MODULE 10 | MEDICINES, PHARMACY, CONTROLLED DRUGS AND BLOOD SERVICES

Medicine Supply, Storage and Stock Control

43

LECTURE

Practical hospital governance in Punjab, Pakistan

Know what is needed, what is usable and where every batch has gone.

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SELF-STUDY PDF

Reliable supply is a patient-care responsibility

The Medical Superintendent needs assurance that the right medicine is available, fit for use and supported by a complete record.

- Estimate requirements from checked data.
- Track usable stock and plan replenishment.
- Maintain safe storage and batch traceability.
- Manage shortages, recalls and discrepancies.

OFFICIAL SOURCE

A principle tied to a named law, standard or official guidance.

WORKING METHOD

A practical control or teaching format to adapt to the authorised system.

TEACHING CASE

An invented hospital example, used to practise applying the correct process.

Study output

A checked stock plan, a batch-traceability record and an action dashboard for the pharmacy.

Module 10 | Presentation 2 of 4. Allow 45-60 minutes with exercises. All explanations are on the pages; check the cited sources before live use.

Separate legal requirements from working methods

Punjab rules, PHC standards and product-specific conditions guide the system. A spreadsheet or committee decision cannot replace required authority.

Official requirements

- Punjab Healthcare Commission (PHC) indicators 58-60 cover storage procedures, recall and expiry checks before issue and use.
- Check the legal basis for each pharmacy activity. Punjab Drugs Rules, rule 20, gives a limited practitioner exemption; this is not a blanket hospital exemption.

Methods used here

- World Health Organization (WHO) guidance supports planning. ABC/VEN categories and the calculations are management tools, not new Punjab rules.
- All quantities and service conditions in the cases are invented. Storage limits come from the actual product information, not from the examples.

Keep the current rules, amendments, licences or other applicable authority, responsible persons and procedures in one compliance file.

Sources: **S1**: indicators 58-60 | **S6**: rule 20

Give each part of the supply system an owner

Use written responsibilities and separate checks. The MS reviews unresolved risks and decisions requiring institutional authority.

Function	Main responsibility	Evidence for review
Pharmacy lead	Product, storage and supply-quality controls.	Approved procedures, checks and exception reports.
Clinical teams	Forecast clinical need and approve treatment choices.	Service plans and decisions on shortages.
Procurement / finance	Lawful orders, funds, contract and payment checks.	Approval, contract, receipt and payment trail.
Store / ward custodians	Record every movement and protect stock.	Batch records, counts and signed handovers.

The exact job titles and powers must follow the institution’s approved arrangements. A committee recommendation is not a purchase sanction.

WORKING METHOD | Illustrative material is identified in the text.

Define the item before counting it

One product code should refer to one clearly defined item. Similar names do not establish interchangeability.

01 Medicine

Use the approved generic name and product identity.

02 Strength

Record the amount per tablet, ampoule or stated volume.

03 Form and route

Distinguish tablets, injections, solutions and other forms.

04 Counting unit

Choose tablets, ampoules or packs; show pack conversion.

05 Storage

Record the product’s required conditions and handling.

06 Clinical restrictions

Identify authorised use and specialist controls.

Example: 20 packs of 10 ampoules means 200 ampoules. It does not mean 20 ampoules or 200 doses.

WORKING METHOD | Illustrative material is identified in the text.

Use actual demand carefully

A store issue, a prescription and a dose administered are different records. Choose the measure that answers the planning question.

Check the history

- Review consumption, ward balances, returns, losses and periods without stock. A transfer to a ward may still be unused stock.
- Use a consistent item and unit. Explain unusual cases, cancelled services, changes in treatment practice and missing data.

Check what will change

- Ask clinical leads about new services, seasonal workload, expected patient numbers and approved changes in treatment.
- Record each adjustment and its reason. Compare the forecast with actual use after delivery so that the next estimate improves.

Low recorded use during a shortage does not prove low need. A consumption-only forecast can repeat an existing access problem.

Sources: **S4**: quantification inputs

Worked example: a stock-out hides demand

All people, events and hospital details in this teaching example are invented. They do not describe an actual hospital event.

