



# Laboratory Quality Management System

## Module 7: Purchasing and Inventory

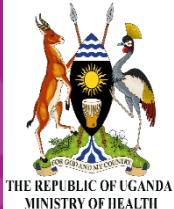
Venue:

Presenter:

Date:

# Introduction

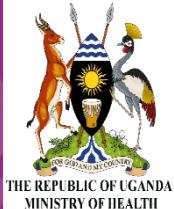
- Efficient and cost-effective laboratory operations need the uninterrupted availability of reagents, supplies, and services.
- Inability to test, even for a short time, is very disruptive to clinical care, prevention activities, and public health programs



# Learning Objectives

At the end of this module, participants will be able to:

- describe the steps required to implement an inventory control program;
- name factors to consider in procurement of supplies;
- develop a monitoring plan for the inventory system;
- discuss the importance of documentation related to purchasing and inventory.



# Module outline

## Inventory Management Program

1. Key components for Purchasing and Inventory Management
2. Qualifying and selection of Venders
3. Implementation of Inventory Control Program
4. Continuous Monitoring of Inventory



# Activity 7-1 Purchasing and Inventory

Purpose:

To provide an opportunity for participants to consider factors needed to purchase supplies and equipment for a potential epidemic.

Suggested time: 10 minutes



# Scenario

**Your laboratory is asked to gear up for a potential MDR/XDR TB epidemic.**

- What purchasing and inventory factors do you need to consider in planning for this process?
  
- What problems might you encounter in planning and implementation?



