
- **Phase III:** Large groups of patients confirm effectiveness, monitor side effects, and compare the drug with standard treatments.

- **Phase IV:** After approval, long-term monitoring of the drug in the general population ensures continued safety.

Despite technological advances, the development of a new drug often takes over 10 years and costs billions of dollars. Many candidate drugs fail during testing because they are ineffective or unsafe. Nevertheless, pharmacology and drug development are essential for advancing healthcare and providing patients with new treatment options.

IELTS-style Tasks

Task 1. Multiple Choice

1. What does pharmacodynamics study?
 - A) Absorption of drugs
 - B) Drug action and effects
 - C) Elimination of drugs
 - D) Drug prices
 2. Which clinical trial phase involves healthy volunteers?
 - A) Phase I
 - B) Phase II
 - C) Phase III
 - D) Phase IV
-

Task 2. True / False / Not Given

3. Pharmacokinetics studies what the drug does to the body.
4. Phase II clinical trials are conducted on animals.
5. Developing a new drug can take more than a decade.
6. Most candidate drugs succeed in clinical testing.

Task 3. Matching

Match each stage of trials with its description:

- 7. Phase I
- 8. Phase II
- 9. Phase III
- 10. Phase IV

- A. Monitoring drug safety after approval.
- B. Small-scale safety and dosage testing.
- C. Comparing new drug with existing treatments.
- D. Patients test effectiveness and short-term side effects.

Task 4. Sentence Completion

- 11. Pharmacology is the study of how drugs affect _____.
- 12. Drug discovery begins by screening _____.
- 13. Many candidate drugs fail because they are _____.
- 14. Phase III involves _____ of patients.

Task 5. Short Answer Questions

- 15. What are the two main branches of pharmacology?
- 16. How long does drug development usually take?
- 17. What is the main focus of Phase II trials?

Independent Study Module

1) Organization of Pharmaceutical Work



Rationale (Why this matters): Safe, effective, and continuous access to medicines depends on how the pharmaceutical system is organized—from manufacturing and import to distribution, dispensing, and pharmacovigilance.

Learning outcomes (you will be able to):

- Map the national pharmaceutical supply chain and key stakeholders.
- Explain regulatory frameworks (GxP: GMP, GDP, GPP) and their roles.
- Identify risks and bottlenecks in procurement, storage, and dispensing.
- Draft SOP fragments and KPIs for pharmacy operations.

Key terms: supply chain, procurement, tendering, wholesaler, distributor, formulary, pharmacovigilance, cold chain, recall, batch traceability, GDP/GMP/GPP, quality assurance (QA), quality control (QC).

Content outline (self-study reading guide):

1. System architecture: manufacturers → importers → wholesalers → community & hospital pharmacies.

2. Regulation & standards: national MOH agencies, pharmacopoeias, GxP, licensing.
3. Logistics: forecasting, tendering, storage (FEFO/First-Expire–First-Out), cold chain.
4. Patient-facing services: dispensing, counseling, medication use review (MUR).
5. Safety: recalls, adverse event reporting, pharmacovigilance cycle.

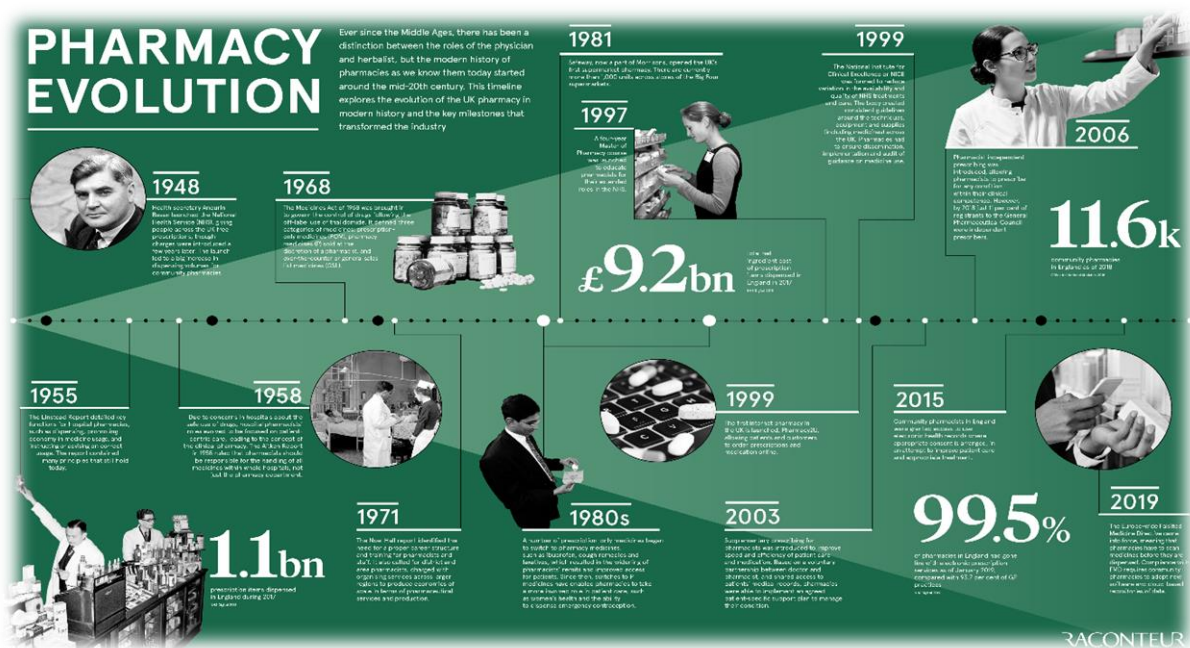
Independent tasks:

- **A. System Map (2–3 pages):** Draw a flowchart of your country’s medicine pathway (from factory/port to patient). Add decision points, documents, and controls.
- **B. Risk Mini-FMEA (1–2 pages):** Select one node (e.g., cold chain). List 5 failure modes, their effects, and simple mitigations.
- **C. SOP Fragment (1 page):** “Reception and Temperature Monitoring of Cold Chain Medicines” (purpose, scope, roles, step-by-step, records).
- **D. KPI Dashboard (1 page):** Define 6 KPIs (e.g., on-time deliveries %, stockout days, near-expiry rate, complaint resolution time).
- **E. ESP task:** Write a professional email to a wholesaler about a suspected temperature excursion; request corrective actions and proof.

Assessment (suggested rubric): Accuracy 40% • Practicality 30% • Clarity & English 20% • Referencing 10%.

Deliverables: 6–8 pages total with one process diagram + one SOP + KPI table.

2) History of Pharmacy



Rationale: Understanding historical milestones (from apothecaries to biotech) explains today's regulations, dosage forms, and professional ethics.

Learning outcomes:

- Build a chronological timeline of key developments.
- Compare apothecary traditions (e.g., Islamic Golden Age) with modern evidence-based practice.
- Explain how crises (e.g., thalidomide) reshaped regulation.

Key terms: apothecary, materia medica, pharmacopoeia, theriaca, Islamic Golden Age, industrialization, thalidomide, regulatory reform, biotechnology, vaccine platform.

Content outline:

1. Antiquity to medieval: herbalism; standard recipes; early pharmacopoeias.
2. Islamic scholarship (Ibn Sina, al-Razi): classification, compounding, clinical observation.
3. Renaissance & guilds → industrial era: standardization, mass production.

