



MINISTRY OF HEALTH



NATIONAL DRUG AUTHORITY



Pharmaceutical  
Society of Uganda



# Accredited Drug Shops Training *Uganda*

## Module 2: Medicines Management

# Module Outline



- Basic principles of medicines management
  - Determining which medicines are needed and in which quantities
  - Purchasing medicines
  - Receiving and checking medicines
  - Storage of medicines
  - Record-keeping
- Quality of medicines
  - Causes of poor medicines quality
  - Recognizing poor quality medicines
  - Tracking expiries and damages
  - Quality assurance procedures
- Dispensing process
  - Reading, interpreting and processing prescriptions
  - Dosage forms and routes of administration
  - Labeling prescriptions

# Resources Needed



- Job aids:
  - Cleaning
  - Physical count
  - Receiving
  - Dispensing

# The Medicines Management Cycle

# Basic Principles of Medicines Management



## Aim

Empower sellers with the knowledge and skills necessary for appropriate medicines management

## Objectives

To enable trainees to be able to:

- Prepare the shop for storage of medicines
- Determine which medicines they need and in which quantities
- Purchase and store medicines
- Dispense medicines
- Manage medicines stock



## **Medicines Management**

Medicines management is the set of practices aimed at ensuring the timely availability and appropriate use of safe, effective, quality medicines and related health products in any health-care setting.

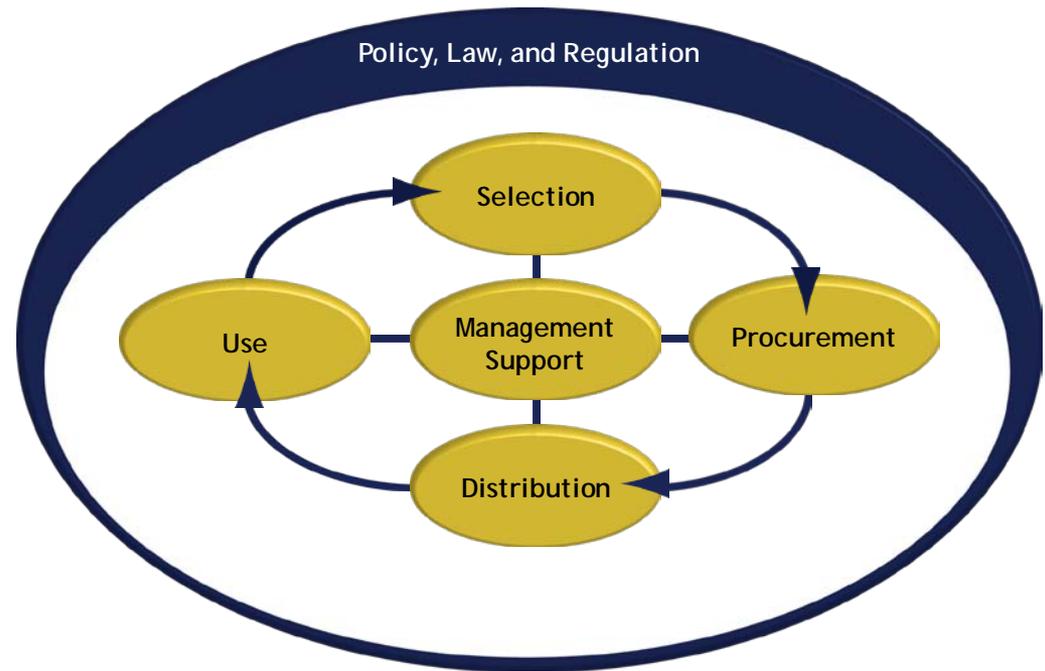


# Medicines Management Cycle



The medicines management cycle includes four key functions: **selection**, **procurement**, **distribution**, and **use**.

These functions are interlinked and reinforced by appropriate **management support** systems (i.e., tools), and are regulated by a **legal and policy framework**.