Observed use	In a 30-day month, 600 ampoules are used during 20 days with stock. The item is unavailable for 10 days.
Naive estimate	600 / 30 = 20 ampoules per calendar day. This includes days when use was prevented by shortage.
Adjusted estimate	600 / 20 = 30 ampoules per in-stock day. If daily demand is unchanged, 30 x 30 = 900 ampoules for a full month.
Important limit	The 900 is an estimate. Check patient activity, substitutions and whether the stocked days represent the missing days.

Do not add an adjustment twice. If unmet requests were already included in demand data, explain how they are treated.

TEACHING CASE | Illustrative material is identified in the text.

Use ABC and VEN to ask different questions

ABC examines money used. VEN examines clinical importance. Neither method alone decides a patient’s treatment.

ABC: value of use

- For each item, multiply quantity used by unit cost for the same period. Rank the resulting values from highest to lowest.
- Group the ranked items into A, B and C using stated cut-offs. A items account for the largest share of value and deserve close financial review.

VEN: clinical importance

- A clinical and pharmacy group classifies items as vital, essential or non-essential in the defined service context, using stated criteria.
- Compare the two lists. A low-cost vital item still needs reliable supply; an expensive lower-priority item needs careful justification.

These are WHO-described management methods. Agree and record the criteria; do not invent compulsory percentage rules for Punjab.

Sources: **S5**: sections 6.2.1 and 6.2.3

Understand the terms used in a stock plan

Use one item, one unit and one point in time. Usable stock excludes stock blocked from issue.

Term	Plain meaning	Planning consequence
Lead time	Time from starting replenishment to usable receipt.	Include approvals, supply and required release checks.
Safety stock	An agreed buffer for uncertainty.	Base it on clinical risk and demand or delivery variation.
Inventory position	Usable stock + reliable incoming orders - unmet commitments.	Do not count an overdue or unconfirmed order as assured.
Reorder point	A level that triggers replenishment in a continuous-review system.	Define the review process and who acts on the trigger.

No single buffer is suitable for every medicine. Shelf-life, storage space, funding and the consequence of a stock-out all matter.

WORKING METHOD | Illustrative material is identified in the text.

Worked example: calculate a reorder point

All people, events and hospital details in this teaching example are invented. They do not describe an actual hospital event.

Assumptions	Average demand is 30 ampoules per day. Full replenishment lead time is 20 days. The locally chosen buffer is 300 ampoules.
Lead-time demand	30 x 20 = 600 ampoules. Reorder point = 600 + 300 = 900 ampoules.
Current position	Usable stock 800 + reliable incoming stock 0 - unmet commitments 0 = 800 ampoules.
Decision	800 is below the trigger of 900. Start replenishment and assess the time to receipt; the trigger does not determine order quantity.

The 300-ampoule buffer is an invented assumption, not a prescribed safety-stock level or a guarantee against shortage.

TEACHING CASE | Illustrative material is identified in the text.

Worked example: calculate an order quantity

This is a separate periodic-review example. Assume even demand, no losses and delivery within the stated lead time.

Coverage period	The review interval is 30 days and lead time is 20 days. Protect 50 days at 30 ampoules per day, plus a 300-ampoule buffer.
Target position	(30 x 50) + 300 = 1,800 ampoules.
Current position	800 usable + 200 confirmed incoming - 0 unmet commitments = 1,000 ampoules.
Order estimate	1,800 - 1,000 = 800 ampoules. Check arrival timing, expiry, pack size, funds and storage before approval.

If an incoming order cannot arrive before stock runs out, a balanced total does not solve the immediate shortage. Escalate the timing gap.

TEACHING CASE | Illustrative material is identified in the text.

Connect the stock plan to lawful procurement

The pharmacy defines the need and quality conditions. The authorised procurement process determines how an order may be placed.

01 Specification

State the medicine, strength, form, pack and quantity.

02 Product status

Verify the registration or other lawful authorisation required.

03 Supplier status

Verify the licence and supply authority relevant to the activity.

04 Quality evidence

Require the applicable documents and agreed acceptance checks.

05 Delivery conditions

State storage, transport, shelf-life and batch requirements.

06 Funding / authority

Confirm the budget, sanction and contract route.

An urgent clinical need does not make an informal purchase lawful. Use the authorised route and document the patient-care response.