4. 20th century turning points: penicillin, sulfonamides, thalidomide → modern regulation.
5. Biotech & mRNA era; digital pharmaco-innovation.

Independent tasks:

- **A. Annotated Timeline:** 12 milestones (date/event/impact).
- **B. Source Comparison (2 pages):** Ibn Sina's approach to herbal preparations vs. a modern clinical monograph (structure, evidence, risk).
- **C. Case Essay (800–1000 words):** “How the thalidomide tragedy transformed drug regulation.”
- **D. Exhibit Caption Writing (ESP):** Draft 5 museum-style captions (60–80 words each) for artifacts: mortar & pestle, early balance, apothecary jars, first pharmacopoeia page, wartime penicillin vial.

Assessment: Historical accuracy 35% • Analytical depth 35% • Academic English 20% • Formatting 10%.

Deliverables: Timeline poster + 2 analytical pieces.

3) Pharmaceutical Economics



Rationale: Scarce budgets require value-based choices. Pharmacoeconomics helps select cost-effective therapies and plan reimbursement.

Learning outcomes:

- Distinguish cost types (direct/indirect/intangible) and evaluation methods (CEA, CUA, CBA, BIA).
- Calculate a basic ICER and interpret willingness-to-pay (WTP).
- Draft a short policy memo on pricing/reimbursement.

Key terms: cost-minimization, CEA, CUA (QALY), ICER, budget impact analysis (BIA), HTA, reference pricing, elasticity, tender, generic substitution.

Content outline:

1. Cost categories & perspectives (payer, provider, society).
2. Outcomes: clinical endpoints vs QALYs; discounting.
3. ICER logic; WTP thresholds; uncertainty.
4. Pricing & reimbursement: generics, value-based pricing, HTA.
5. Budget impact & access programs.

Independent tasks (with numbers to practice):

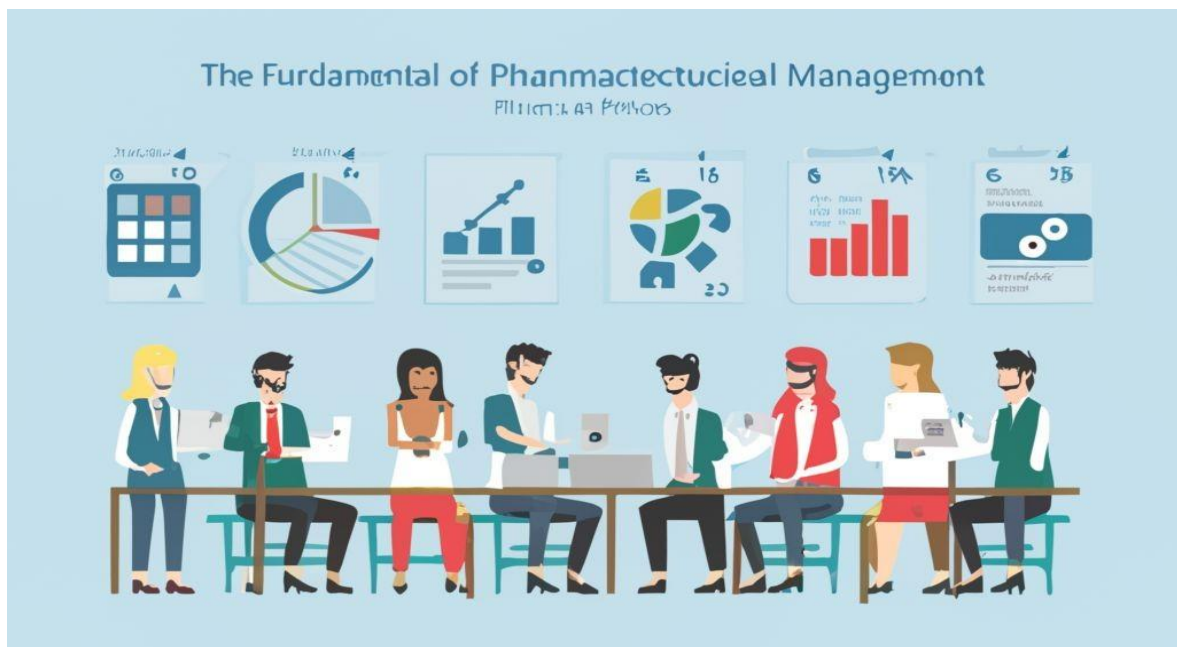
- **A. ICER Exercise:**
Drug A: cost \$400, effect 0.28 QALY; Drug B (standard): cost \$250, effect 0.18 QALY.
Compute ICER; discuss if below a hypothetical WTP of \$3,000/QALY.
- **B. Mini BIA (1 page):** 10,000 patients/year; uptake A=20% year1, 40% year2; per-patient incremental cost \$120. Estimate 2-year budget impact.
- **C. Tender Scenario:** Write a two-page memo advising MOH on whether to include a higher-priced but more adherent once-daily formulation; address adherence → outcomes → costs.

- **D. ESP task:** Produce a 150-word “Patient-friendly explanation” of why a generic was chosen (plain English, no jargon).

Assessment: Quant methods 40% • Policy reasoning 30% • Clarity/English 20% • Presentation 10%.

Deliverables: Calculations (show work) + policy memo + patient text.

4) Management in Pharmaceutics



Rationale: Pharmacies and manufacturers need robust management: inventory, staffing, quality, and risk control directly affect patient outcomes.

Learning outcomes:

- Perform ABC/XYZ analysis and set reorder points.
- Draft a weekly staff rota aligned to peak demand.
- Create a temperature-excursion CAPA SOP and an internal audit checklist.

Key terms: ABC/XYZ, EOQ, reorder point (ROP), lead time, service level, CAPA, 5S, Kaizen, SOP, near-miss, deviation, audit.

Content outline:

1. Inventory management: ABC/XYZ, EOQ, safety stock, cold chain.
2. Operations: queueing basics, peak-hour staffing, layout & 5S.
3. Quality & risk: deviations, CAPA, internal audits.
4. Customer service & counseling; complaint handling.
5. Digital tools: e-dispensing, dashboards, barcode traceability.

Independent tasks (with sample data):

- **A. ABC Analysis:**
Items & annual spend (USD): Amox 25k; Insulin 90k; Omeprazole 12k; Oncology inj 220k; Dressings 8k; Vaccines 180k; Saline 6k; Statins 40k. Classify A/B/C ($\approx 70/20/10$). Propose control intensity per class.
- **B. ROP/EOQ:** Demand 1,200 packs/month; lead time 10 days; daily demand ~ 40 ; $\sigma = 8$; service level 95% ($z \approx 1.65$). Holding cost \$2/pack/month; order cost \$80. Compute safety stock, ROP, EOQ. Interpret.
- **C. Staff Rota:** Build a one-week schedule for 3 pharmacists + 2 techs; include peak times 10:00–13:00 and 17:00–20:00. Add a contingency plan for sick leave.
- **D. SOP + Checklist:** “Handling Temperature Excursions” + a 15-item internal audit checklist (storage, logs, alarms, training records).
- **E. ESP task:** Draft a one-page Service Level Agreement (SLA) with a distributor (delivery window, penalties, evidence required).

Assessment: Calculations 35% • Practical design 35% • Documentation quality 20% • English 10%.

Deliverables: Calculation sheet, rota table, SOP (1–2 pp), audit checklist.

5) Pharmaceutical Technology



Rationale: Dosage-form design translates an active ingredient into a safe, stable, effective medicine. Mistakes here derail efficacy and safety.