# Selection (2)

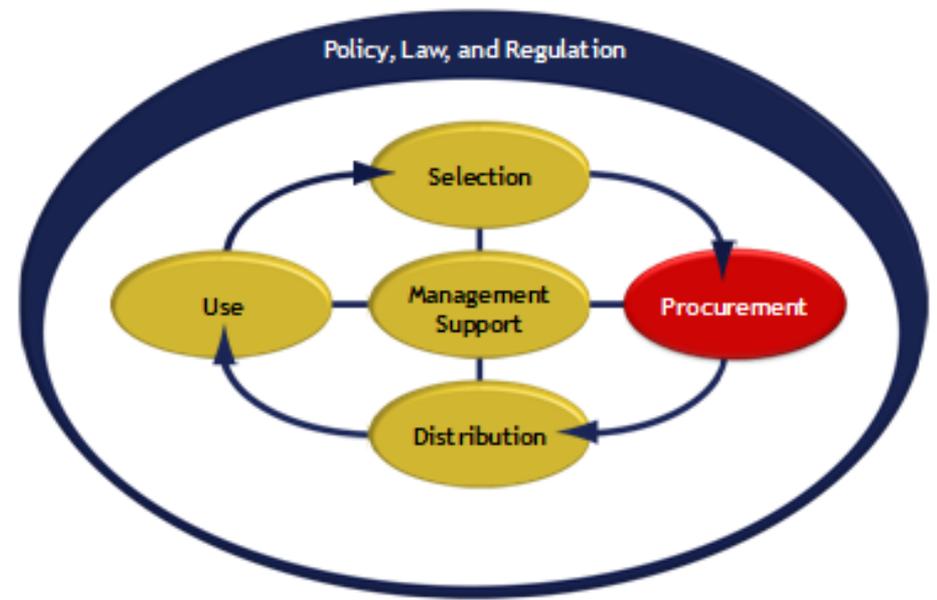


- Drugs on the extended medicines list were selected following a baseline survey. These products:
  - Cover the most prevalent diseases and sicknesses in the country
  - Can be adequately managed by the available cadre of staff, if well trained
  - Are available at Health Centre II in the public sector, which provide the same level of health care and have cadres with the same level of training
  - Are widely available in the country and at relatively low prices

# Procurement



- The procurement of medicines is based on:
  - The ADS extended medicines list + the Class C schedule of medicines
  - Available financial resources



# Procurement (2)

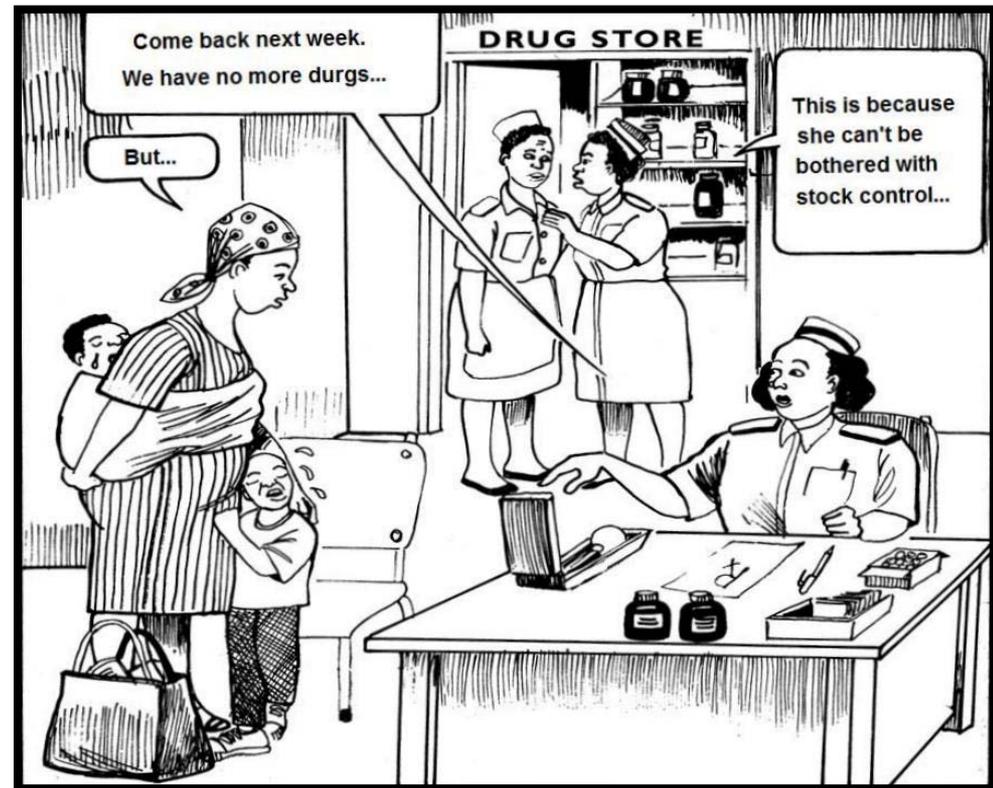


- To procure medicines, the owner should:
  - Identify a source of drugs (i.e., a wholesaling pharmacy)
  - Estimate the quantity of each medicine needed based on the rate of consumption of the product in question
  - Determine precisely the dosage form, strength, and pack size of the product required (*Note: that some packages should not be broken into smaller units in order to maintain the integrity of the product*)
- Ask the wholesaling pharmacy about the prices of the different dosage forms and pack sizes required
- Allocate funds for each medicine item depending on
  - Priority nature of the medicine and dosage form
  - Available finances