WORKING METHOD | Illustrative material is identified in the text.

Check the invoice, warranty and source

The documents must identify the actual supply. A familiar supplier name is not a substitute for a checked transaction.

Legal record

- Punjab Drugs Rules, rule 20, addresses purchase and sale records and the seller’s invoice and warranty. Apply the relevant provisions and current amendments.
- Match the supplier, product, batch and quantity to the order and delivery. Preserve required records under the applicable retention rules and any legal hold.

Practical verification

- Check current supplier authority through the relevant official route. Confirm doubtful product or batch details with the manufacturer or regulatory authority.
- Resolve missing or inconsistent documents through the authorised acceptance process. An invoice alone does not prove that storage or product quality was satisfactory.

A licence, product authorisation, invoice, warranty and satisfactory physical receipt answer different questions. Keep their evidence connected.

Sources: **S6**: rule 20 | **S2**: section 11.5

Inspect each delivery before releasing it for use

Prioritise products needing special storage. Record receipt promptly while the authorised quality checks are completed.

01 Identity

Correct medicine, strength, form, manufacturer and supplier.

02 Quantity

Count in the agreed unit and record shortages or excess.

03 Batch / expiry

Record each batch and its expiry separately.

04 Packaging

Check seals, damage, leakage and signs of tampering.

05 Transport

Review required temperature or other transport evidence.

06 Acceptance

Record the decision, responsible person and unresolved issues.

Separate physical receipt from release for use. Keep suspect or unaccepted stock blocked and under its required storage conditions.

Sources: **S2**: section 11.5 | **S3**: section 12

Make batch tracing possible in both directions

Choose one batch and show its route from supplier to the last recorded recipient. A total stock balance cannot provide this history.

Record	Minimum practical link	Question it answers
Receipt	Supplier, order, invoice, batch, expiry and quantity.	Where did this batch enter?
Store issue	Batch, quantity, destination, date and recipient.	Which unit received it?
Ward / patient record	Issue or administration details under the local system.	Who may have received the affected medicine?
Return / disposal	Batch, quantity, reason, authority and final receipt.	What came back or left the system?

If patient-level batch capture is incomplete, record the gap and define how a recall investigation will identify potentially affected patients.

WORKING METHOD | Illustrative material is identified in the text.

Show the status of stock as well as its quantity

A label and a system restriction must prevent stock from being issued under the wrong status.

Status	Meaning	Required local action
Usable	Accepted and available within its conditions.	Rotate stock and preserve traceability.
Quarantined	Held while a decision or investigation is pending.	Block issue; retain required storage and identify the owner.
Returned / recalled	Received back or affected by a recall.	Segregate and follow the authorised decision route.
Expired / rejected	Not available for patient use.	Keep secure pending authorised return or disposal.

An item can be physically present and financially recorded while unavailable for care. Report these quantities separately.

Sources: **S3**: sections 9, 10 and 12

Keep the store suitable for the products it holds

PHC expects storage procedures to cover temperature, ventilation, humidity, sunlight and stacking, with evidence of implementation.

Environment and layout

- Use the labelled product conditions. Keep access, inspection and cleaning practical; check shelves, drainage risks, pests and fire arrangements.
- Separate incompatible or hazardous products. Give controlled medicines the additional legal and security controls addressed in Lecture 44.

People and evidence

- Name staff who review storage records and respond to alarms or damage. Record cover for nights, holidays and staff absence.
- Walk through the store and a sample of wards. Check what actually happens, including locked cupboards, emergency trolleys and temporary storage.

A clean central store does not establish safe storage throughout the hospital. The control must continue to the point of use.

Sources: **S1**: indicator 58 | **S2**: section 11.6

Use expiry dates to control movement

First-expiry, first-out (FEFO) means using the suitable batch that expires earliest before an otherwise identical later-expiring batch.

Daily practice

- Arrange stock so that the earliest usable expiry is visible. Check expiry before issuing and again at the point of administration.
- Track short-dated stock early. Review realistic use, any authorised return or transfer, and the applicable contract conditions.

Important limits

- Do not issue an unsuitable item merely because it expires first. Keep expired stock away from working shelves and available balances.
- Remaining shelf-life on receipt must meet the applicable acceptance terms. There is no single percentage in this lecture for all products.