Learning outcomes:

- Describe unit operations (mixing, granulation, compression, coating, sterilization).
- Choose excipients by function (binder, disintegrant, filler, lubricant).
- Sketch a simple QbD target product profile (TPP) & critical quality attributes (CQAs).

Key terms: unit operations, wet/dry granulation, direct compression, disintegration, dissolution, coating (film/sugar/enteric), aseptic processing, sterilization (steam/dry heat/filtration), excipients (MCC, lactose, PVP, croscarmellose, Mg stearate), QbD, CQA, CPP, PAT.

Content outline:

1. Solid dosage forms: routes to tableting (wet granulation vs direct compression).
2. Excipients: functions & selection logic; incompatibilities.
3. Coating & release profiles (IR, ER, enteric).
4. Sterile products: filtration vs terminal sterilization; depyrogenation.
5. Scale-up & validation: CPPs, CQAs, process capability, PAT.

Independent tasks:

- **A. Tablet Formula Draft:** API 200 mg, target tablet 400 mg. Propose excipient set (filler, binder, disintegrant, lubricant) with approximate percentages; justify choices (flow, hardness, dissolution).
- **B. Process Flow:** Decide on wet granulation vs direct compression for your formula; draw a block diagram (equipment, in-process controls).
- **C. Coating Decision:** Choose IR vs enteric; write rationale linked to API stability and site of absorption.
- **D. Sterilization Case:** For a heat-labile injectable, select sterilization by filtration; outline sterility assurance steps (integrity test, aseptic technique, environmental monitoring).
- **E. QbD Mini-Sheet:** Define TPP (dose, release, shelf-life), 5 CQAs (assay, content uniformity, hardness, friability, dissolution), and 4 CPPs (blend time, compression force, inlet air temp, spray rate).
- **F. ESP task:** Write a one-page Batch Manufacturing Record (BMR) excerpt (sections: materials, equipment, steps, IPC, yield calc).

Assessment: Technical correctness 40% • Justification 30% • Documentation 20%
• English 10%.

Deliverables: Formulation table, process diagram, QbD sheet, BMR excerpt (total 5–7 pages).

6) Standardization of Medicines



Rationale: Without standardization, medicines may vary in quality, safety, and efficacy. Global trade and public trust depend on harmonized standards.

Learning outcomes:

- Define the role of pharmacopeias and quality standards.
- Explain GMP (Good Manufacturing Practice) requirements.
- Evaluate the importance of reference substances and analytical validation.

Key terms: pharmacopeia, monograph, GMP, ISO, ICH, quality assurance (QA), quality control (QC), assay, dissolution test, impurities, stability testing.

Content outline:

1. International and national pharmacopeias (USP, BP, Ph. Eur.).
2. GMP principles: documentation, validation, qualified staff, facilities.
3. Analytical standardization: reference standards, validated methods, bioequivalence.
4. Stability & shelf-life determination.

5. Harmonization through ICH guidelines.

Independent tasks:

- **A. Comparative Table:** Compare USP, BP, Ph. Eur. for one medicine (e.g., Paracetamol). Highlight similarities/differences.
- **B. Mini-Essay (500 words):** Why is GMP a cornerstone of patient safety?
- **C. Laboratory Plan:** Design a QC protocol for tablets (tests: weight variation, hardness, dissolution, assay).
- **D. Case Study:** Recall a real-world example of substandard/falsified medicines. Analyze consequences and regulatory response.
- **E. ESP task:** Draft a quality certificate for a batch of amoxicillin capsules.

Assessment: Standards knowledge 40% • Case application 30% • Documentation 20% • English 10%.

7) Pharmaceutical Deontology



Rationale: Ethics guides pharmacists in balancing patient safety, confidentiality, and professional responsibility.

Learning outcomes:

- Define pharmaceutical deontology.
- Apply ethical principles to real-world pharmacy dilemmas.
- Evaluate conflicts between commercial and clinical priorities.

Key terms: deontology, confidentiality, autonomy, beneficence, non-maleficence, conflict of interest, prescription-only medicine, informed consent.

Content outline:

1. Deontology vs. professional ethics.
2. Ethical principles: beneficence, non-maleficence, justice, autonomy.
3. Confidentiality in pharmacy practice.
4. Ethical issues: antibiotic misuse, OTC sales, generic substitution.
5. International codes of ethics (e.g., FIP).

Independent tasks:

- **A. Ethical Dilemma Essay (600–700 words):** “A patient demands antibiotics without prescription—what should the pharmacist do?”
- **B. Debate Prep:** “Should pharmacists refuse to dispense harmful lifestyle drugs?” Write pro & con arguments.
- **C. Code Comparison:** Compare Uzbek pharmacy ethics with FIP International guidelines.
- **D. Role-play:** One student is a patient, the other a pharmacist. Discuss sensitive issues (contraceptives, psychiatric drugs).
- **E. ESP task:** Write a confidentiality statement for a community pharmacy.

Assessment: Ethical reasoning 40% • Case analysis 30% • Argumentation 20% • Language 10%.

8) Ibn Sina's Teaching in Modern Pharmaceuticals

Rationale: Avicenna's *Canon of Medicine* (Al-Qanun fi al-Tibb) shaped pharmacy and medicine for centuries. His classification of drugs is still relevant in phytotherapy.

Learning outcomes:

- Summarize Ibn Sina's contributions to pharmacy.
- Relate his teachings to modern evidence-based herbal medicine.
- Identify overlaps between traditional and modern pharmaceuticals.

Key terms: Avicenna, Canon of Medicine, temperament theory, herbal preparations, pharmacognosy, phytotherapy, traditional knowledge, integrative medicine.

Content outline:

1. Ibn Sina's classification of simple and compound drugs.
2. Methods of drug preparation (syrops, ointments, decoctions).
3. Clinical observation and rational drug use.
4. Legacy in Europe and Islamic world.
5. Comparison with modern pharmacognosy and phytotherapy.

Independent tasks:

- **A. Text Analysis:** Translate and comment on one passage from *Canon of Medicine* about herbal remedies.

- **B. Comparative Essay (700 words):** “Avicenna’s pharmacology vs. modern phytotherapy.”
- **C. Project:** Select a herbal drug mentioned by Ibn Sina and research its modern clinical evidence (dosage, safety, efficacy).
- **D. Poster Presentation:** “Avicenna: A Bridge Between Ancient and Modern Pharmacy.”
- **E. ESP task:** Write a short patient leaflet for a herbal remedy (style: modern pharmacy, but with historical note).

Assessment: Historical accuracy 30% • Integration with modern science 40% • Presentation 20% • English 10%.

9) Work in Pharmacies



Rationale: Pharmacies are the public's direct access point to medicines. Professional practice ensures rational use, adherence, and patient safety.

Learning outcomes:

- Describe different types of pharmacies (community, hospital, industrial).
- Identify daily tasks of a pharmacist.
- Demonstrate patient counseling and documentation skills.

Key terms: dispensing, compounding, counseling, OTC, prescription-only medicine (POM), adherence, inventory management, patient profile, pharmacovigilance.

Content outline:

1. Types of pharmacies and their roles.
2. Workflow: prescription intake, review, dispensing, counseling.
3. Inventory and stock control.
4. Patient records and confidentiality.
5. Interprofessional collaboration (with doctors, nurses).