# Estimating the Quantity of Medicine Required



- It is important to correctly estimate the quantity of medicine to be procured in order to avoid
  - Overstocking which may lead to expired or wasted medicines
  - Stock-outs which may lead to loss of trust, credibility and confidence in the outlet by the community



# Estimating the Quantity of Medicines for Procurement



Estimating the quantity of medicine to be procured is based on:

- Population which the outlet serves
- Disease patterns
- Seasonal variation in disease pattern (e.g., during rainy season there is increase in diarrhoeal diseases)
- Rate consumption of the medicine
- Frequency of procurement
- The available space for storage of medicine
- Distance to the pharmacy where the medicines are to be procured
- Amount of money available

# Receiving Medicines



- The means of transport chosen should be appropriate to ensure that medicines do not deteriorate during transportation
  - When receiving medicines take note that the medicines received match exactly with the order you made
    - Cross check the dosage form, strength, pack size and quantity ordered match with what is required
    - Check the prices
    - Check the expiry dates and batch numbers
    - Check for quality–damaged products, colour changes, poor packaging
- Note:** If you receive a drug without a label or with incorrect label, do NOT guess what it is! Do not use it; return it to the supplier.

# Receiving Medicines (2)



- Reviewing the medicines received should be done at the point medicines are received from the supplier.
- Any discrepancies noted should be immediately communicated to the supplier, who should correct them.





- When setting the price at which the medicines will be sold, consider the following factors:
  - Purchase price
  - Transportation charges
  - Mark up to cover administrative and other costs

# Storage of Medicines



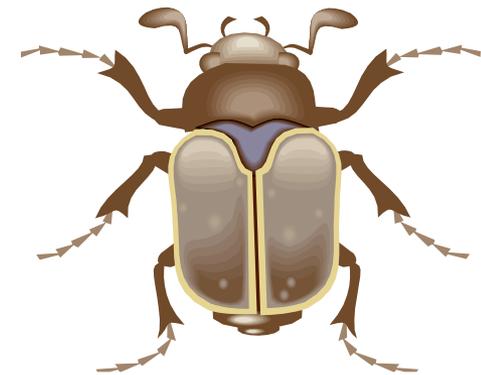
- Medicines and related health supplies are expensive and valuable, and should be stored correctly to prevent deterioration. If they deteriorate, they may lose their potency or may have the wrong effects on patients.
  - **Heat** affects all medicines, especially liquids, ointments and suppositories.
  - **Light** sensitive medicines, such as injectables, may spoil if not kept away from light.
  - **Humidity** can spoil tablets and capsules as they can easily absorb water from the air making them sticky and causing them to deteriorate.



# Storage of Medicines (2)



- Medicines require a specially designed, secure, and clean premises in order to:
  - Avoid contamination or deterioration
  - Avoid disfiguration of labels
  - Maintain integrity of packaging to guarantee quality and potency of drugs during shelf life
  - Prevent or reduce pilferage, theft, or losses
  - Prevent infestation of pests and vermin



# Storage of Medicines (3)



- The storage environment should—
  - Have controlled temperatures to avoid extreme heat which causes deterioration
  - Have sufficient lighting for easy visibility but avoid direct light to the medicines as this may also cause deterioration
  - Be clean to avoid contamination
  - Have humidity control to avoid contamination and deterioration
  - Cold storage facilities for medicines that require cold storage
  - Adequate shelving to ensure integrity of the stored drugs
- Stock should be reviewed regularly to check for any damages that may have occurred.
  - Remove any damaged items from the stock and keep them separate from the medicines available for sale; inform DADI.

# Building Conditions



- Medicines outlet must be in good condition and all openings secured with grills or bars to prevent theft.
- The space should be large enough to fit all of the supplies but also allow space for the dispenser and customers to move around. This facilitates easy flow of activities.

## **Maintaining Premises**

- Regularly inspect the physical structure of the premises and repair any damage to the roof, walls, door, windows, and floor.
- Control the temperature in the store by ensuring that there is adequate circulation of air by opening the door and windows while the premises are open to the public.