Opening, dilution or preparation may create a shorter use period. Follow the product and approved pharmacy instructions; printed expiry alone is insufficient.

Sources: **S1**: indicator 60 | **S3**: section 12.30 | **S8**: shelf-life on delivery

Plan the complete temperature-controlled route

Cold-chain control is a system for maintaining the product’s required conditions. It includes receipt, storage, transport and handover.

01 Required range

Use the actual approved product conditions.

02 Equipment

Use suitable, maintained storage and transport equipment.

03 Measurement

Use suitable monitoring devices with checked calibration.

04 Placement

Identify hot and cold areas to place monitoring devices.

05 Response

Define alarms, responsible staff and access outside office hours.

06 Backup

Test power failure, transfer and alternate-storage arrangements.

A mapping study measures conditions across a storage area. A single current display reading cannot show the full temperature history.

Sources: **S2**: section 11.6 | **S9**: monitoring and mapping supplements

Respond to a temperature excursion with evidence

An excursion is a departure from the required conditions. It needs an immediate response and a documented product-quality decision.

1	**Protect and hold**	Prevent further exposure; identify and block affected batches without losing the required storage conditions.
2	**Record the facts**	Save time-stamped readings, duration, extremes, device details, batches, quantities and actions taken.
3	**Obtain assessment**	The pharmacist obtains product-specific advice from the manufacturer or authorised quality source, following the applicable route.
4	**Record the decision**	Release, continued hold, return or disposal requires a documented authorised basis. Review and correct the cause.

Do not assume that an excursion makes every product unusable, or that returning to the correct temperature restores its quality.

Sources: **S2**: section 11.6

Teaching case: the refrigerator alarm was missed

All people, events and hospital details in this teaching example are invented. They do not describe an actual hospital event.

Finding	At handover, a logger shows that a medicine labelled for 2-8°C was at 12°C for 90 minutes overnight.
Immediate action	The team blocks the affected batches, preserves the logger record and moves the stock if needed to suitable monitored storage.
Quality question	Does reliable product-specific stability information support use after this exact exposure? The MS does not infer the answer from appearance.
System question	Why was the alarm not acted on? Review contact cover, alarm testing, power history, maintenance and the escalation record.

The temperatures and duration are invented facts for this case. They are not a general rule for release or destruction.

TEACHING CASE | Illustrative material is identified in the text.

Control ward stock and transfers

Stock should remain visible to the pharmacy after it leaves the main store. Avoid unrecorded redistribution between clinical areas.

Ward arrangements

- Agree the authorised stock list, quantities, custodian and access arrangements for each clinical area. Include emergency stock and out-of-hours supply.
- Replenish against a checked record. Review expiry, storage and unused stock during a defined pharmacy and nursing review.

Transfer arrangements

- Record the item, batch, quantity, source, destination and both handovers. Maintain required transport conditions.
- For inter-hospital movement, check ownership, transfer authority and receiving acceptance. Do not treat a phone request as authority to move public stock.

An internal transfer changes location, not total hospital consumption. Count it once in each location’s movement record.

WORKING METHOD | Illustrative material is identified in the text.

A return is a quality decision

A sealed pack may still have an unknown storage history. Returned stock should not automatically become usable stock.

Assessment

- Identify the batch, source, time away, storage and transport history. Check packaging, expiry and whether any recall or quality concern applies.
- Keep it in a clearly identified hold area until an authorised, competent person records the decision under the approved procedure.

After the decision

- Reissue only when quality is satisfactorily established. Follow the authorised return or disposal route if the item cannot be accepted.
- Record quantity and status changes separately. Never use a patient return to conceal a store shortage or rewrite a previous issue.

Store returns and patient returns may carry different risks. A receipt record proves that an item returned; it does not prove fitness for reuse.

Sources: **S3**: section 9

Keep a movement record that can be checked

Paper and electronic systems need the same discipline: a clear event, unit, date, source record and responsible person.

01 Every movement

Receipts, issues, transfers, returns and authorised losses.

02 Batch and status

Keep separate balances where expiry or status differs.

03 Source reference

Link the entry to a receipt, issue or approved adjustment.