Independent tasks:

- **A. Observation Report:** Visit a local pharmacy; describe workflow, roles, and patient interaction (3–4 pages).
- **B. Dialogue Writing:** Create 3 dialogues:
 - Painkiller request (OTC).
 - Antibiotic with prescription.
 - Chronic medication refill.
- **C. Compounding Exercise:** Draft SOP for preparing a simple ointment or syrup.
- **D. Reflection Essay (500 words):** “Why pharmacists are front-line healthcare professionals.”

- **E. ESP task:** Fill in and explain a mock prescription label in English.

Assessment: Practical relevance 40% • Observation detail 30% • ESP accuracy 20% • English 10%.

10) Pharmaceutical Support



Rationale: Pharmaceutical support ensures that patients continuously receive safe, effective medicines, even in crises.

Learning outcomes:

- Explain the concept of pharmaceutical support in healthcare systems.
- Identify mechanisms of drug supply during emergencies.
- Propose strategies for improving access to essential medicines.

Key terms: essential medicines, WHO EML, humanitarian aid, drug logistics, cold chain, buffer stock, national formulary, procurement, universal health coverage.

Content outline:

1. Essential medicines concept and WHO Model List.
2. National pharmaceutical policies and support programs.
3. Logistics during emergencies (pandemics, disasters, conflicts).
4. Case studies: COVID-19 supply chains, vaccine rollouts.
5. Future trends: digital logistics, blockchain traceability.

Independent tasks:

- **A. Case Analysis:** Write a 4-page report: “Pharmaceutical support during COVID-19 in Uzbekistan.”
- **B. Policy Memo (2 pages):** Recommendations to MOH for improving supply chain resilience.
- **C. Simulation:** Imagine a cholera outbreak; design a pharmaceutical support plan (medicines, logistics, communication).
- **D. Comparative Table:** List 10 essential medicines from WHO EML and their local equivalents.
- **E. ESP task:** Write a short “Medicine Donation Guideline” for NGOs.

Assessment: Policy reasoning 40% • Case accuracy 30% • Innovation 20% • English 10%.

11) Pharmaceutical Hygiene



Rationale: Hygiene ensures sterility, prevents contamination, and protects both patients and staff in pharmaceutical environments.

Learning outcomes:

- Define hygiene requirements in pharmacies and pharmaceutical production.
- Explain differences between sterile and non-sterile areas.
- Design hygiene protocols for pharmacy staff.

Key terms: asepsis, sterile area, disinfection, cleanroom, personal protective equipment (PPE), laminar airflow cabinet, sanitization, contamination control, hygiene audit.

Content outline:

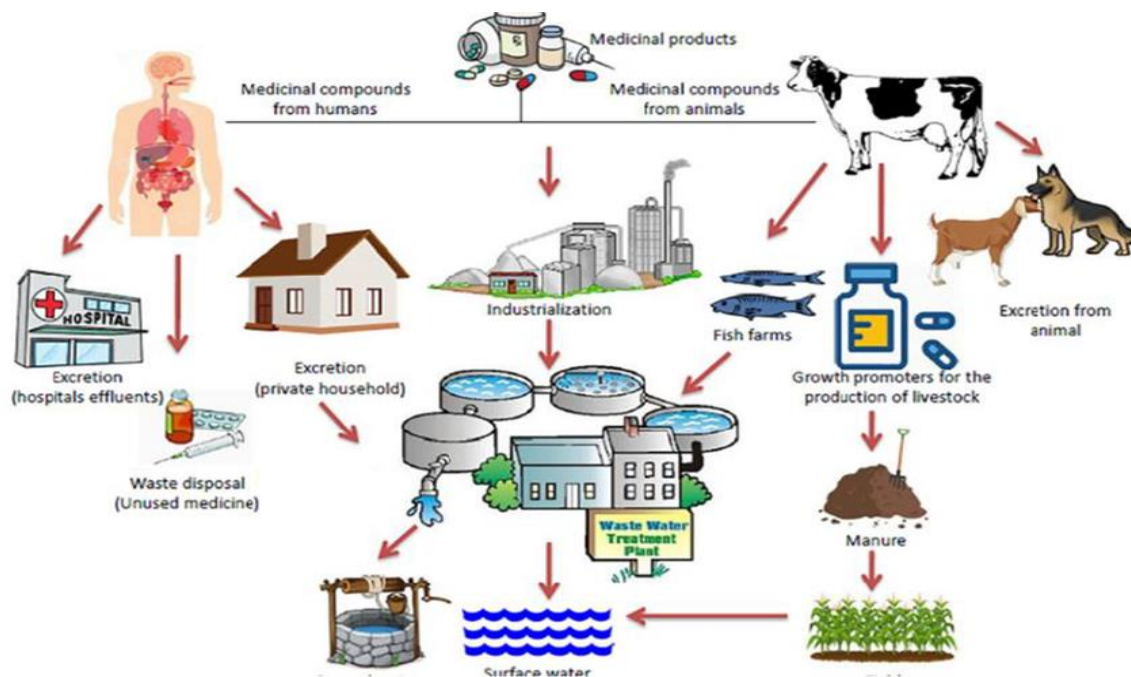
1. Personal hygiene of pharmacists (handwashing, protective clothing, restrictions).
2. Cleanroom design & classification (ISO classes, HEPA filters).
3. Disinfection and sterilization protocols.
4. Good Hygiene Practice (GHP) and its role in GMP.
5. Auditing and monitoring hygiene standards.

Independent tasks:

- **A. SOP Draft:** Create a hygiene protocol for staff entering a sterile production area.
- **B. Report (3 pages):** Compare aseptic and antiseptic methods.
- **C. Audit Checklist:** Design a 20-point hygiene checklist for a compounding room.
- **D. Case Study:** Analyze a contamination incident (real or hypothetical) and propose corrective actions.
- **E. ESP task:** Write labelling instructions for a disinfectant solution in English.

Assessment: Protocol design 40% • Analysis 30% • Practical relevance 20% • Language 10%.

12) Pharmaceutical Ecology



Rationale: Medicines can pollute water and soil; responsible disposal and “green pharmacy” reduce ecological harm.

Learning outcomes:

- Identify environmental risks of pharmaceuticals.
- Explain safe disposal methods.
- Discuss global initiatives for sustainable pharmacy.

Key terms: pharmaceutical waste, eco-toxicity, wastewater treatment, bioremediation, green chemistry, environmental risk assessment (ERA), drug take-back programs, recycling.

Content outline:

1. Pathways of pharmaceuticals into the environment (excretion, manufacturing, disposal).
2. Effects on ecosystems (antibiotic resistance, endocrine disruption).
3. Safe disposal (incineration, take-back schemes).
4. Regulations and guidelines (WHO, EU, US FDA).
5. Green pharmacy & sustainable drug design.

Independent tasks:

- **A. Essay (800 words):** “Pharmaceutical pollution: causes, effects, and solutions.”
- **B. Poster Project:** Design a poster for patients: “How to Dispose of Expired Medicines.”
- **C. Comparative Report:** Research how three countries manage pharmaceutical waste.
- **D. Simulation:** Imagine a hospital with expired chemotherapy drugs—write a disposal plan.
- **E. ESP task:** Draft patient instructions for safe disposal of antibiotics.

Assessment: Environmental awareness 40% • Practicality 30% • Communication 20% • Language 10%.

13) Technology of Medical Preparations



Rationale: Technology ensures consistent quality of drugs in industrial production.