# The Quality Management System



# Benefits of an Inventory Management Program

Supplies and reagents always available



**Quality maintained**

Minimize wastage  
Stay within budget



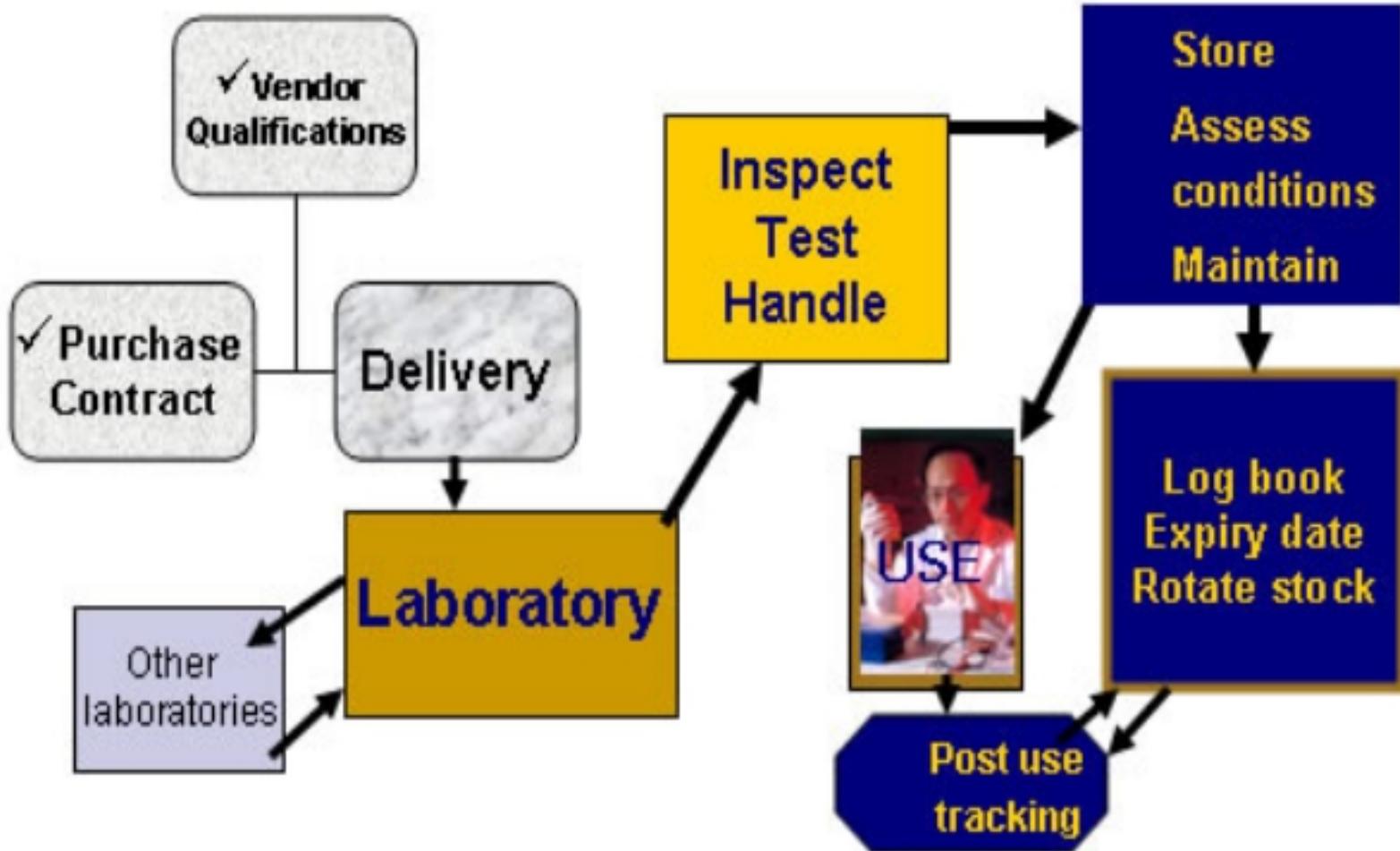
# Inventory Management Challenges

- Balance between stock availability and expiration dates.
- Life-span of laboratory reagents varies:
  - RIA reagents: 3 to 8 weeks
  - API kits: 4 to 12 months
  - Antisera: 1 to 4 years
  - Antibiotic disks: 2 to 3 years
  - Ready-to-use culture media: 1 to 2 months
  - Dehydrated culture media: 3 to 5 years



# 1. Purchasing

# Key components



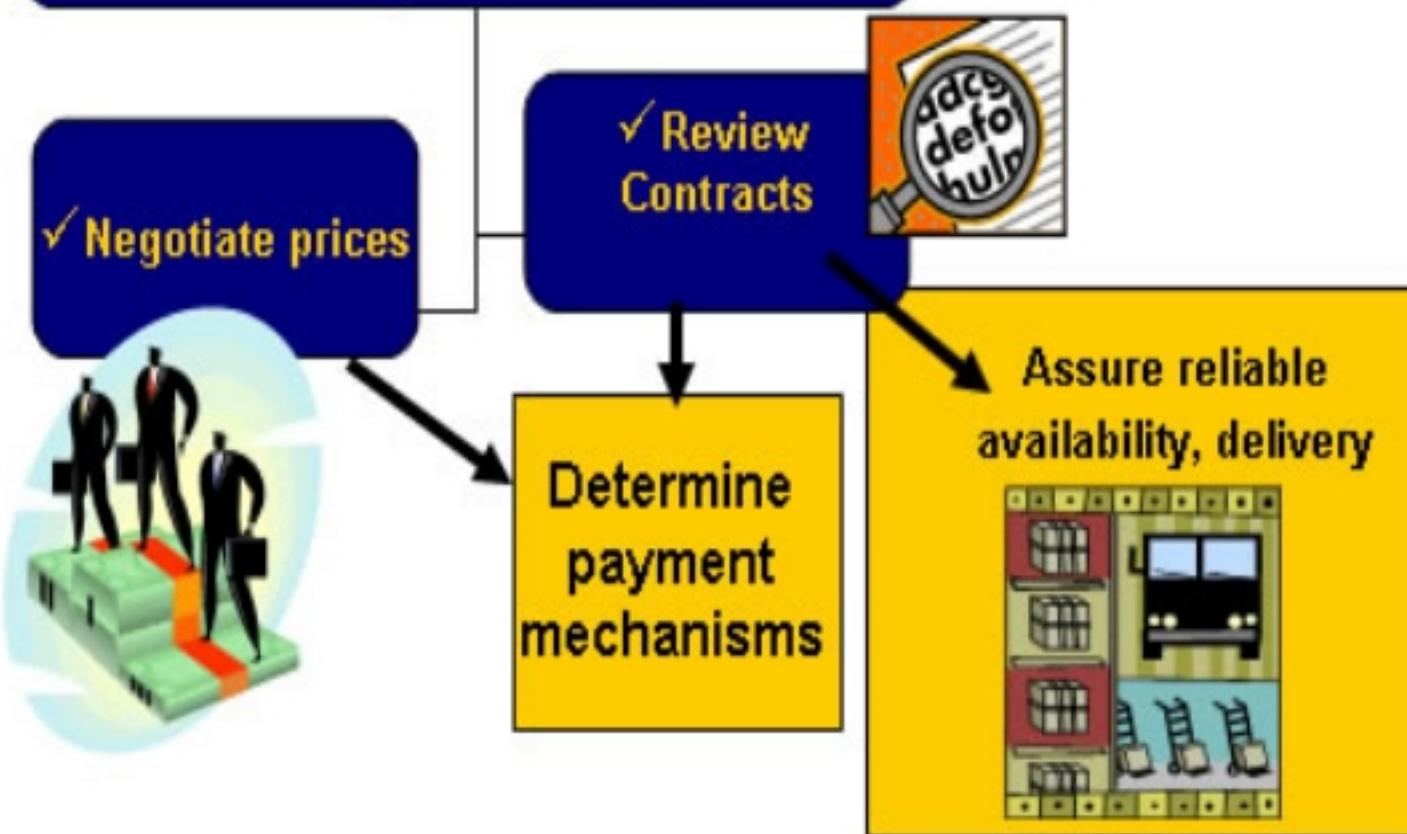
# Establish a System to Qualify and Select Vendors