04 Corrections

Preserve the original and explain the dated correction.

05 Access control

Give each user appropriate access and a traceable identity.

06 Recovery

Protect records and test recovery of electronic backups.

Set retention from the applicable law, institutional schedule and legal holds. This lecture does not prescribe one period for every pharmacy record.

Sources: **S3**: sections 13 and 17

Worked example: explain a stock difference

All people, events and hospital details in this teaching example are invented. They do not describe an actual hospital event.

Recorded movements	Opening stock 1,000; receipts 500; issues 900; accepted returns 40; documented authorised breakage 10. All are ampoules of one item.
Expected closing	1,000 + 500 - 900 + 40 - 10 = 630 ampoules.
Physical count	A checked count finds 620 ampoules. Difference = 620 - 630 = -10 ampoules; there is a shortage of 10.
Next step	Recount and check cut-offs, units, transfers and source documents. Record and escalate the unresolved difference; adjust only with authority.

A difference is evidence to investigate. It does not, by itself, prove theft, excuse a loss or authorise a write-off.

TEACHING CASE | Illustrative material is identified in the text.

Manage a threatened shortage before stock reaches zero

Keep a named item-level action plan. A hospital total can conceal a critical shortage in one service.

1	**Confirm the gap**	Check usable stock at all locations, demand, delivery dates and any quality holds.
2	**Protect patients**	Ask clinical and pharmacy leads to assess urgency, suitable alternatives and how continuing treatment will be maintained.
3	**Use authorised options**	Escalate delayed supply, approved redistribution or lawful procurement; confirm funds and permissions.
4	**Communicate and review**	Give affected staff clear instructions and review the position until safe supply is restored.

Clinical substitution requires an appropriate clinical decision. Informal rationing, hidden denial of care and unrecorded purchases are not stock solutions.

WORKING METHOD | Illustrative material is identified in the text.

Act on a recall at every affected location

PHC requires a medicine-recall procedure. Use the current official notice to identify the product, affected batches and required response.

1	**Verify and stop issue**	Confirm the authentic notice; block the affected stock and notify the responsible pharmacy and clinical leads.
2	**Trace and recover**	Search stores, wards, emergency stock and other recipients; collect and segregate affected quantities.
3	**Assess patient exposure**	Trace possible exposure from patient records. Arrange clinical review and communication according to the notice and risk.
4	**Report and close**	Send required reports through the stated route; reconcile quantities and retain evidence of return or authorised disposal.

Do not assume that the notice covers every product with a similar name. Match identity and batch, while escalating any wider quality concern.

Sources: **S1**: indicator 59 | **S7**: current recall framework

Worked example: account for a recalled batch

All people, events and hospital details in this teaching example are invented. They do not describe an actual hospital event.

Total received	The hospital received 1,000 ampoules of the affected batch. Assume no returns or transfers outside the hospital before recall.
Known destinations	Main store 400; wards 150; administration records 430; documented breakage 10; location unknown 10.
Reconciliation	400 + 150 + 430 + 10 + 10 = 1,000. Physically recovered stock is 550, not 1,000 ampoules.
Actions still open	Investigate the missing 10. Clinically review potential exposure linked to 430 administered ampoules; this is not necessarily 430 patients.

Accounted for, recovered, administered and missing are different outcomes. Do not call the recall complete merely because the total adds up.

TEACHING CASE | Illustrative material is identified in the text.

Close the disposal and financial records separately

Removing stock from use, approving a loss and physically destroying medicine are separate decisions.

Protect the material

- Secure expired, damaged and rejected items by batch and quantity. Keep any required samples and evidence while an investigation or recall remains open.
- Use the authorised pharmaceutical-waste route, with the applicable environmental and controlled-drug requirements. Ordinary rubbish or a drain is not a substitute.

Close the evidence

- Keep the inspection, reason, competent approval, handover and final disposal or return evidence. Match them to the stock record.
- Pursue supplier replacement or credit where the contract supports it. A proposed credit is not cash received, and disposal does not by itself authorise write-off.

WHO guidance calls for disposal consistent with national and local requirements. Confirm the actual Punjab route before arranging destruction.