Learning outcomes:

- Describe key steps in manufacturing.
- Compare traditional and modern technologies.
- Evaluate safety and quality requirements.

Key terms: synthesis, extraction, fermentation, granulation, coating, sterilization, lyophilization, scale-up, validation, GMP.

Content outline:

1. Stages of drug manufacturing (synthesis → purification → formulation).
2. Solid dosage forms: granulation, compression, coating.
3. Parenteral forms: aseptic filling, lyophilization.
4. Herbal and biological preparations.
5. Scale-up and process validation.

Independent tasks:

- **A. Flow Diagram:** Draw the manufacturing process of aspirin tablets.
- **B. Case Study:** Compare synthetic vs. natural drug production.
- **C. Mini Report:** Explain why lyophilization is important for vaccines.
- **D. Quality Plan:** Draft validation steps for a new production line.
- **E. ESP task:** Write part of a “Batch Manufacturing Record” for syrup production.

Assessment: Technical accuracy 40% • Case application 30% • Documentation 20% • Language 10%.

14) Methods of Instrumental Analysis of Drugs



Rationale: Instrumental analysis ensures drug purity, identity, and potency.

Learning outcomes:

- Explain principles of key analytical methods.
- Select appropriate techniques for specific drugs.
- Interpret results from instrumental analysis.

Key terms: spectrophotometry, chromatography, HPLC, GC, NMR, IR, mass spectrometry, titration, calibration, validation.

Content outline:

1. Chromatography: TLC, HPLC, GC.
2. Spectroscopy: UV, IR, NMR.
3. Mass spectrometry in drug identification.
4. Titrimetric methods and limitations.
5. Validation of analytical methods (accuracy, precision, specificity).

Independent tasks:

- **A. Lab Protocol:** Outline steps for an HPLC assay of paracetamol.
- **B. Comparative Chart:** Advantages/disadvantages of UV vs. IR spectroscopy.
- **C. Problem Solving:** Given chromatograms, identify peak purity.
- **D. Report:** “Role of instrumental analysis in combating falsified medicines.”
- **E. ESP task:** Write a standard laboratory note in English describing IR analysis.

Assessment: Method knowledge 40% • Application 30% • Interpretation 20% • English 10%.

15) Pharmaceutical Biotechnology



Rationale: Biotechnology has revolutionized medicine—insulin, vaccines, monoclonal antibodies.

Learning outcomes:

- Define pharmaceutical biotechnology.
- Explain production of biopharmaceuticals.
- Assess risks and ethical concerns.

Key terms: recombinant DNA, monoclonal antibodies, gene therapy, biopharmaceuticals, cell culture, fermentation, vaccine development, biosimilars, CRISPR.

Content outline:

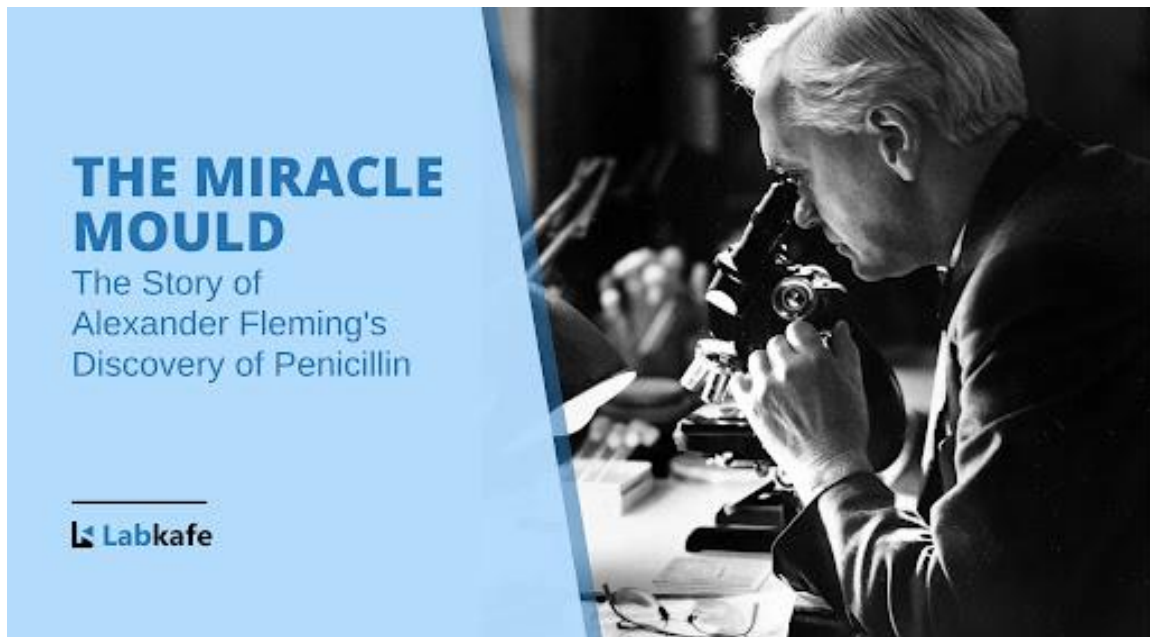
1. History: from insulin (1982) to modern biologics.
2. Recombinant DNA technology.
3. Monoclonal antibody production.
4. Vaccines (traditional vs. mRNA).
5. Ethical and regulatory issues.

Independent tasks:

- **A. Essay (800–1000 words):** “How biotechnology transformed modern pharmacy.”
- **B. Research Task:** Select one biopharmaceutical and describe its production process.
- **C. Debate:** Should biosimilars replace expensive biologics?
- **D. Diagram:** Draw stages of monoclonal antibody production.
- **E. ESP task:** Write a simplified patient leaflet for a biotech drug (e.g., insulin pen).

Assessment: Scientific accuracy 40% • Research depth 30% • Critical analysis 20% • Language 10%.

16) The History of Penicillin



Rationale: Penicillin, discovered by Alexander Fleming in 1928, transformed medicine, saved millions of lives, and launched the antibiotic era.

Learning outcomes:

- Explain the discovery and development of penicillin.
- Describe the challenges of mass production during WWII.
- Evaluate its impact on infectious diseases and modern pharmacology.

Key terms: Alexander Fleming, mold *Penicillium notatum*, antibacterial, fermentation, Florey and Chain, mass production, WWII medicine, antibiotic resistance.

Content outline:

1. Fleming's observation of mold inhibiting bacteria.
2. Purification by Florey and Chain (Oxford group).
3. U.S. wartime industrial production.
4. Clinical breakthroughs: treatment of pneumonia, syphilis, wound infections.

5. Emergence of resistance and need for new antibiotics.

Independent tasks:

- **A. Timeline Poster:** Discovery → purification → industrialization → clinical use → resistance.
- **B. Report (3–4 pages):** “Penicillin: The medicine that won the war.”
- **C. Comparative Essay:** Impact of penicillin vs. impact of vaccines.
- **D. Primary Source Task:** Analyze one historical speech/article about penicillin and comment on its tone.
- **E. ESP task:** Write a short patient information leaflet for penicillin (indications, dosage, warnings).

Assessment: Historical accuracy 40% • Analytical depth 30% • Presentation 20% • English 10%.

17) Antibiotics



Rationale: Antibiotics revolutionized healthcare, but misuse has led to global resistance.

Learning outcomes:

- Classify major groups of antibiotics.
- Explain mechanisms of action and resistance.
- Evaluate rational antibiotic use policies.