# Building Conditions (2)



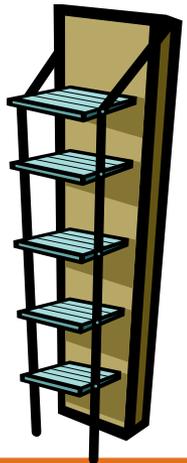
- If possible, use a fan and keep it in good working condition
- Control the light in the store
  - Block the direct light by hanging curtains in the window
- Control humidity by:
  - Preventing and repairing leaks in the roof and around doors and windows
  - Allow good air circulation
- Have precautions against fire outbreaks



# Arranging Medicines



- The following guidelines should be followed when arranging medicines on the shelves in the medicine outlet.
- Clean or dust the shelves before placing medicines on them. For easy cleaning, shelves should preferably be made of painted wood.
  - **Top shelves:** Store solid medicines, i.e., tablets, capsules, oral rehydration packets. If the top shelf is near the ceiling or out of your reach, use that shelf to store items that are NOT sensitive to heat and are NOT used regularly.
  - **Middle shelves:** Store liquids, i.e., syrups and ointments. Do NOT put solid medicines below them. If liquids leak, the medicines below may spoil.
  - **Bottom shelves:** Store other supplies, such as surgical items, condoms and labels.



# Arranging Medicines (2)

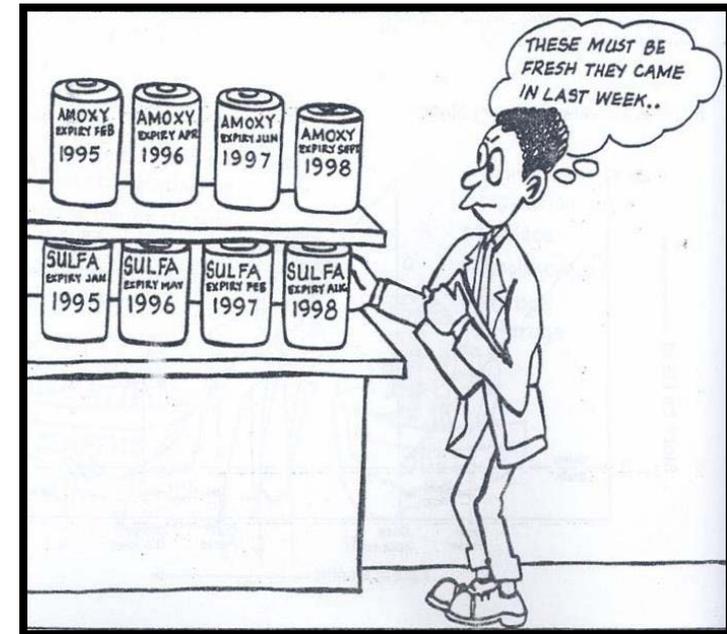


- **NO** Medicines should be stored directly on the floor.
- Medicines should be arranged in a systematic way following the format below:
  - Dosage form
  - Pharmacological order
  - Alphabetical order using generic names of the medicine
- Each dosage form of drug is arranged in separate and distinct areas.
- Sufficient empty space should demarcate one medicine item or dosage form from another.

# Medicine Arrangement (3)



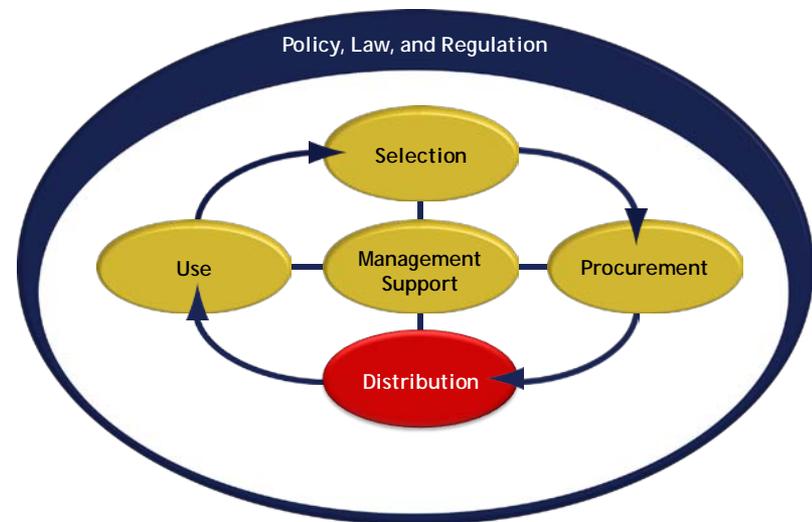
- Most recently received medicines should be placed behind older stock on the shelf except where new drugs have shorter expiration dates.
  - *FIFO* = *first in, first out* and
  - *FEFO* = *first expiry, first out*
- The medicine package should be placed such that the name of the medicine is well displayed.
- Heavy medicine packages should be placed on the lower shelves and lighter ones on top.
- Regularly dust the medicine containers and shelves.  
**Note:** Dust contaminates supplies and makes labels difficult to read.