Sources: **S3**: sections 9.7-9.8

Accept donated medicines through a planned process

A donation needs a documented acceptance decision. A zero purchase price does not remove product-quality or public-accountability duties.

Before acceptance

- Confirm a real clinical need, usable quantity and lawful product status. Check storage capacity, transport, expiry and any restrictions on use.
- Obtain the required institutional approval. Agree responsibility for unsuitable or unused stock and the costs of handling or disposal.

After receipt

- Record the donor, product, batch, quantity, expiry and any conditions. Apply the same receipt, storage, traceability and recall controls.
- Include usable donated stock in planning so it is not bought again unnecessarily. Record it under the applicable inventory and accounting arrangements.

WHO donation principles support this process. They do not confer power to accept a gift or waive Pakistan’s product and import requirements.

Sources: **S10**: recipient principles and checklist

Review a small dashboard with clear definitions

These are suggested local measures. Choose clinically important items and show the action owner, deadline and unresolved risk.

Measure	How to define it	Management question
Availability	Item and location with usable stock at the stated time.	Can the required service provide treatment now?
Stock-out days	Days with zero usable stock during the stated period.	How long was supply unavailable and why?
Expiry / loss	Quantity and value, by reason and approval status.	What can be prevented or recovered?
Open exceptions	Unresolved excursions, recalls and count differences.	Who must decide, and by when?

Example: 50 selected items over 30 days give 1,500 item-days. If 45 are out of stock, the rate is 3%; still review each critical item.

WORKING METHOD | Illustrative material is identified in the text.

Exercise 1: forecast and replenishment

Write your answer and the reason before turning to the next page.

A. Suppressed use

An item is used 480 times over 24 in-stock days in a 30-day month. Assume one unit per use and unchanged daily demand.

Estimate full-month demand and name one limitation.

B. Reorder trigger

Daily demand is 20 units; full lead time is 15 days; the chosen buffer is 100. Inventory position is 350 units.

Calculate the trigger and state the next action.

C. Incoming order

A report adds 500 ordered units to usable stock. The supplier has not confirmed when they will arrive.

What distinction should the report make?

All exercise figures are invented. Show the unit and the assumptions beside every calculation.

Answers and reasons

Use the evidence, the calculation and the cited source.

A. Estimated full-month demand: 600 units.

480 / 24 = 20 units per in-stock day; 20 x 30 = 600. This assumes the available days represent all days. Check workload, substitutions and unmet requests.

B. Reorder trigger: 400 units.

(20 x 15) + 100 = 400. A position of 350 is below the trigger. Start the authorised replenishment process and assess the immediate timing risk; order quantity needs a separate calculation.

C. Ordered stock is not usable stock.

Show physical usable stock and the uncertain order separately. Do not rely on the 500 units for continuity until the delivery timing and required acceptance are sufficiently assured.

A correct formula cannot compensate for unreliable demand data, an incomplete lead time or an unconfirmed delivery.

Exercise 2: quality and accountability

Write your answer and the reason before turning to the next page.

A. Unused return

A ward returns sealed refrigerated medicine. Its temperature record during the weekend is missing.

Can the store immediately count it as usable?

B. Recall totals

Of 200 units received, 120 are recovered, 70 are documented as administered and 5 were broken.

How many remain unexplained? What else must be reviewed?

C. Stock balance

Opening 400; receipts 300; issues 500; accepted returns 20. Counted closing stock is 210.

Calculate the expected balance and difference.

Explain the safe next action. Do not infer product quality or staff misconduct from incomplete evidence.

TEACHING CASE | Illustrative material is identified in the text.

Answers and reasons

Use the evidence, the calculation and the cited source.

A. No: keep the return on hold.

The sealed pack does not establish correct storage. Record the missing evidence and obtain the authorised product-quality assessment. Reissue requires a satisfactory recorded basis.

B. Five units remain unexplained.

200 - 120 - 70 - 5 = 5. Investigate these units, check the recall instructions and assess patients potentially exposed. Seventy administered units do not necessarily mean 70 patients.

C. Expected closing is 220; the difference is -10.

400 + 300 - 500 + 20 = 220. Counted 210 - expected 220 = -10 units. Recheck records and count, then document and escalate any unresolved shortage.

