

FOREWORD

During the Alma-Ata conference of 1978, the availability and accessibility of essential drugs were reaffirmed as basic components of primary health care. Since the establishment of the Bhutan Essential Drugs Programme (EDP) in 1986, many efforts have been made towards ensuring regular access to essential drugs. However, available drugs need to be well managed in order to meet public health needs. Appropriate management of medical supplies within an appropriate policy and legal framework contributes significantly to getting the maximum output of limited resources available for essential drugs.

This manual has been revised a number of times in consultation with all relevant stakeholders. It is hoped that this manual will serve as a useful tool for management of medical supplies, particularly for those health workers who have had no formal training in supplies management.

Any feedback or comments from the users regarding the manual are most welcome so that subsequent editions can be made more user-friendly.

Program Manager
Essential Drugs Programme
Department of Medical Services
Ministry of Health, Thimphu.

Tel: +975 2 325722
Fax: +975 2 323809
Email: edp@druknet.bt

TABLE OF CONTENTS

ABBREVIATIONS 3

CHAPTER 1: INTRODUCTION 5

CHAPTER 2: ROUTINE STORE MANAGEMENT TASKS 8

CHAPTER 3: SETTING UP YOUR MEDICAL STORE..... 11

CHAPTER 4: ARRANGING YOUR SUPPLIES 16

CHAPTER5: RECORD KEEPING..... 24

CHAPTER 6: RECEIVING SUPPLIES 31

CHAPTER 7: ISSUING SUPPLIES..... 36

CHAPTER 8: MAINTAINING THE QUALITY OF YOUR PRODUCTS..... 39

CHAPTER 9: REPORTS 48

CHAPTER 10: ORDERING ADDITIONAL SUPPLIES & INDENTING DRUGS OUT OF EDL 55

CHAPTER 11: PROPOSAL FOR CHANGES TO THE ESSENTIAL DRUGS LIST..... 62

CHAPTER 12: MONITORING, EVALUATION AND SUPERVISION..... 63

CHAPTER 13: GOOD DISPENSING PRACTICES..... 66

ANNEX1: CONVERSION FACTORS 69

ANNEX 2: CD FORM 71

ANNEX 3. CHECKLIST FOR BHU VIST 72

ANNEX 4: SUPPLIES MANAGEMENT CYCLE..... 74

ABBREVIATIONS

BHU	Basic Health Units
DMS	Department of Medical Services
DHSO	District Health Supervisory Officer
DHO	District Health Officer
DRA	Drug regulatory Authority
DVED	Drugs, Vaccines & Equipment Division
EDL	Essential Drugs List
EDP	Essential Drugs Programme
JDWNRH	Jigme Dorji Wangchuk National Referral Hospital
MSD	Medical Supply Depot
VHW	Village Health Worker
WHO	World Health Organization
QASD	Quality Assurance and Standardization Division
DRA	Drug Regulatory Authority

In Prescriptions:

Amp = Ampoule Once a day

Cap = Capsule

IM = Intramuscular

IV = Intravenous

SC = Subcutaneous

ml= millilitre

mU = Million (mega) Unit

Mcg = Microgram

Supp = Suppository

Tab = tablet

kg = Kilogram

mg = Milligram

mg/kg = Milligram per Kg body weight (a way of calculating dose)

G = gram

Tsp = Teaspoonful (5ml)

Wt = Weight

Bid = twice a day

HS/nocte = at bed time

Od = Once a day

sos/Prn = When necessary

Qid (qds) = Four times daily

Stat = at once

Tid/tds = thrice daily

Qid = 4 times a day

CHAPTER 1: INTRODUCTION

What is Management?

Management is the art of being responsible or in charge and conducting or supervising something with a degree of skill and address.

Why manage drugs?

Three reasons can be given to explain why drugs need to be managed.

1. The availability or absence of drugs will contribute to the positive or negative impact on the health.
2. Proper drug management can save money and improve access.
3. Political, economic, financial and traditional considerations have become so crucial that it has become imperative to look at drugs and health care from these perspectives.

All of these factors contribute to appropriate financial expenditure, avoid wastage, increase access and ensure that drugs are properly used. This particular book deals mostly on the management of medical supplies at a health facility and a brief chapter on Good Dispensing Practices. Maintaining proper storage conditions for health commodities is vital to ensure their

quality. Product expiration dates are based on ideal storage conditions and protecting product quality until their expiration date is important for serving customers and conserving resources. Dispensing requires an understanding of the patients. A dispenser must have practical skills in dispensing as well as record keeping.

Aims and Objectives

It aims to ensure that all persons in charge of stores and those dispensing can effectively undertake their responsibilities. This book contains written directions and clear illustrations on:

1. Receiving, arranging and issuing supplies
2. Special storage conditions
3. Record Keeping
4. Maintaining the quality of products
5. Indenting drugs out of the EDL
6. Good Dispensing Practices

Major Responsibilities

A person in charge of a store of a store has six major responsibilities, these are to:

- Maintain an orderly and secure store and store supplies under correct conditions
- Maintain stock ledgers for all supplies
- Receive supplies and Issue supplies
- Provide information on use/availability of supplies to other health staff
- Order additional supplies
- Prepare and submit six monthly drug reports

Qualities and/or Attitudes Required

There are three qualities that a storekeeper must develop to be able to do the job properly; these are:

- Promptness – that means do it today. If you wait until tomorrow or next week to make an entry in your stock ledger, you may forget.
- Accuracy – record/count the exact amount. Do not guess.
- Neatness – make sure that someone else can read your writing and find where you keep things.

CHAPTER 2: ROUTINE STORE MANAGEMENT TASKS

Note: Specific tasks may differ based on locally established guidelines, procedures, and regulations, or the level in the system (e.g., district, region, or central).