Key terms: beta-lactams, macrolides, tetracyclines, fluoroquinolones, aminoglycosides, MRSA, ESBL, stewardship, prophylaxis, broad-spectrum, narrow-spectrum.

Content outline:

1. Classification of antibiotics.
2. Mechanisms of action (cell wall, protein synthesis, DNA).
3. Antibiotic resistance: causes and consequences.
4. Antibiotic stewardship programs.
5. Future directions (novel agents, phage therapy).

Independent tasks:

- **A. Classification Chart:** Create a table of 5 antibiotic groups, examples, mechanism, main uses.
- **B. Case Study:** Patient misuses antibiotics—analyze consequences.
- **C. Essay (800 words):** “Why antibiotic resistance is a global health crisis.”
- **D. Debate prep:** “Should antibiotics be restricted to hospital use only?”
- **E. ESP task:** Translate an antibiotic prescription label into English and explain it.

Assessment: Classification accuracy 35% • Case depth 30% • Critical analysis 25% • English 10%.

18) At the Chemist's



Rationale: Pharmacies are the everyday contact point between the public and medicines. Communication skills are essential.

Learning outcomes:

- Use English phrases for pharmacy communication.
- Distinguish OTC vs. prescription-only situations.
- Counsel patients clearly and politely.

Key terms: pharmacist, prescription, OTC medicine, dosage, side effects, leaflet, refill, generic, brand name.

Content outline:

1. Everyday dialogue at the chemist's.
2. Phrases for giving dosage and instructions.
3. Explaining side effects in plain language.
4. Cultural aspects of pharmacy-patient communication.

Independent tasks:

- **A. Role-plays:**
 - A patient asks for a cough syrup.
 - A pharmacist explains side effects of an antibiotic.
 - A patient requests a generic substitution.
- **B. Vocabulary Match:** Match pharmacy words with definitions.
- **C. Dialogue Writing:** Write 3 full dialogues (10–12 exchanges each).
- **D. Reflection Essay (500 words):** “How communication can improve patient adherence.”
- **E. ESP task:** Write sample labels (English) for three medicines.

Assessment: Communication skills 40% • Practicality 30% • Written accuracy 20% • English 10%.

19) Hypertensive Drugs

Rationale: Hypertension is a major global health problem; its treatment prevents strokes and heart attacks.

Learning outcomes:

- Identify main groups of antihypertensives.
- Explain their mechanism of action.
- Compare side effects and clinical uses.

Key terms: diuretics, ACE inhibitors, ARBs, beta-blockers, calcium channel blockers, vasodilators, target blood pressure, adherence, polypharmacy.

Content outline:

1. Hypertension epidemiology.

2. Main drug groups and their action.
3. Side effects and contraindications.
4. Combination therapy.
5. Patient counseling for lifestyle and adherence.

Independent tasks:

- **A. Comparison Table:** List drug classes, mechanisms, examples, side effects.
- **B. Case Study:** Patient with diabetes and hypertension—choose optimal therapy.
- **C. Essay (700 words):** “Why adherence to antihypertensive therapy is difficult.”
- **D. Group Presentation:** Present clinical guidelines for hypertension treatment.
- **E. ESP task:** Write a mock patient counseling script in English for starting ACE inhibitors.

Assessment: Medical accuracy 40% • Case reasoning 30% • Patient focus 20% • English 10%.

20) Hypotensive Drugs

Rationale: Hypotension can be life-threatening in shock; pharmacological correction is essential.

Learning outcomes:

- Describe drugs used in hypotension and shock.
- Explain differences between vasopressors, fluids, and supportive therapy.
- Evaluate risks and monitoring needs.

Key terms: vasopressors, dopamine, norepinephrine, epinephrine, vasopressin, fluid resuscitation, shock, septic shock, MAP (mean arterial pressure).

Content outline:

1. Causes of hypotension (shock types).
2. Vasopressors: mechanism and uses.
3. Fluid therapy.
4. Adverse effects and monitoring.
5. Emergency protocols.

Independent tasks:

- **A. Flowchart:** Management of shock—steps and drugs.
- **B. Clinical Case:** Patient in septic shock—decide on drug and dose.
- **C. Essay (600 words):** “Vasopressors: life-saving but high-risk drugs.”
- **D. Protocol Writing:** Draft simplified treatment protocol for ER use.
- **E. ESP task:** Write emergency instructions in English for an IV norepinephrine infusion.

Assessment: Clinical reasoning 40% • Emergency focus 30% • Practicality 20% • English 10%.

21) The Main Instructions of Drugs



Rationale: Every medicine is accompanied by an instruction leaflet (patient information leaflet, PIL). Understanding how to read and interpret instructions is critical for safe use.

Learning outcomes:

- Identify and explain the main sections of a drug leaflet.
- Compare instructions for generic vs. brand-name drugs.
- Create simplified patient instructions in plain English.

Key terms: indication, contraindication, dosage, administration, storage, shelf-life, interactions, adverse effects, overdose, precautions.

Content outline:

1. Structure of a drug leaflet (indications, dosage, warnings, storage).
2. International standards for labeling (EMA, FDA, WHO).
3. Differences between professional instructions (SPC) and patient-friendly leaflets.
4. Legal importance of instructions in pharmacovigilance.
5. Case examples of misinterpretation.

Independent tasks:

- **A. Leaflet Analysis:** Choose 2 medicines (one OTC, one prescription). Compare their instructions (3–4 pages).
- **B. Simplification Task:** Rewrite one professional leaflet into plain English for patients.
- **C. Table Exercise:** Fill a template: Drug name, dosage, contraindications, side effects.
- **D. Essay (500 words):** “Why clear drug instructions save lives.”
- **E. ESP task:** Draft a bilingual (English + Uzbek) sample leaflet for paracetamol.

Assessment: Accuracy 40% • Patient orientation 30% • Clarity 20% • English 10%.

22) Folk Medicine



Rationale: Folk medicine represents centuries of accumulated cultural knowledge. Today it coexists with evidence-based pharmacology.

Learning outcomes:

- Define folk medicine and its role in different cultures.
- Distinguish between effective remedies and unsafe practices.
- Debate integration of folk medicine into modern systems.

Key terms: traditional medicine, home remedies, acupuncture, cupping, herbal infusions, alternative therapies, WHO Traditional Medicine Strategy, evidence-based practice.

Content outline:

1. Global perspectives: Chinese medicine, Ayurveda, Unani, Uzbek folk remedies.
2. Common forms: herbal teas, compresses, manual techniques.
3. Benefits and risks (safety, contamination, interactions).
4. Regulation of traditional remedies.
5. Integration with modern healthcare.

Independent tasks:

- **A. Research Essay (800–1000 words):** “Role of folk medicine in Uzbekistan.”
- **B. Comparison Chart:** Folk vs. modern treatment for cold, hypertension, pain.
- **C. Interview Project:** Ask elders about 5 traditional remedies, record and analyze.
- **D. Debate Prep:** “Should folk healers be officially licensed?” Write both sides.
- **E. ESP task:** Create a glossary of 20 folk medicine terms in English with explanations.

Assessment: Cultural understanding 40% • Analytical depth 30% • Creativity 20%
• English 10%.

23) The Role of Herbal Drugs



Rationale: Herbal medicines remain important in modern pharmaceuticals, providing raw materials for many drugs (e.g., morphine, quinine, artemisinin).