# Distribution

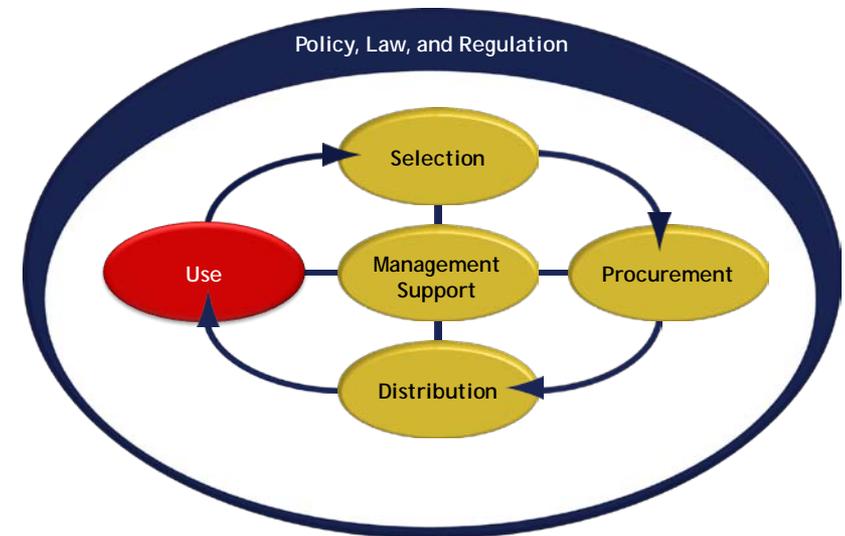


- The main activity at the dispensing outlet is to dispense medicines to patients in response to a prescription.
- A prescription is written by a clinician who has examined the patient, identified the problem, and indicates what needs to be done for the patient, including any necessary medicines.
- *Dispensing requires an understanding of the patients (who may not speak or understand the language of the dispenser) and practical skills in dispensing and record-keeping.*





- Appropriate (or rational) medicines use requires that the medicine is prescribed for a particular patient after proper diagnosis of a health problem.
  - Appropriate dose is given
  - In an appropriate dosage form
  - Through an appropriate route of administration
  - In appropriate frequency of administration
  - Appropriate duration of treatment
  - At an affordable cost
  - Appropriate information is given to the patient to ensure that he or she uses the medicine appropriately
  - Adequate follow up to monitor adherence or compliance to treatment and to monitor patient outcomes



# Patient Information



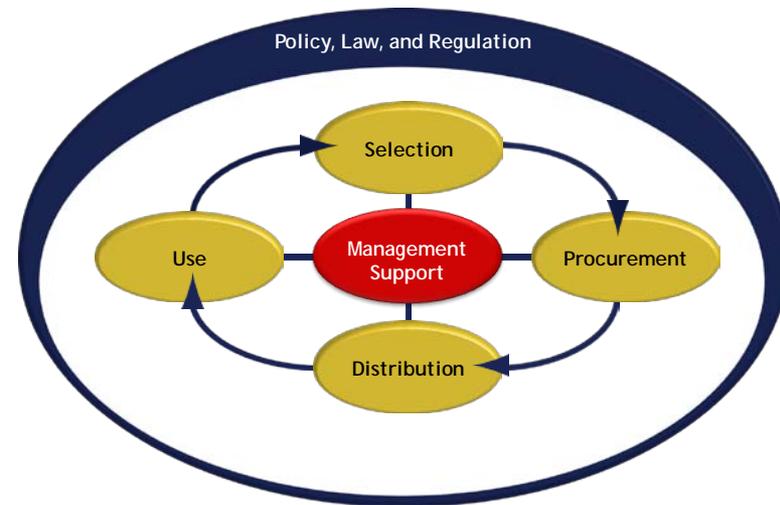
- To re-enforce the instructions written on the label, the dispenser should verbally give the patient additional information in a language the patient speaks. The information should include—
  - How often to take the medicine
  - When to take the medicine (e.g., before or after the meals)
  - How long the treatment is to last (e.g., why the entire course of an antibiotic treatment must be taken)
  - How to take the medicine (e.g., with water, chewing, or swallowing)
  - How to store the medicine (e.g., avoid heat, light, and dampness)
  - Not to share the medicine with another person
  - To keep medicine out of the reach of children