Daily

- Monitor storage conditions.
- Sweep or scrub floors
- Ensure that the passages are clear
- Ensure adequate ventilation and cooling
- Ensure that products are protected from direct sunlight.
- Monitor store security and safety
- Check the store roof for leaks, especially during the rainy season and during or after a storm.
- Monitor product quality (Visually inspect commodities and check expiration dates)
- Ensure that products are stacked correctly (are the lower cartons being crushed?).
- Update stock records and maintain files.
- Submit emergency order.
- Update back-up file for computerised inventory control records.
- Update bin cards.

Weekly

- Clean receiving, storage, Packing, and shipping areas.
- Remove garbage
- Clean bins, shelves, and cupboards, if needed
- If cycle counting, conduct physical inventory and update stock keeping records.
- Check for signs of rodents, insects, or roof leaks.

Monthly

- Conduct Physical inventory
- Inspect the storage structure for damage, including the walls, floors, roof, windows, and doors.
- Monitor stock levels, stock quantities, and minimum reorder level.
- Separate expired stocks and move to secure area. Use established procedures to dispose of expired or damaged products (as per the financial manual)
- Visually inspect fire extinguishers to ensure that pressures are maintained and extinguishers are ready for use.

Every 6 months

- Conduct complete physical inventory and update stock keeping records.

- Reassess maximum/minimum stock levels, and adjust if needed.

Tasks according to recorder interval and reporting schedule

- Assess stock situation
- Complete and submit requisition form (indent system)
- Determine issue quantity and issue products
- Receive products.
- Store products using correct procedures; rearrange commodities to facilitate the first expiry, first-out (FEFO) policy (See section on receiving and arranging products.)
- Complete required reporting and documentation.

CHAPTER 3: SETTING UP YOUR MEDICAL STORE

Constructing a medical store

When constructing a medical store, consider the following:

Location: The store must be accessible to all the health facilities and units to be served.

Drainage: Build the store on a raised foundation to allow rainwater to drain away from the store.

Accessibility: Locate the store so that supplies can be easily received and distributed.

Security: Provide the store with adequate security from thieves, fire, etc.

Designing a medical store

Consider the following when designing storage facility:

Capacity/space: Ideally, space should be evenly divided between the two for drugs and non-drug supplies.

Cold storage: In larger facilities it is more efficient to use cold rooms rather than numerous refrigerators or freezers (which generate heat). Ideally, larger facilities should have one room with a negative temperature for frozen products (-20degree c) and another room with a positive but cold temperature (2° - 8° C) for products requiring refrigeration.



Secure storage: All medical stores should have a secure storage area for products that are likely to be stolen or abused.

Ventilation: The location and design should ensure maximum air circulation to avoid concentrations of fumes or gases and to prevent condensation of moisture on products or walls.

Roof: Design a slanting roof to allow water run-off.

Ceiling: install a double ceiling to provide insulation and ensure that supplies are kept cool.

Walls and floor: The walls and floors of a medical store should be permanent and smooth for easy cleaning.

Doors: Plan doors wide enough to allow for the free and easy movement of supplies and handling equipment.



Lighting: plans the storeroom with as much natural light (sunlight) in the day as possible to avoid the use of artificial lighting system.

Windows: Plan windows that are high and wide to allow adequate ventilation.

Cupboards: Provide cupboards for the storage of specific products that must be kept free from dust or light.

Shelves: Arrange shelves and racks in lines with a passageway not less than 90 cm wide.

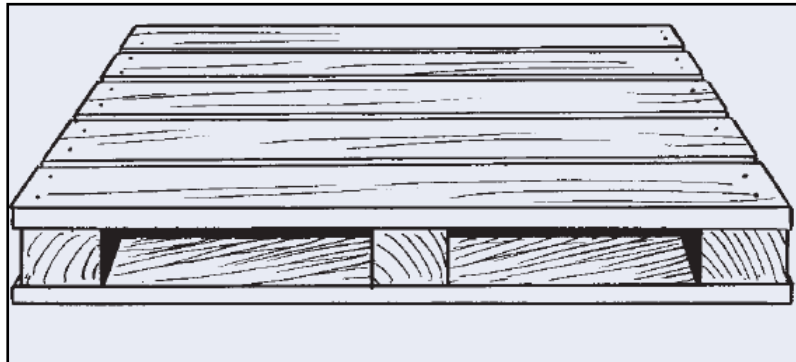
Materials for Handling Equipment and Storage Media

Shelves and cupboards

Use shelves and cupboards to store smaller products. Adjust the shelves as needed to allow for packages of different sizes.

Pallets

Pallets are used to store bulk items and larger cartons. They keep things off the floor and can be



used with forklifts to move around groups of larger items.

Shelves, cupboards, tables, and pallets can be made of wood, metal, and plastic.

A good stock control system

- *Prevents under stocking and stock outs*
- *Prevents over stocking and drugs expiring before they can be used*
- *Prevents shortage in case of delay in delivery*
- *Ensures that your store works well even when there are changes in staff*
- *Ensures efficient use of financial resources*

CHAPTER 4: ARRANGING YOUR SUPPLIES

For all storage:

- Keep all stock in alphabetical order according to generic name.
- Follow the manufacturer labels for storage conditions.
- Place liquid products on the lower shelves or on bottom of stacks.
- Store products that require cold storage.
- Store all controlled and restricted items under lock and key.
- Separate damaged or expired products from the usable stock without delay, and dispose of using established disposal procedures
- Always store all commodities in a manner that facilitates FEFO (first expiry first out) policy for stock management.



- Arrange cartons so that arrow point up and identification labels, expiry dates, and manufacturing dates are visible. If this is not possible write the product name and expiry date clearly on the visible side.

What is a generic name?

The generic (medical) name is the universal name of the drug, which remains the same no matter who and where it is manufactured.

What is a trade name?