A completed spreadsheet is only part of closure. The quality decision, patient review and authorised records must also be complete.

Prepare one practical stock-control review

Use a non-confidential real case or the invented examples in this lecture.

1. Requirement

Select one medicine. Define its unit, demand evidence, lead time, buffer and replenishment calculation.

2. Traceability

Trace one batch through receipt, storage, issues and current locations. Mark missing links.

3. Action plan

Review expiry, storage and open exceptions. Name each action owner, authority and review date.

Ask a pharmacist and a finance or stores reviewer to check the assumptions and record trail. Remove patient and supplier-confidential details from teaching copies.

A useful review ends with a checked decision and follow-up responsibility, not only a description of the problem.

WORKING METHOD | Illustrative material is identified in the text.

Sources and continued use | 1

Select a source title or its official-source link to open the document.

S1

Minimum Service Delivery Standards for Hospitals

PHC, 2024 cover edition; CG-01MS-Ed2-01092023. Standard 9, MOM-2: indicators 58-60 cover storage, recall and expiry checks. Apply the standards relevant to the hospital.

Punjab Healthcare Commission | **Official source**

S2

Good Distribution Practices: pharmaceutical and biological products

DRAP, Edition 01; effective 1 March 2023. Sections 11.5-11.6 address receipt and labelled storage conditions, monitoring and excursions. Apply guidance within the relevant legal requirements.

Drug Regulatory Authority of Pakistan | **Official source**

S3

Good storage and distribution practices for medical products

WHO Technical Report Series 1025, Annex 7, 2020. Sections 9-10, 12-13 and 17 address returns, recalls, storage, stock records and traceability. International technical guidance, not a Punjab statute.

World Health Organization | **Official source**

Educational material by Dr Qurban Hussain Khan. Source editions are stated; verify later amendments and applicable institutional orders before live use.

Sources and continued use | 2

Select a source title or its official-source link to open the document.

S4

Medicines supply: quantification and forecasting

WHO technical webpage, accessed 5 October 2026. Explains consumption, stock, incoming orders, financing and safety stock. Calculations and assumptions in this lecture are original teaching examples.

World Health Organization | **Official source**

S5

Drug and therapeutics committees: a practical guide

WHO, 2003; WHO/EDM/PAR/2004.1. Chapter 6, sections 6.2.1 and 6.2.3: ABC and VEN analysis. These are management methods; this lecture sets no compulsory Punjab percentage cut-offs.

World Health Organization | **Official source**

S6

Punjab Drugs Rules, 2007

Official DRAP-hosted base text; read with later Punjab amendments. Rule 20 addresses records and invoices/warranties. Its practitioner exemption is limited; it is not a general hospital exemption.

Government of Punjab; hosted by DRAP | **Official source**

Educational material by Dr Qurban Hussain Khan. Source editions are stated; verify later amendments and applicable institutional orders before live use.

Sources and continued use | 3

Select a source title or its official-source link to open the document.

S7

Guidelines on Recall of Defective Therapeutic Goods

DRAP, second edition; QALT/GL/RA/001, effective 8 October 2024. Use the current official recall notice for the affected product, batch, scope and required response.

Drug Regulatory Authority of Pakistan | **Official source**

S8

Remaining shelf-life of medical products upon delivery

WHO Technical Report Series 1044, Annex 8, 2022. Technical guidance on setting remaining shelf-life requirements. The applicable tender and contract conditions still need to be checked.

World Health Organization | **Official source**

S9

Storage and transport of temperature-sensitive products

WHO Technical Report Series 992, Annex 5, 2015: technical supplements to TRS 961, Annex 9. Monitoring, mapping and equipment control support product-specific storage requirements.

World Health Organization | **Official source**

Educational material by Dr Qurban Hussain Khan. Source editions are stated; verify later amendments and applicable institutional orders before live use.

Sources and continued use | 4

Select a source title or its official-source link to open the document.

S10

Donations of medicines and medical devices

WHO technical webpage, accessed 5 October 2026. Recipient need, coordination, national requirements, donation records and arrangements for unused products guide the acceptance decision.

World Health Organization | **Official source**

Educational material by Dr Qurban Hussain Khan. Source editions are stated; verify later amendments and applicable institutional orders before live use.