# Management Support



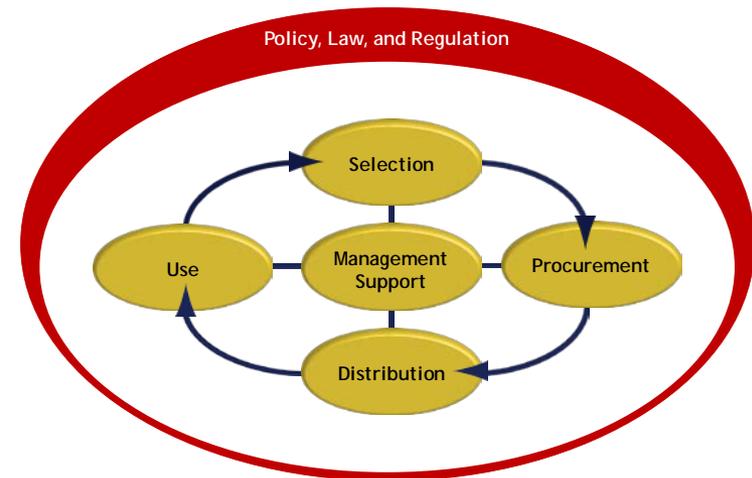
- Efficient medicine management requires commitment of both financial and human resources to ensure that systems run smoothly.
  - Adequate funds should be available and committed to ensure that medicines are procured in adequate quantities and systems are put in place and maintained.
  - Adequately trained personnel should be recruited and be motivated to manage the system and developed to effectively perform their tasks.
  - Documentation of activities, collection of relevant data and generation of information helps monitor performance of the system. Personnel should be provided with job aids or standard operating procedures for performing critical activities of medicine management.



# Regulation and Policy Framework



- The regulatory framework under which medicines are sold has been discussed in previous sections.
- It is, however, important to emphasize that for efficiency, regulations and guidelines must be adhered to when managing medicines and performing tasks in the medicine management system, such as—
  - What medicines can be procured
  - Where to procure the medicines
  - Who should handle the medicines
  - What documentation must be kept



# Quality of Medicines

# Quality of Medicines



## Aim

To equip trainees with knowledge, skills, and attitudes of recognizing and preventing medicine deterioration.

## Objectives

- Understand the basics of quality in medicines management
- Explain causes of poor medicines quality
- Recognise signs of poor/bad quality medicines
- Understand importance of maintaining medicines quality and stability
- Discuss and internalize good medicine storage practices
- Discuss steps and procedures for quality assurance in a medicine outlet
- Able to track drug expiries and damages

# Quality of Medicines (2)



- The adequate supply of quality medicines is a prerequisite for effective delivery of health care.
- Without assurance that medicines meet acceptable standards of quality, safety, and efficacy, health services will be compromised.
- It is critical that reliable systems are put in place to ensure that patients receive quality medicines.
- It is everybody's role, including the user, to ensure that medicines maintain their quality throughout their shelf life or until they are used.



# Quality of Medicines (3)



- A considerable degree of care should be observed throughout the life cycle of the medicine such that the medicines made available to the public meet all quality requirements.
- To achieve this, reliable systems of medicine regulation and legislation need to be put in place in every country.
- In Uganda, the National Drug Policy and Authority statute clearly stipulates regulations regarding this.



# Quality Assurance of Medicines



- Quality assurance is a concept covering all matters that individually or collectively influence the quality of a pharmaceutical product or medicines.
- It is the total sum of all strategies intended to ensure that medicines are of the quality appropriate for their intended use.
- Quality assurance may also be seen as precautions taken to ensure that quality medicines are manufactured and their quality maintained until they are either use or until they expire.



# Elements of Quality Assurance



- The NDA laws stipulate what needs to be done at every level of the life cycle of medicines.
- The medicines life cycle goes through the following stages:
  - Design and development
  - Manufacturing
  - Distribution
  - Sale
  - Dispensing
  - Use
- Legislation exists at all stages except for the final user of medicines.