The trade (brand) name is the name given to a drug by the manufacturer. Different manufacturers give different trade names for the same drug.

Examples:

Generic name

Paracetamol

Hydrochlorthiazide

Cotrimoxazole

Ampicillin

Trade name

Crocin

Esidrex

Septran

Roscillin

Stock Rotation

When issuing supplies, it is important to follow the **first expiry first out (FEFO)** policy. Following FEFO minimise wastage from product expiry.

- Always issue products that will expire first.
- To facilitate FEFO, place products that will expire first in front of products with a later expiry date.
- Mobilization of drugs should take place at least 3 – 6 months before they expire.



Special storage conditions

Some products need storage in an access-controlled environment. It is important to identify products that are at risk of theft or abuse or have the potential for addiction, and to provide increased security for those items. This includes products that are in high demand or have the potential for resale (black market value). Usually, National Essential Drugs Lists (EDL) includes

several narcotics and psychotropic medicines; one or two will be on facility lists. Typical examples are:

Narcotics: morphine, Pethidine, tramadol, fentanyl, codeine, dextropropoxyphene etc.

Psychotropic drugs: Usually the group of drugs called “benzodiazepines”, the more common being diazepam, and lorazepam.

Other drugs as and when identified by the DRA

Some of the medicines mentioned earlier are controlled substances, which are medicines handled under international control. These medicines need greater attention. There are specific procedures in place for the procurement, reception, storage, dispensing, and administration of controlled substances. Special indenting forms known as CD forms should be used (see Annex 2). These forms should be filled in completely for each drug and used while indenting and issuing controlled drugs. The old forms should be maintained properly in files at the medical store or Pharmacy.

Examples of access-controlled storage

If you have products that need increased security, you must establish access-controlled storage. This will probably include storing the product in a separate locked room, cabinet, or safe, or entry to the location of the access – controlled products must be limited to the most senior storekeeper or pharmacist and one other staff member.

Flammables

Some flammable liquids commonly found in health facilities include acetone, anaesthetic ether, ethanol, dehydrated alcohol, ethyl chloride, spirits (before dilution), and Kerosene. Large supplies of flammables should never be stored in the same areas as medicines.

Flammable liquids each have a flash point, which is the minimum temperature at which the liquid gives off vapour in sufficient concentration to form an ignitable mixture with air near the surface of the liquid. The flash point indicates the susceptibility to ignition.

- Acetone and anaesthetic ether have a flash point of – 18° C.
- Undiluted alcohol's have a flash point of 18 to 23°C.
- The flash point for kerosene is 23 to 61° C.

It is not necessary to store flammables below their flash point, but it is very important to store them in the coolest location possible and never in direct sunlight.

Corrosives

Corrosives or oxidant substances commonly found in hospitals or other high-level health facilities include trichloroacetic acid, glacial acetic acid, concentrated ammonia solutions, silver nitrate, sodium nitrate, sulphuric acid and sodium hydroxide pellets. Always store corrosive substances away from flammables, ideally in a separate steel cabinet to prevent leakage.

Exercise 1

Match the trade name with its generic name.

Promethazine

Chlorpheniramine

Methylethergometrine

Frusemide

Metronidazole

Chlorhexidine + cetrimide

Hydrochlorthiazide

Paracetamol

Savlon

Crocin

Phenergan

Avil

Esidrex

Metrogyl

Methergin

Lasix

Exercise 2

Which drug should you use first?

Ampicillin 250mg capsules

Exp date 5/04

Exp date 10/04

Exp date 4/04

Chlorpromazine 25mg tablet

Exp date 4/05

Exp date 5/05

Exp date 12/04

Dextrose 5%

Mfg date 3/4

Mfg date 3/03

Mfg date 3/02

Chloramphenicol 1 g injection

Mfg date 11/03

Mfg date 11/04

Exp date 12/05

CHAPTER5: RECORD KEEPING

An accurately maintained, up to date stock ledger means that you can always know exactly how much you used of each drug or any other medical supply. This enables you to complete your six monthly drugs report (6MDR) and annual indent correctly, and make accurate predictions about how much you will need in the future.



How should you maintain stock ledgers?

- *Decide how many stock ledgers are required.*
Most BHUs should only require one ledger for both drugs and non-drug supplies.
- *Keep a separate page for every item, which is either in stock or expected to be in stock.*
Items should be entered in alphabetical order according to generic name. Keep the different types of supplies together in one section of your ledger. For e.g. enter all linen

and dressing first, then all lab supplies next. For large hospitals like the National Referral Hospitals, It is advisable to keep separate ledgers for different departments.

If a drug comes in two different strengths, prepare two different pages. If non-drug items come in different sizes, prepare different pages for each item. Keep several pages for drugs or items frequently supplies/used e.g. Paracetamol, cotton, ORS etc.

Make an index of page numbers. Keep your index up to date. If you start a new page for a drug, enter the new page number on the index page as well as at the bottom of the old page.

Setting up your new ledger

Date	Balance transferred from old stock ledger page 147	Balance
1/5/04		3000

Closing your old stock ledger

Date	Balance transferred to new stock ledger page 223	Balance
1/5/04		Nil

The following information must be filled in correctly at the top left-hand corner of your page:

- Name (e.g. Aspirin, Forceps etc)
- Strength (e.g. 300mg, size"4 inch" etc.)
- Dosage form (e.g. tablet, injection, ointment etc.)
- Bin number (enter the number of the shelf where the item is kept)
- Recorder level (the stock level at which you should request for more stock)

Stock Ledger (sample page)

NAME: Paracetamol ROYAL GOVERNMENT OF BHUTAN
 STRENGTH: 500MG MINISTRY OF HEALTH
 DOSAGE FORM: Tablet DEPARTMENT OF MEDICAL SERVICES
 BIN NUMBER: K4
 REORDER LEVEL: 5000 MSD/HOSPITAL/BHU _____