Learning outcomes:

- Explain advantages and limitations of herbal drugs.
- Identify key examples of herbal-derived medicines.
- Evaluate scientific evidence for herbal therapy.

Key terms: phytotherapy, pharmacognosy, active compounds, standardization, tincture, extract, dietary supplements, clinical trials, safety profile.

Content outline:

1. Historical role of herbal remedies.
2. Examples: willow bark → aspirin, foxglove → digoxin, sweet wormwood → artemisinin.
3. Standardization challenges (variable potency, contamination).
4. Safety concerns (interactions with conventional drugs).
5. The future of herbal medicine in integrative healthcare.

Independent tasks:

- **A. Case Study:** Select one herbal drug (e.g., ginseng, echinacea). Summarize its evidence base (3–4 pages).
- **B. Comparative Table:** Herbal vs. synthetic medicines (advantages/disadvantages).
- **C. Poster Project:** Design an educational poster “Safe Use of Herbal Medicines.”
- **D. Essay (700 words):** “Why herbal drugs should be standardized like synthetic ones.”
- **E. ESP task:** Write a short herbal drug monograph (name, uses, dosage, precautions).

Assessment: Scientific accuracy 40% • Evidence base 30% • Communication 20%
• English 10%.

Final Test / Progress Check (MCQ Format, No Listening)

Part 1. Vocabulary (10 points)

Choose the correct answer:

1. *Pharmacovigilance* means:
 - a) Manufacturing new drugs
 - b) Monitoring drug safety after marketing
 - c) Studying herbal medicine
 - d) Storing medicines
2. A *generic drug* is:
 - a) A medicine with a new active ingredient
 - b) A copy of a brand-name medicine with the same active ingredient
 - c) A medicine used only in hospitals
 - d) A drug without dosage instructions
3. Which is an *excipient*?
 - a) Paracetamol
 - b) Amoxicillin
 - c) Binder or filler in a tablet
 - d) Vaccine
4. *Contraindication* refers to:
 - a) A condition where a drug must not be used
 - b) An instruction to take more medicine
 - c) A patient's informed consent
 - d) The expiry date

5. Hypertensive drugs are used to:
- a) Increase blood pressure
 - b) Lower blood pressure
 - c) Reduce cholesterol
 - d) Treat infections
-

Part 2. Grammar in Context (10 points)

Choose the correct option:

6. Tablets are _____ injections.
- a) more cheap
 - b) cheaper than
 - c) cheapest than
 - d) the most cheap
7. This antibiotic is _____ for pneumonia.
- a) effective
 - b) more effective
 - c) most effective
 - d) the most effective
8. We need more _____ about side effects.
- a) informations
 - b) information
 - c) inform
 - d) informed
9. How many _____ should the patient take daily?
- a) tablet
 - b) tablets
 - c) tablet's
 - d) tabling

10. Laboratory equipment is usually _____ community pharmacies.
- a) expensive
 - b) expensiver than
 - c) more expensive than
 - d) most expensive
-

Part 3. Reading (15 points)

Read the passage:

Prescription errors are common causes of patient harm. Mistakes often include illegible handwriting, incorrect dosages, or confusing drug names. To prevent errors, doctors should use standard abbreviations, write clearly, and verify patient data. Pharmacists must check prescriptions and counsel patients. Electronic prescribing reduces errors, but human oversight is still essential.

Questions:

11. Which is NOT listed as a common prescription error?
- a) Illegible handwriting
 - b) Incorrect dosage
 - c) Wrong patient data
 - d) Confusing drug names
12. How can doctors avoid mistakes?
- a) By using electronic devices only
 - b) By writing clearly and using standard abbreviations
 - c) By delegating all work to pharmacists
 - d) By prescribing more drugs
13. What is the pharmacist's role in avoiding errors?
- a) Producing new drugs
 - b) Checking prescriptions and counseling patients

- c) Replacing doctors
 - d) Selling only OTC medicines
14. Has electronic prescribing completely eliminated errors?
- a) Yes, fully
 - b) No, errors still occur
 - c) Only in hospitals
 - d) Only for antibiotics
15. What does “counsel” mean in the passage?
- a) To punish
 - b) To inform and advise
 - c) To prescribe
 - d) To record
-

Part 4. Applied Practice & Ethics (15 points)

16. A patient leaflet must include:
- a) Storage, dosage, contraindications
 - b) Only chemical formula
 - c) Only price of the drug
 - d) Manufacturer’s address only
17. Ethical responsibility in pharmacy practice means:
- a) Selling as many drugs as possible
 - b) Following deontological principles and protecting patients
 - c) Ignoring patient confidentiality
 - d) Only checking expiry dates
18. Which leaflet instruction is correct?
- a) Take two tablet every morning.
 - b) Patient must takes tablets daily.

- c) Take two tablets daily with water.
- d) Tablets must taking after food.
19. What is the purpose of pharmaceutical deontology?
- a) To explain how tablets dissolve
- b) To regulate ethical behavior of pharmacists
- c) To test new medicines in labs
- d) To study herbal medicine only
20. Which statement about generic medicines is correct?
- a) They are always less effective
- b) They contain the same active ingredient as brand-name drugs
- c) They are unsafe to use
- d) They do not need approval
-

Scoring

- Vocabulary – 10 points
- Grammar – 10 points
- Reading – 15 points
- Applied Practice – 15 points

Total: 50 points

Glossary of Key Terms

Adherence – following a prescribed treatment plan correctly.

Adverse effect – harmful or unintended effect of a medicine.

Amino acids – building blocks of proteins, essential for metabolism.

Analgesic – medicine that relieves pain.

Antibiotics – drugs that kill or inhibit bacteria.

Anticoagulant – medicine preventing blood clotting.

Antihypertensive – drug lowering high blood pressure.

Antiseptic – substance that prevents the growth of microorganisms.

Asepsis – absence of pathogenic microorganisms; maintaining sterility.

Batch Manufacturing Record (BMR) – detailed document of each production step of a medicine.

Beneficence – ethical principle: doing good for the patient.

Bioavailability – how much of a drug enters the bloodstream to act.

Biotechnology – use of living organisms to create pharmaceuticals (insulin, vaccines).

Blood pressure – force of blood against artery walls, measured in mmHg.

Capsule – dosage form with drug enclosed in gelatin shell.

Carcinogenic – substance capable of causing cancer.

Case study – detailed analysis of a patient, scenario, or situation for educational purposes.

Chemotherapy – treatment with chemical substances, often for cancer.

Clinical trial – research study testing safety and efficacy of new drugs.

Compounding – preparing customized medicines for individual patients.

Contraindication – situation when a drug should not be used.

Controlled release – dosage form designed to release drug slowly over time.

Counseling – pharmacist's advice to a patient about medication use.

Deontology (Pharmaceutical) – ethics of pharmacy practice, professional duties.

Disinfectant – chemical destroying harmful microorganisms on surfaces.

Dosage form – the physical form of a drug (tablet, injection, syrup).

Dose – exact quantity of medicine to be taken at one time.

Drug interaction – when one drug affects the action of another.

Ecology (Pharmaceutical) – study of how medicines affect the environment.

Efficacy – ability of a medicine to produce desired effect.

Excipient – inactive substance added to a drug for stability or formulation.

Expiration date – final date a drug can be used safely and effectively.

Formulation – process of preparing a medicine with active drug + excipients.

Friability test – quality control test measuring tablet durability.

Generic drug – medicine with same active ingredient as brand drug, usually cheaper.