# Distribution and Sale of Medicines



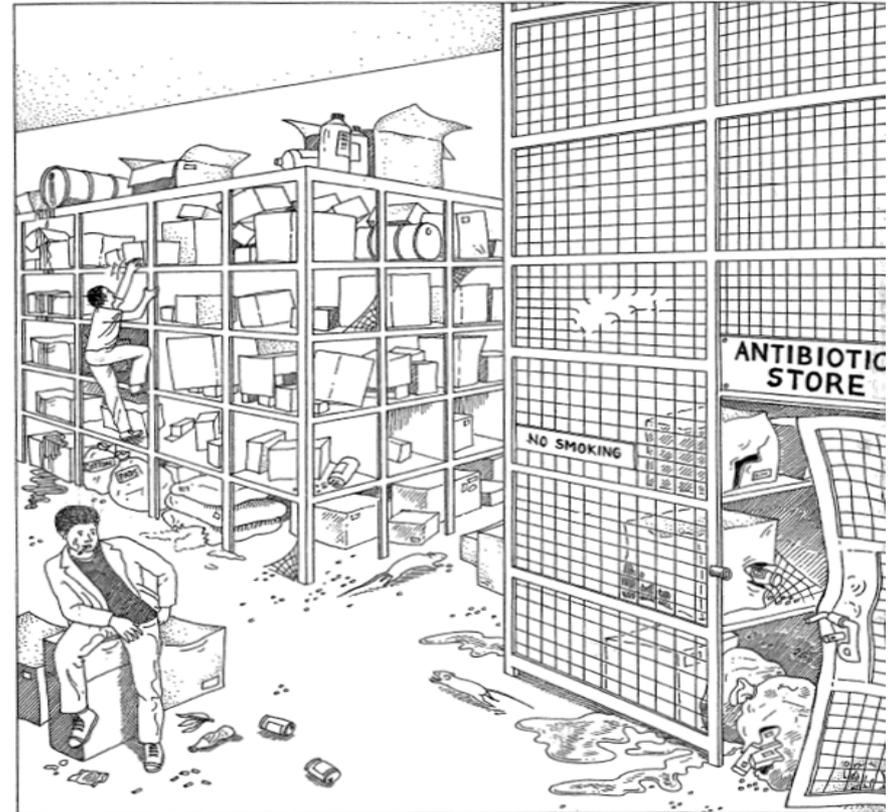
- Quality assurance during distribution and sale of medicines ensures that medicines do not lose their quality and efficacy before they reach their final consumer.
- To make that happen, the NDA registers all medicines sold on the Ugandan market that meet the required standard of quality, safety, and efficacy.
- **Only sell medicines registered by NDA and only buy stocks of medicines from authorized registered pharmacies.**
  - From time to time, NDA inspects medicine outlet to ascertain that all the medicines sold there are registered.
  - It is an offence for ADDOs to carry unregistered medicines.



# Causes of Poor Quality Medicines



- Poor manufacturing conditions
- Poor packing
- Poor transportation
- Poor storage conditions
- Poorly dispensing methods



# Causes of Poor Quality Medicines (2)



## **Packaging**

- Broken
- Ripped

## **Labels**

- Missing
- Incomplete
- Unreadable

## **Tablets or capsules**

- Discoloured
- Sticky
- Crushed or crumbled
- Unusual smell

## **Liquids**

- Discoloured
- Sedimentation
- Cloudiness
- Unusual smell
- Broken seal on bottle
- Cracked bottles
- Dampness inside packages

# Maintaining Quality of Medicines in the ADS



- Maintain premises/building
- Cross check all new consignments of medicines for any physical changes on the medicines—indicator of poor quality
- Routinely cross check medicines for quality
- Regularly clean the medicine outlet
- Maintain the outlet tidily on the shelves
- Do not keep medicines on the floor
- Take records of all transactions to help track source of poor quality medicines
- Make sure medicines are adequately packed when they are dispensed to patients
- Give patients information on how to keep medicines at home
- Remove all expired and damaged medicines from stock and contact DADI for their proper disposal

# Dispensing

# Dispensing Process



## **Aim**

- Equip trainees with knowledge, skills and attitudes to appropriately conduct the dispensing process

## **Objectives**

- Define the basic elements of good dispensing
- Correctly read, interpret and process a prescription
- Understand abbreviations and terminologies used on a prescription
- Discuss the logical steps of good dispensing
- Discuss the minimum requirements for work environment and staff to ensure good dispensing practice
- Effectively communicate with patients

# Session Content



- Good dispensing practices
- Suitable personnel to dispense
- The dispensing process/procedure
- Health worker-patient communication
- Patient counselling
- Patient record keeping and documentation
- Prescription interpretation

# Common Dispensing Terms



- Dispensing
- Brand/Trade name, Generic name/Non-proprietary Names
- Dose, Dosage, Dosage form
- Course of Treatment
- Weight & Volume
- Dilution
- Reconstitution
- Prescription

# Dispensing Environment



- Dispensing environment must be:
  - Clean
  - Hygienic
  - Tidy
  - Quiet
  - Adequately lit
  - Have good air circulation
  - Conducive for interaction between the patient and the medicine seller

# Dispensing Person



- Knowledgeable about the medicines dispensed
- Good calculation and arithmetic skills
- Skills for assessing the quality of preparations
- Attributes of cleanliness, accuracy, and honesty
- Able to communicate effectively with patients
- Exhibit professionalism all the time whether serving customers/patients or not
- Have communication and leadership skills



# Prescription



- A prescription is a set of instructions written by a qualified prescriber to a dispenser for a supply of medicines after counselling the patient on how to use the medicines.
- A prescription should include ALL of the following:
  - Name of the unit from where the prescription is coming from
  - Name of the patient and age (especially if a child)
  - Date
  - Prescriber's signature and name
  - Generic name and dosage form
  - Dose
  - Frequency of administration
  - Duration of treatment
  - Any other instructions considered important for the patient



# Prescription Instructions



- The dosage form and the instructions for use on a prescription are often written in an abbreviated code.
- This code is based on the ancient language of Latin so special training is required to interpret it.
  - For example,
    - b.d. or b.i.d is often used to mean “twice daily”
    - p.o. is often used to mean “take by mouth”
- A list of the common abbreviations used in prescriptions is included in your manual.