RECEIPT									ISSUE				
Date	Received from	Issue note no	qty	Rate & unit	Total value	Manf date	Exp date	Batch no	Issued to	Issue note no	qty	balance	sign
2/10/07	MSD	123	10000			8/07	8/09	P06					
10/12/07									OPD	67	5000	5000	

Minimum recorder level reached. Order for additional stock

Formula for Minimum Recorder Level = $\frac{\text{Quantity used in the past 3 years}}{\text{No of months in stock}} \times 3 \text{ months}$

- *Update your stock ledger every time you receive or issue supplies.*
Ensure your ledger is up to date every week. Read the store issue notes (SIN) carefully and double Check that you are making entries on the correct page.
- *Fill in the information in each column in your stock ledger*
- (See sample stock ledger page, page 26)

Exercise 3

Which of these pairs should be entered on separate pages and which ones on the same page of a stock ledger book?

- 1) ampicillin 250mg tab
ampicillin 250 mg cap
- 2) Chloramphenicol 250mg caps
Chloramphenicol 250mg applicaps
- 3) benzathine penicillin 12 lakh injection
benzathine penicillin 24 lakh injection
- 4) Esidrex 50mg tab
hydrochlorthiazide 50mg tab
- 5) lignocaine 2% injection
lignocain 2% + adrenaline 1:100000 injection

- 6) adrenaline injection
epinephrine injection
- 7) dextrose 5% IV
glucose 5% IV
- 8) cotrimoxazole 480mg tab
sulphamethoxazole 400mg + trimethoprim 80mg tab

CHAPTER 6: RECEIVING SUPPLIES

(i) Check the MSD delivery challan

This will be given to you by the driver. First check whom the consignment is for and that the consignment number is correct. The consignment number is the store issue note number. Then count the number of boxes as specified in the challan.

ii) Verify the delivery challan

Note any errors such as missing boxes or wrong consignment number, etc. on all copies of the challan. Give one copy of the challan to the driver. The other copies are to be kept with you and the Dzongkhag (to claim porter charges if applicable).

iii) Open boxes

Do this within one day of receiving the boxes. Boxes containing only one type of item such as IV fluids or ORS may be stored unopened if you are sure about the contents, but always check for breakages.

iv) Check the contents

The store issue note will be inside a box marked “PS” (packing slip). Check the contents of the boxes against the store issue note for the:

- Correct item
- Correct size, strength and dosage form
- Correct quantity

Do this very carefully to avoid any problems later on.



v) Verify the SIN (store issue note)

- Note the quantity of each items received on SIN
- Note any errors
- Broken equipment's must be sent back to MSD for replacement
- Sign the SIN, write your name and return yellow copy to MSD within 2 weeks

Store Issue Note (Sample page)

ROYAL GOVERNMENT OF BHUTAN
MEDICAL SUPPLY DEPOT
PHUENTSHOLING BHUTAN

Issued to

Distribution order no:

Date:

Date:

Sl. No	Qty supplied	Name of items	Batch no	Exp date	Stock no	Remarks

Signature & Date
Store incharge

Signature & Date
Packing section

Signature & Date
Consignee

(Please return yellow copy to MSD)

vi) Store all received supplies in their proper places

- Check expiry date and store accordingly
- Ensure that all containers are sealed and labelled

vii) Enter the items received in your stock ledger

- Use SIN to enter the items received (do not include broken items)
- Enter the ledger page no. on the SIN

viii) Procedure for receiving supplies from other health centres

Follow the same procedure. You may not receive a store issue note but you should receive a letter listing what is being issued to you. In the “Issue note no.” column of the ledger, write down the reference number of the letter. You should write back informing what you have received.

Physical Inventory

A physical inventory is the process of counting by hand the number of each type of product in your store at any given time. A physical inventory helps ensure that the stock on hand balances recorded on stock keeping records match the quantities of products actually in the store. When conducting a physical inventory, count each product individually by generic name, dosage form, and strength.

After conducting a physical inventory, update your stock records accordingly and mention the dates. Take actions based on the results of the physical inventory:

- If the results of the physical inventory differ from the balance on the stock/bin card, update the balance by adding or subtracting the excess or missing quantities.
- Dispose off damaged or expired products found during the physical inventory. The balance should be deducted from the ledger too.
- For either of the above, identify, document, and correct the cause of the problem.

CHAPTER 7: ISSUING SUPPLIES

(i) Arrange a routine time of day to issue supplies

- Arrange a particular time or day to issue supplies to different units. For e.g. in big hospitals you may have separate days of the week to issue supplies to different units/departments while in smaller health centres you may arrange one day of the week
- Indent forms should be used while requesting for supplies (see page 37). The DMO/DHSO or any other authorised personnel should countersign these.
- Arrange to have separate indent books for drugs and non-drug supplies.

ii) Take the required items from the shelves

- Check the expiry dates to see you are issuing the oldest drugs first.
- If you open a container of 1000 paracetamol tablets and you issue only 500, make sure that the container is air tight and marked properly so that you will remember that it has been opened. A red cross is an easy sign to use.

iii) Enter all items issued in your stock ledger

- Enter in the stock ledger as well mark on the indent form the quantity you have issued
- Sign and return one copy.

iv) Issue to other health centres

Follow the same procedure when issuing supplies to other health centres. You will need to write a letter with details of what you are supplying. One copy should be sent along with the medicines and the other retained along with the requisition letter.



OPD Requisition Form (sample)

JIGME DORJI WANGCHUK NATIONAL REFERRAL HOSPITAL

Department/Unit.....

No.....

Date.....

Sl. No	Items	Qty being used	Qty requested	Qty issued	Stock folio no

Requested by

Checked by

Issued by

.....

.....