Good Manufacturing Practice (GMP) – international quality standards for drug production.

Half-life – time needed for drug concentration in blood to reduce by half.

Herbal medicine – therapy using plants or plant extracts.

Hygiene (Pharmaceutical) – practices ensuring cleanliness and safety in pharmacy.

Hypotension – abnormally low blood pressure.

Hypotensive drugs – medicines increasing blood pressure in shock states.

Immunity – body's defense system against diseases.

Informed consent – patient's agreement after full information is provided.

Injection – liquid medicine delivered through a needle.

Instrumental analysis – use of devices (HPLC, IR, NMR) to analyze drugs.

Interaction – effect produced when two drugs are taken together.

Labeling – official information printed on drug packaging.

Laboratory safety – rules to protect people when working with chemicals.

Lethal dose (LD50) – amount of a drug that kills 50% of test subjects.

Lyophilization – freeze-drying method to preserve drugs.

Medicine – substance used to treat, prevent, or diagnose disease.

Metabolism – chemical processes inside the body to maintain life.

Monograph (Pharmacopoeia) – official standard description of a drug.

Multimorbidity – presence of multiple diseases in one patient.

Nanotechnology (Pharmaceutical) – using nanomaterials for drug delivery.

Narcotic – drug that reduces pain and may cause dependence.

Non-maleficence – ethical principle: “do no harm.”

Overdose – taking too much of a medicine, harmful or fatal.

OTC (Over-the-counter) – drugs sold without prescription.

Oxidation – chemical reaction that can degrade drug stability.

Parenteral – drug administration route bypassing digestive system (e.g., injection).

Patient Information Leaflet (PIL) – instructions for patients on safe drug use.

Pathogen – microorganism causing disease.

Penicillin – first antibiotic discovered (1928, Fleming).

Pharmacist – healthcare professional specializing in medicines.

Pharmacognosy – study of medicines derived from plants and natural sources.

Pharmacology – science of drug action on the body.

Pharmacovigilance – monitoring drug safety after release on the market.

Placebo – inactive substance used in research or treatment.

Polypharmacy – use of many medicines by one patient.

Prescription – doctor’s order for medicine.

Preservative – substance preventing microbial growth in medicines.

Quality assurance (QA) – systems ensuring products meet standards.

Quality control (QC) – tests verifying medicine's quality before release.

QbD (Quality by Design) – systematic approach to drug development.

Radiopharmaceuticals – medicines containing radioactive isotopes for diagnosis or therapy.

Resistance (antibiotic) – bacteria's ability to survive antibiotics.

Risk–benefit ratio – balance of positive and negative effects of a drug.

Side effect – secondary, unwanted effect of a medicine.

Stability testing – checking how long a drug remains effective.

Standardization – ensuring uniform quality and strength of drugs.

Sterilization – destruction of all microorganisms.

Suspension – liquid with undissolved particles of drug.

Syrup – liquid dosage form with sugar base.

Tablet – solid dosage form compressed into a small shape.

Therapeutic index – margin between effective and toxic dose.

Tolerance – reduced response to a drug over time.

Toxicology – study of poisons and harmful effects of substances.

Vaccine – preparation stimulating immunity against disease.

Vasopressor – drug that raises blood pressure in hypotension/shock.

Virus – microscopic infectious agent.

WHO Model List of Essential Medicines – list of most important medicines for healthcare systems.

References for listening parts:

1. <https://www.youtube.com/watch?v=H-r5Ems2Gfw>
2. <https://www.youtube.com/watch?v=Wjkr-YbytmM>
3. <https://www.youtube.com/watch?v=i4Trcw0fAZY>
4. <https://www.youtube.com/watch?v=nccpebe7MJc>
5. <https://www.youtube.com/watch?v=mtPlTyV5YsE>
6. <https://www.youtube.com/watch?v=eak5z2Gi8Xk>
7. <https://www.youtube.com/watch?v=YHBgApOKpaM>
8. <https://www.youtube.com/watch?v=Ub0yWvU7Dtc>
9. <https://www.youtube.com/watch?v=-8LgAU4zM04>
10. https://www.youtube.com/watch?v=IwrJ2t_R8Vo
11. <https://www.youtube.com/watch?v=ubZserzyDrI>

***Sources of Illustrations**

All images used in this book were taken from open sources on the Internet (mainly Google Images) and are available in the public domain. They are used exclusively for educational and illustrative purposes, without any commercial intent.

✧ The Last Page, The First Step ✧

Dear Students,

Reaching this final page, you can look back at the long and meaningful journey you have completed with this textbook. Step by step, unit by unit, you have moved from the foundations of pharmaceutical English to its professional applications in clinical and scientific practice. You have studied the structure of prescriptions, the logic of medical terminology, the principles of patient counseling, the challenges of drug interactions, the responsibilities of pharmaceutical ethics, and the technological advances that shape the medicines of today and tomorrow.

This textbook has been created not only as a collection of vocabulary and grammar exercises, but as a **pathway into your professional identity**. Every dialogue, every reading passage, every task was designed to connect you with the reality of pharmacy and medicine — the hospital ward, the laboratory, the pharmacy counter, the research institute. The language you practiced here is not abstract: it is the living language of international conferences, medical journals, prescriptions, and patient care.

Remember always that **language is more than words**: it is the instrument of trust between pharmacist and patient, the medium of responsibility between doctor and colleague, and the tool of precision in research and discovery. To master pharmaceutical English means to be able to participate in the global medical community, to learn from the best traditions of science, and to contribute your own knowledge to the future of healthcare.

At the same time, never forget that **pharmacy is not only a science, but also an art of humanity**. Medicines can cure, but they can also harm. That is why pharmaceutical deontology, honesty, and ethical responsibility are not abstract principles but daily duties of every professional. You will face patients who depend on your clear explanations, your careful attention, and your moral integrity.

The words you use — whether in English, Uzbek, Russian, or any language — will carry power: the power to comfort, to guide, and to protect.

As you move forward in your studies and your careers, may this textbook remain for you not just a memory of assignments and tests, but a companion and a source of confidence. Use it to revise, to inspire yourself, and to remind yourself that every page you studied was an investment into your professional future.

The road of medicine and pharmacy is demanding, but it is also noble. To serve health means to serve life itself. Continue learning, continue questioning, continue searching for the best solutions. And always carry with you the belief that your knowledge, your words, and your actions can make a difference for every patient you meet.

With deep respect and best wishes for your success,

The Authors

Israilova I.X., Israilov J.D.

FOREIGN LANGUAGE IN MEDICINE (MASTERING MEDICAL TERMINOLOGY)

Textbook

Тошкент - «TIB NASHR» МЧЖ – 2025

Бош мухаррир:

А.Ж. Курбонов

Бадиий мухаррир:

Ж.О. Қучқаров

Компютерда саҳифаловчи:

М.Қ. Дўсанова

Дизайнер:

Ж.Б. Қучқоров

Нашриёт
лицензияси
№ 354396



E-mail: Tibnashr@mail.com Tel: +99891 771-55-01

Босишга рухсат етилди 12.11.2025 й.

Бичими 60x84 1/16. Офсет қоғози. «Times New Roman» гарнитураси.

Шартли босма табағи: 17,9 Адади: 100 дона

Буюртма № SIG

**«TIB NASHR» МЧЖ босмахонасида чоп
етилди. Тошкент шаҳар, Юнусобод тумани,
Посира МФЙ, Боғишамол кўчаси**