# Example of a Properly Written Prescription



Kakumiro Health Centre IV

OPD NO. 340/09

P.O. BOX 68 Kakumiro

Name: M/S Kibuuka John

Date: 04.05.2009

Address: Kukumiro

Age: Adult

Weight: 70 kg

## Rx

Co-trimoxazole tablets (480mg ) ii b.i.d. x 5/7

Paracetamol tablets (500mg) ii tds x 3/7

Name of prescriber/qualifications Dr. Mwesigwa Emanuel MBChB (MUK)

Signature \_\_\_\_\_

# Basic Dispensing Procedure



- Dispensing Steps
  - Receive and validate the prescription
  - Understand and interpret the prescription
  - Prepare items for issue
  - Record the action taken
  - Issue medicines to the patient with clear instructions and advice.



# Packaging and Labelling of Medicine



- **Before packing the medicine you should write the label.**
  - It is better to write the label before counting or measuring the drug.
  - If you are dispensing more than one drug you are less likely to mix up the drugs and write the wrong label.
  - It will also be easier to write clearly without damaging or spilling the medicine.
  
- **What information should be found on the label?**
  - Name of the patient
  - Name of the drug
  - Strength of the drug
  - Quantity of the drug supplied
  - The instructions on how the drug is to be used.
  - How much each time
  - How often per day
  - Special instructions:
    - With or without meals
    - With plenty of fluids
  - Date supplied
  - Name and address of the health-care facility and medicine outlet

# Packaging and Labelling of Medicine (2)



- Packing of solid dosage forms (tablets/capsules):
  - Packing material for these includes:
    - Plastic dispensing bags
    - Paper envelopes
    - Small sterilized bags (are typically very expensive)
- Packing of liquids/semisolid dosage forms (mixtures/syrups, ointments/creams, etc.)
  - Liquids and semisolids should be dispensed in their original/primary pack (e.g., hydrogen peroxide)

# Useful Drug Information for Patients



- How much is to be taken (dose)
- How often it should be taken (frequency)
- For how long it should be take (duration)
- Why they are taking the drug (indication)
- What other information does the patient need to know?
  - Drugs effects when combined with alcohol
  - Side effects
  - Interactions with oral contraceptives
  - How to store the medicine



# Reconstitution/Dissolving of Dry Powders



To correctly reconstitute powders:

1. Disperse the dry powder by first shaking the bottle. This disperses any powder lumps in the bottle that would be difficult to disperse if water was added without this step.
2. If the volume to be added is given on the label, measure that amount; if only a mark is given on the bottle, you need not measure outside the bottle
3. Now add the water in small volumes, shaking the bottle each time you add a portion of water. Do so until the liquid is evenly dispersed in the water.
4. Finally add the remaining water to make up to the marked point or to finish the given volume of liquid you had measured.

# Making a Dilution



- Some concentrated liquid preparations need to be diluted before dispensing; for example, hydrogen peroxide is diluted with purified water when used for disinfection or antiseptic purposes.

## COMMON RECIPES:

- **First aid:** To arrest bleeding and disinfect wounds; dilute 1 part of hydrogen peroxide with 3 parts of purified water then apply using a piece of cotton wool on the affected area
- **To remove dirty dressing:** Dilute 1 part of hydrogen peroxide with 3 parts of purified water then soak the dressing in with the diluted solution and leave it for some minutes before removing the dressing
- **Mouthwash and deodorant:** Dilute one tablespoonful in one glass of water and gargle

# Record Keeping and Documentation



- Documentation to be kept required by ADS includes:
  - **Inventory records:** records of medicines purchased from local suppliers, etc.
  - **Dispensing records:** records of medicines distributed to patients, including both prescription and non-prescription medicines, etc.
- Records are required for audit and need to be easily retrieved.
- ADS should keep these records for a period of 2 years.
- The NDA has ORDER BOOKS and PRESCRIPTION BOOKS that are designed specifically for this purpose (these will be demonstrated during the course).
- In addition, the ADS is required to keep and maintain a special file for all correspondence related to medicine directives and services from regulatory authorities.

# Record Keeping and Documentation (2)



- Records are important because they help the ADS to:
  - Monitor and establish a record of every permitted prescription drug; thereby avoiding stock-outs
  - Identify adverse drug reactions that might occur
  - Assist the NDA Inspectors when conducting their supervision duties



# Expired or Damaged Medicines



- Expired or damaged medicines must not be dispensed to patients or dumped illegally
- Always contact your DADI to confirm the appropriate method of disposing of these items