.....

CHAPTER 8: MAINTAINING THE QUALITY OF YOUR PRODUCTS

Monitoring product quality

Damaged products should never be issued to facilities or dispensed to clients. Report any defects by filling in the “Quality Complaint form” and send it to DVED with a copy to QASD. Do not dispose off the supplies until you are told to do so by DVED.

Indicators of quality problems:

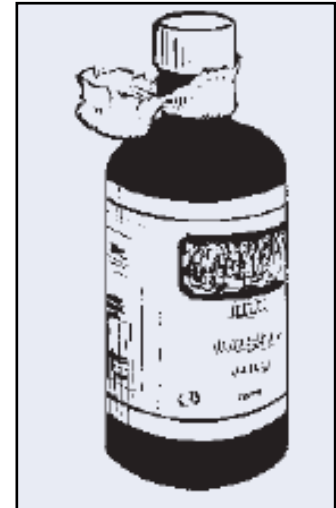
Products of different types show damage in different ways. Some indicators you can use to detect damages are:

All products

- broken or ripped packaging (vial, bottles, boxes etc.)
- missing, incomplete, or unreadable label(s)

Liquids

- discoloration
- cloudiness
- sediment
- broken seal on bottle



- cracks in ampoule, bottle or vial
- dampness or moisture in the packaging

Light sensitive products

- torn or ripped packaging

Latex products

- dry
- brittle
- cracked



Lubricated latex products

- sticky packaging
- discoloured product or lubricant
- stained packaging
- leakage of the lubricant (moist or damp packaging)

Foil packs

- perforation(s) in packaging

Capsules

- discoloration
- stickiness
- crushed capsules

Pills (tablets)

- discoloration
- crumbled pills
- missing pills (from blister pack)
- stickiness (especially coated tablets)
- unusual smell

Injectables

- liquid does not return to suspension after shaking



Sterile products (including IUDs)

- torn or ripped packaging
- missing parts
- broken or bent parts
- moisture inside packaging
- stained packaging

Tubes

- sticky tubes
- leaking contents
- perforations or holes in the tube

Chemical reagents

- discoloration

Preventing damage

- Avoid crushing products stored in bulk.
- Products should be stacked no more than 2.5m (8 feet) high, as a general rule.
- Heavier or fragile items (such as those packaged in glass) should be placed in smaller stacks.

Protection against pests

Prevention inside the storage facility

- Design or modify the storeroom to facilitate cleaning and prevent moisture.

- Maintain a clean environment to prevent conditions that favour pests. For example, store garbage in covered garbage bins. Regularly clean floors and shelves.
- Do not store or leave food in the storage facility.
- Keep the interior of the building as dry as possible.
- Paint or varnish wood, as needed.
- Use pallets and shelving
- As far as possible prevent pests from entering the facility.

Prevention outside the storage facility

- Regularly inspect and clean the outside premises of the storage facility, especially areas where garbage is stored.
- Check for still or stagnant pools of water in and around the premises.
- Treat wood frame facilities with water sealant, as needed.

Controlling Temperature

Humidity

When product labels say, "Protect from moisture," store the product in a space with no more than 60% relative humidity. To reduce the effects of humidity consider:

- Ventilation
- Packaging secures all lids. Never open a new container unless necessary.
- Circulations – use fans or ceiling fans
- Air conditioners

Sunlight

Some health products are photosensitive and will be damaged if exposed to light. These include multiple vitamins, frusemide chloropheniramine, hydrocortisone, latex products (such as condoms and gloves), and x-ray films. To protect products from sunlight:

- Shade the windows or use curtains, if they are in direct sunlight
- Keep products in cartons.
- Do not store or pack products in sunlight.

Heat

Remember that heat will affect many products. It melts ointments and creams and causes other products to become useless. Following the guidelines listed earlier for protecting products from humidity and sunlight will also help products from heat. It is important to have thermometers in various parts of the storeroom to monitor temperature (see section on monitoring temperature).

Monitoring

Consistently monitor the temperature of the different areas within the storeroom.

- Keep thermometers in various places for monitoring.
- Keep the storeroom well ventilated (see section on humidity). For better ventilation, store boxes on pallets and leave room between rows of stacked boxes.
- Prevent direct sunlight entering the storeroom.

Refrigerators and freezers

- Always have enough frozen icepacks to transport items requiring cold storage in cold boxes and/or vaccine carriers. Use only icepacks filled with water.
- Place a few plastic bottles of water in the refrigerator. This will help maintain the temperature for a long period of time if the power is cut off.
- Place refrigerators with space between and about an arms length away from the wall. This will increase the air circulation.
- Under ideal conditions, rooms with multiple refrigerators and or freezers should have air conditioning. Refrigerators and freezers generate large amounts of heat, which can damage the equipment over time. Alternatively use fans.
- Ideally, larger facilities should have a cold room rather than numerous refrigerators.

Common terms

The following terms relate to temperature and medical supplies. It is important to follow the manufacturers recommended storage conditions for all products.

Store frozen: Some products, such as certain vaccines, need to be transported within a cold chain and stored at -20°C (4°F). Frozen storage is normally for longer-term storage at higher-level facilities.

Store at 2 - 8° C (36 - 46° F): Some products are very heat sensitive but must not be frozen. These are usually kept in the first and second part of the refrigerator (never the freezer). This temperature is appropriate for storing vaccines for a short period of time.

Keep cool: Store between $8-15^{\circ}\text{C}$ ($45-59^{\circ}\text{F}$).

Store at room temperature: Store at $15-25^{\circ}\text{C}$ ($59-77^{\circ}\text{F}$)

Store at ambient temperature: Store at the surrounding temperature. It means, “room temperature” or normal storage conditions, which means storage in a dry, clean well-ventilated area at room temperatures between $25-27^{\circ}\text{C}$ or up to 30°C , depending on climatic conditions.

Medicines with stability problems under tropical conditions:

1. Oral solids (tablets)

Acetylsalicylic acid

Amoxicillin

Ampicillin

Penicillin V

Retinol

2. Oral liquids (syrups)

Paracetamol

3. Injections/Injectables

Ergometrine

Methylethergometrine

Adrenaline

Reconstituted antibiotics

Source: *Quick JS, Rankin JR, Laing RO, O'Connor RW, Hogerzeil HV, Dukes MN, Garnett A, (editors). 1997. Managing Drug Supply, 2nd ed. West Hartford CT: Kumarian Press.*

To,
The Chief Procurement Officer
Drugs, Vaccines & Equipment Division
Thimphu, Bhutan

File no:

Date:

Quality of Drugs Complaint Form

1. Name of the drug.....Strength.....
2. Dosage Form (tab/cap/injection/syrup/Ointment).....Manufacturer.....
3. Batch number.....Expiry date.....

We would like to report the following problem (s):

- i) Difficult to administer ()
- ii) Poor labelling ()
- iii) Ineffective ()
- iv) Discoloration/other physical change at time of receipt ()
- v) Volumes or quantities less than that stated on the label ()
- vi) Other quality problem

More details of the quality problem:

Name.....Designation.....Hospital/BHU.....

CHAPTER 9: REPORTS

As a storekeeper you should always be communicating with the other Hospital/BHU staff about what is available and what is needed. The six monthly drug report and-drugs annual indent is very important reports used by DVED to predict the quantities of supplies needed by each health facility. It also facilitates mobilization and use of supplies before their expiry.

Completing your Six Monthly Drug Report (6MDR)

Monthly use:

- Check your ledger carefully for the quantity of each drug used every month.
- Do not record drugs issued to other health centres; these should be reflected separately.
- If a drug was out of stock, enter “O/S
- If a drug was not used, enter”...”
- Do not leave the quantity issued column blank

Total:

Add up the amount of each drug used in the past six months

Balance in stock:

- Do not include stock, which has already expired
- Check the shelf to make sure that the Physical and book balance tallies. If there is a difference, enter the physical balance

Mfg & Exp. Date:

- This is needed so that DVED can see whether a drug will expire before the next distribution from MSD
- This also indicates if a drug needs to be mobilized/redistributed.

Quantity required:

Monthly consumption (average monthly use) can be obtained by:

- Calculating the average consumption over a period of time (e.g. one year or six months)

The type and quantity of drug to be ordered will depend on:

- the disease pattern of the area served by the health centre,
- the quantity previously consumed
- the period for which the new stock is to serve
- number of patients

In determining the quantity to be requested, other factors also need to be considered, such as:

- the lead or delivery time
- number of patients to be treated (using standard treatment guideline, where possible)
- present stock balance and expiry date
- type of facilities and services provided by the health centre

The following formula maybe used a guide for quantification:

$$\text{Quantity required for one year} = \text{Average Monthly Use} \times 26 - \text{Expected Dec Balance}$$

At the end of the report, list down all the drugs, which you would like to be mobilized if, you have in excess.

Six Monthly Drug Report (sample page)

Drug	Jan/Jul	Feb/Aug	Mar/Sep	Apr/Oct	May/Nov	Jun/Dec	Total issued	AMU	Balance	Exp date	Qty required

Note*

Although the formula will guide you while quantifying your requirement for the next one year, there are several other factors which must be taken into consideration:

- Expiry date of your stock balance is very important. This will give you an idea how long the stock will last and what quantity needs to be mobilized to other health centres.*
- Calculations must also take into account when your next annual supply is due to arrive and what quantity has been specified in the distribution order.*
- The quantity will also depend on the morbidity pattern of that place as well as the prescribing pattern with the changing of doctors.*

Report expired drugs

Fill the “inventory and inspection report” form as follows:

- Serial number – enter a serial no. for each item you enter
- Generic name – do not write trade names. Enter tab, inj, oint etc.
- Strength – e.g. 500mg, 10%, 2mg/ml etc.
- Quantity expired
- Manufacture date
- Receipt date – you can get this information from the stock ledger
- Page number – enter the ledger page number which the expired drugs was on
- Value – this will be calculated by the DVED
- Reasons – list down the reasons for expiry e.g. received short expiry stock, usage dropped due to....etc

Based on this, the local or designated authority will process for write off sanction.

After the approval has been granted, the drugs have to be disposed off by appropriate method in the presence of representatives from the Hospital, Dzongkhag, Police and the store in charge.

Completing your annual indent for non-drug supplies (consumables)

Some non-drug supplies are consumables like cotton, gauze, needles etc. the following formula may be used to calculate the quantity required:

$$\text{Quantity required} = \frac{\text{amount used}}{\text{No of months in stock}} \times 26 \text{ months}$$

Completing your annual indent for non-drug supplies (non-consumables)

Some non-drug supplies are non-consumables such as scissors, forceps etc. Even non-consumables sometimes wear out or get lost so you have to indent new supplies to replace the old ones.

The following information may be useful while quantifying your requirement:

- How many of each item is in use?
- How many are broken, old, unserviceable etc. and need to be replaced?
- How many of the new unused ones are in stock?

- Calculated how many of each item to order by using the formula:

$$\text{Quantity to be ordered} = \text{quantity required} - \text{new balance in stock}$$

NOTE:

If the balance in stock is unserviceable (useless), this must be mentioned in the column “Reason for replacement/additional”. Always discuss with the in charge of the respective departments/units while preparing the annual indent for supplies to be used in those departments.

CHAPTER 10: ORDERING ADDITIONAL SUPPLIES & INDENTING DRUGS OUT OF EDL

Ordering additional supplies

When you are entering in your stock ledger, always note when an items is low in stock (**refer to Minimum Recorder Level**). Do not wait until the item is totally out of stock or exactly reached the MRL before placing your order for additional supplies because it may take up to 2-3 months to fulfil your request. Fill out the “Additional Supplies Request Form” (see below) and send it to DVED.

Sample form
REQUESTS FOR ADDITIONAL SUPPLIES

Hospital/BHU.....
File/Dispatch no.....
Date.....

DVED.....
File/Dispatch no.....
Date.....

Sl. No	Item	Present Quantity in Stock	Quantity used since the last 6MDR submission	Quantity to be distributed	Distribution From

Ensure that the drugs requested are from the National Essential Drugs List. Use generic names only.

Requested by:
Designation:

Approved by:
CPO, DVED

- Serial no – enter a number for each of the item entered
- Item – for drugs, write the generic name. For non-drugs write the name as described in the non-drug indent
- Present quantity in stock – write the up to date balance as recorded in your stock ledger.
- Quantity used since last 6MDR submission – if your last 6MDR was submitted for the period Jan-June 2004, and you are requesting for supplies in September then write down the quantity used from June – Sep 2004. (The same procedure may be followed for non-drugs as well.
- Quantity to be distributed = will be calculated by DVED

Indenting drugs out of the EDL – form II (only from or through JDWNRH)

Form II is used for ordering drugs for a particular patient (Named Patient), usually from Kolkata on a weekly basis. Drugs like chemotherapy drugs; MDR-TB drugs and other life saving drugs are kept on named patient basis due to its high cost and low incidence of such cases. Often patients are referred outside the country for treatment; in such cases, in order to ensure that the patients are continued on the same drugs as prescribed by the doctors outside, their medicines are ordered on form II.

Form II is available in all the hospitals. The Pharmacist or the Pharmacy In charge fills the form, makes necessary substitutions/ suggestions and sends it to for signature from the specialist, if required. Only a specialist can prescribe a drug to be ordered as 'vital drug on named patient basis'. This form must then be counter signed by the Chairman of hospital therapeutic committee (usually medical specialist) and the hospital Pharmacist. In case of prescription refill of chemotherapy and renal transplant drugs, the Pharmacy department can directly order drugs for the patient with counter signature from the specialists. All requests reach the Pharmacy department latest by Wednesday morning. Orders are placed on Thursday morning by the DVED and the patients can collect their medicines from Tuesday onwards.

Please note that the district hospitals must send their forms to JDWNRH and collect their medicines from there itself.

(Sample on page 58)

Indenting drugs from other hospitals – Form III

Note the entire essential drugs go to each and every hospital in the country; they are distributed as per the facilities available in the health centres and the experience of the prescribers. Only JDWNRH receives all the drugs on the EDL. Form III may be used by District Hospitals or BHUs

to indent drugs from JDWNRH and Referral Hospitals. Please note that these drugs must be on the EDL and can be ordered for a named Patient. At any one time one can only order drugs for a duration of three months. A copy of this should be sent to DVED for record.

(Sample on page 60)

FORM II
REQUEST FOR “VITAL DRUGS FOR NAMED PATIENT”

Named of the patient for whom the drug is required:.....Age & Sex.....

Reg no:Address:Tel no:

Was the patient referred outside the country (Yes/No) (If yes, attach copy of prescription)

Daignosis.....

Generic name of drug.....strength.....dosage form

Dose and duration to be prescribed and total qty required

Has the patient been already receiving this/these drug(s) on named patient basis? If yes, how long?.....

If a drug on the EDL has been tried and found to be inadequate, state its generic name and the dosage and duration for which it has been used:

Generic name of drug.....strength.....dosage form

No of days used:.....

Explain why the drug on the EDL is not adequate for the above mentioned patient. For anti-infective agents, attach the drug sensitivity results (aerobic and anaerobic) where possible:.....

Signature, name and designation of the Specialist:

Comments from the Pharmacy Department:.....

Chairman, HTC

Pharmacist

FORM III

To,
The Chief Procurement Officer
Drugs, Vaccines and Equipment Division
Sir,

Kindly arrange to supply the following drugs which are available on the EDL on named patient basis for use in this hospital for the patient whose particulars are given below.

Name of the Hospital where the supply is needed:

Name of the patient for whom the supply is needed:.....Age & sex.....

Address:Reg No

Diagnosis

Name of the Hospital where the patient was prescribed the medicines for which the request is made
(Please enclose copy of the prescription):

How long has the patient been receiving the medicine/s:

Name/s and quantities of the medicines required:

Signature of the Medical Officer

For use at DVED

Comments from the Distribution section:

Supply approved/Not approved:

CPO, DVED

The following are supplied.

Signature of the Distribution In-charge:

Date:

CHAPTER 11: PROPOSAL FOR CHANGES TO THE ESSENTIAL DRUGS LIST

FORM I

Proposed by Designation

Name of Hospital/BHU/Dispensary

FOR ADDITION

Level of health care at which the drug should be made available (JDW/NRH only/ Referral

Hospitals/District Hospitals/BHUs/Dispensaries)_____

Generic name of drug Dosage form Strength.....

State its action, the therapeutic use and side effects:

Is there a drug on the EDL with similar therapeutic action? If yes, which drug?

State with supporting evidence the advantage that the new drug has over similar drugs on the EDL in the same therapeutic group.....

State any other reasons for including the new drug:

FOR DELETION

Level of health care from which the drug should be deleted (JDW/NRH only/Referral Hospitals/BHUs)

.....

Name of drug dosage form strength

Give reason(s)

CHAPTER 12: MONITORING, EVALUATION AND SUPERVISION

Personnel from the Districts like DHSO and storekeepers or from the DVED/MSD must go on periodic visits to different health centres to assess the supplies management.

Monitoring is the process of looking at the way the planned activities are being implemented to meet the objectives and correct any deviations. Some of the things you can monitor in BHU/Hospital are:

- Adequacy of stock supplies
- Wastage rate of drugs
- Reporting on short expiry drugs
- Mobilizing drugs to reduce wastage
- Indenting additional drugs to meet the increase in demand
- Storage conditions
- Quantification

Evaluation

Evaluations are done in order to generate knowledge and learning and to improve an intervention. Examples include:

- Prescription surveys to see the prescribing trend
- Use of antibiotics
- Utilization of equipments
- Quality of drugs
- Quality of instruments

Supervision

It is the process of helping people improve their own work performance. Plan a supervisory visit

- why, who, what, when and how you want to supervise.
- Prepare a checklist
- Identify problems
- Take actions
- Solve problems
- Provide feedback
- Follow up visits

An example of a checklist for BHU Visit is given in Annex 3. Alternatively you can make your own checklist depending in what you want to assess and evaluate. In addition, you may also conduct physical verification of the stock. Make a list of items you want to verify and then check their ledger balance against their physical balance. This will give you your ledger keeping accuracy rate:

$$\text{Accuracy rate} = \frac{\text{No. of items whose physical and ledger balance tallies}}{\text{Total no. of items being checked}} \times 100$$

During such supervisory you may make a list of items, which are in excess or near their expiry date and submit to DVED so that these supplies can be mobilised and wastage reduced. Similarly, make a list of equipments, which are not functional or broken and submit to DVED.

CHAPTER 13: GOOD DISPENSING PRACTICES

Correct drug dispensing

Dispensed drugs should be appropriately labelled so that the patient can benefit optimally from the use of drug. Expired drugs should not be dispensed. Correct dispensing ensures that:

- The right patient is served
- A desired dosage form of the correct drug is given
- The prescribed dosage and the quantity are given
- The right container that maintains the potency of the drugs is used
- The Container is appropriately labelled
- Clear instructions are delivered verbally to the patient



Dispensing procedure

- Ensure that the prescription has the name and signature of the prescriber and their seal.
- Ensure that the prescription is dated and has the name of the patient
- Avoid dispensing without prescription or from an unauthorized prescriber
- Check the name of the prescribed drugs against that of the container
- Check the expiry date on the container
- Hand over the dispensed drug as above

Packaging of drugs for patients

All drugs should be put in a suitable and appropriately labelled container to ensure correct use and maintain potency and quality during the period of use. The label on the container of dispensed drugs should contain the following minimum information:

- Name of the patient
- Name of the drug (generic)
- Strength
- Total quantity dispensed
- Dose and duration of treatment
- Counselling or warning points e.g. "take after food"

Counselling

The health worker should give the patient additional information to re-enforce the instructions on the label. This should be done in a language that is familiar to the patient. The information in the form of verbal instructions should include the following:

- How often to take the drug (once a day, twice a day)
- When to take the drug (before or after meals)
- How long the treatment is for (Complete the full course for antibiotics)
- How to take the drug (chewing, With water etc.)
- How to store the drug (in a cool place)
- Any warning points (avoid alcohol)
- Do not share drugs with other persons
- Keep it away from children

ANNEX1: CONVERSION FACTORS

Temperature

From Celsius to Fahrenheit: $(C \times 1.8) + 32 = F$

From Fahrenheit to Celsius: $(F - 32) \div 1.8 = C$

Length

From inches to centimetres: multiply by 02.54

From feet to centimetres: multiply by 30.48

From feet to metres: multiply by 0.30

From yards to metres: multiply by 00.91

From millimetres to inches: multiply by 00.04

From centimetres to inches: multiply by 00.39

From centimetres to feet: multiply by 00.03

From meters to yard: multiply by 01.09

Area

From sq. inches to sq. cm: multiply by 06.5

From sq. feet to sq. meters: multiply by 00.09

From yards to sq. meters: multiply by 100

From sq. cm to sq. inches: multiply by 00.150

From sq. meters to sq. feet: multiply by 10.76

From meters to sq. yards: multiply by 01.196

Volume

From cubic in to cubic cm: multiply by 16.39

From cubic inches to litres: multiply by 00.01639

From cubic feet to litres: multiply by 28.32

From cubic feet to cubic mt: multiply by 00.03

From cubic cm to litres: divide by 01.000

From cubic cm to cubic in: divide by 00.06102

From cubic mt to cubic feet: multiply by 35.31

Weight

From pounds to kilograms: multiply by 0.45

From grams to ounces: multiply by 0.035

From kilograms to pounds: multiply by 2.2

From ounces to grams: multiply by 28.35

ANNEX 2: CD FORM
CODEINE PHOSPHATE 15MG TAB

Ward:

Incharge's name

Balance qty

Qty requested

Qty issued

Total qty

Date	Time	Patient	Reg No	Bed No	Ordered by	Dose	Nurses Name & Sign	Balance

Received By:

Issued By:

Date: _____

ANNEX 3. CHECKLIST FOR BHU VIST

Sl. No		YES	NO
1	Is the store maintained orderly and secure?		
2	Are the drugs stored under appropriate conditions?		
3	Are the stock ledgers maintained up to date?		
4	Are there adequate stock of drugs and other supplies?		
5	Are the supplies indented correctly?		
6	Are the supplies received correctly?		
7	Are the supplies issued correctly?		
8	Are there excess stocks of supplies?		
9	Are there any under utilised items in the store		
10	Are there any expired drugs in stock?		
11	Have the expired drugs been separated from the rest?		

Sl. No		YES	NO
12	Are the controlled drugs maintained separately under lock and key?		
13	Are the CD forms maintained?		
14	Does the health worker dispense drugs properly?		
15	Is adequate drug information given to the patients?		

ANNEX 4: SUPPLIES MANAGEMENT CYCLE