- Define criteria for supplies and services to be purchased
- Use information from other laboratories
- Evaluate before purchase and after receipt



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# Understand government requirements



# **2. Implementation of Inventory Control program**



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# Implementation steps

## How to Implement Inventory Control



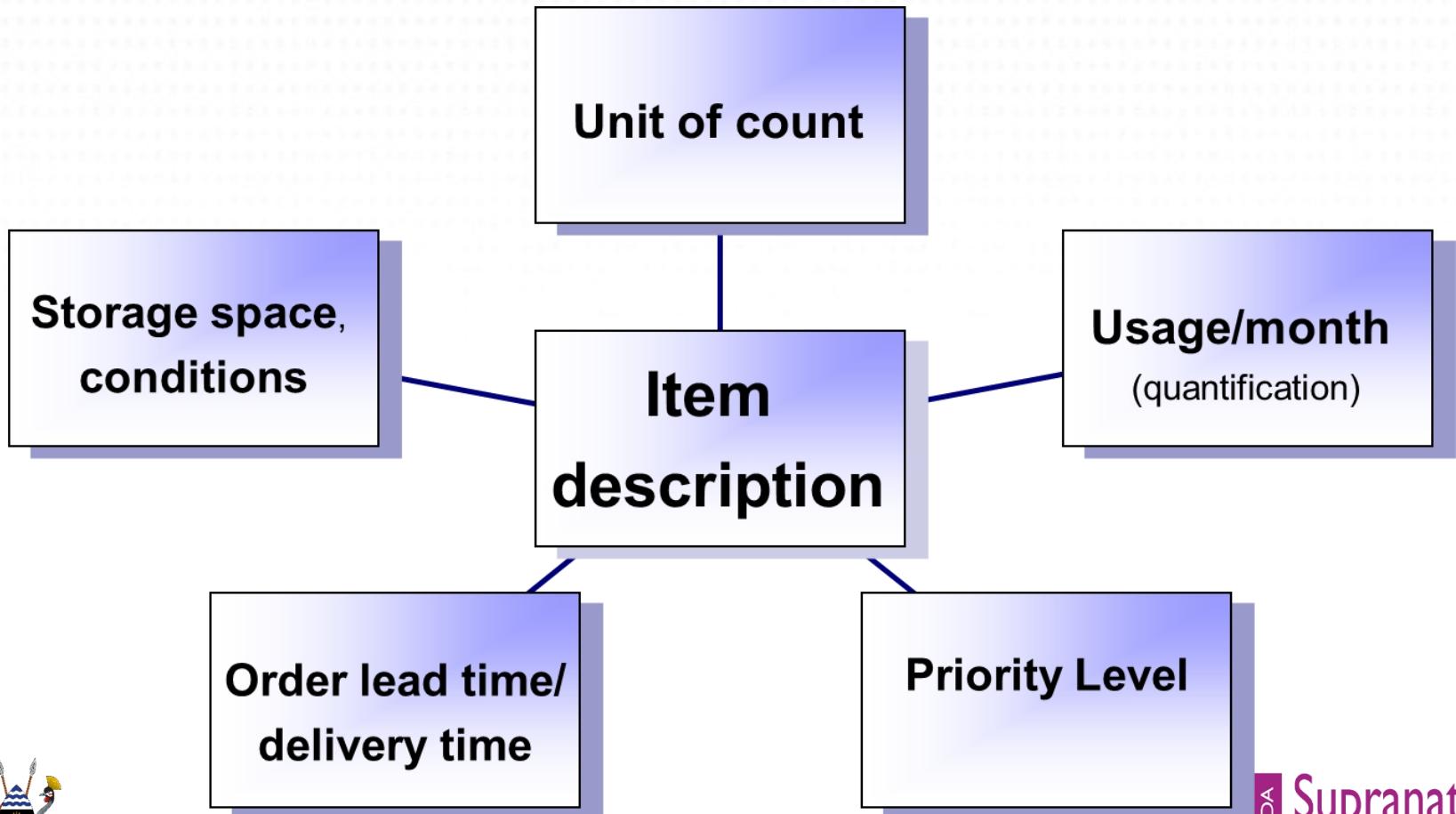
# Analyse Needs

Conduct analysis of supply and reagent needs by:

- Listing all tests in laboratory
- Identifying all supplies needed for each test
- Using available information to estimate usage



# Analysis of Needs: Information Required



# 3. Quantification

# What is Quantification?

**Quantification** is a process for calculating how much is required of any particular item for a given period of time.



# Quantification : Why?

Accurate quantification will:

- Ensure essential supplies will be available when needed
- Prevent overstocking, which can lead to wastage of expensive materials

Quantification provides information for:

- Estimating annual budget requirements
- Allowing for better planning
- Making decisions and monitoring performance of the inventory management system



# Quantification: When?

- As part of annual health care planning
- When implementing a new health program
- In preparation for a potential or newly identified epidemic



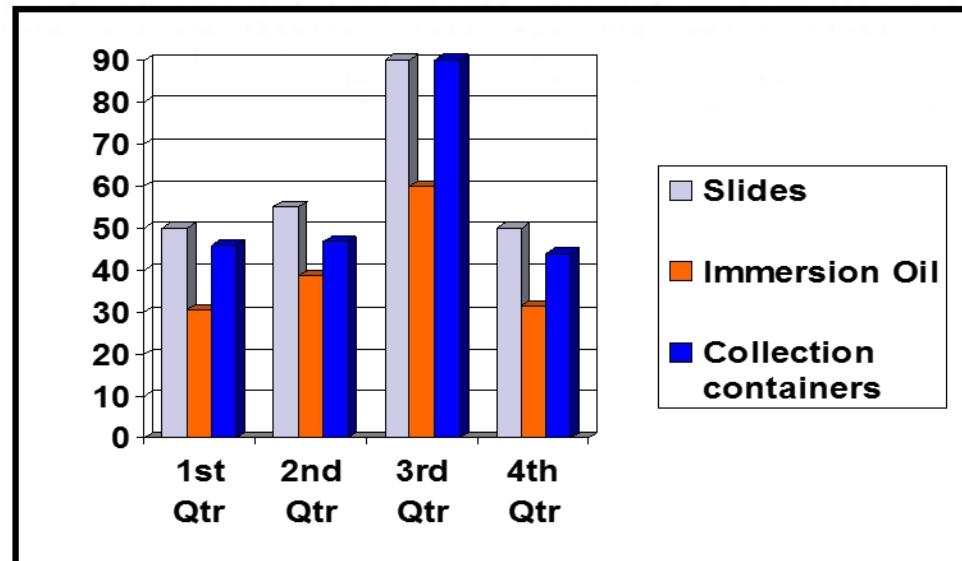
# Quantification: How?

- Consumption-based method
- Morbidity-based method



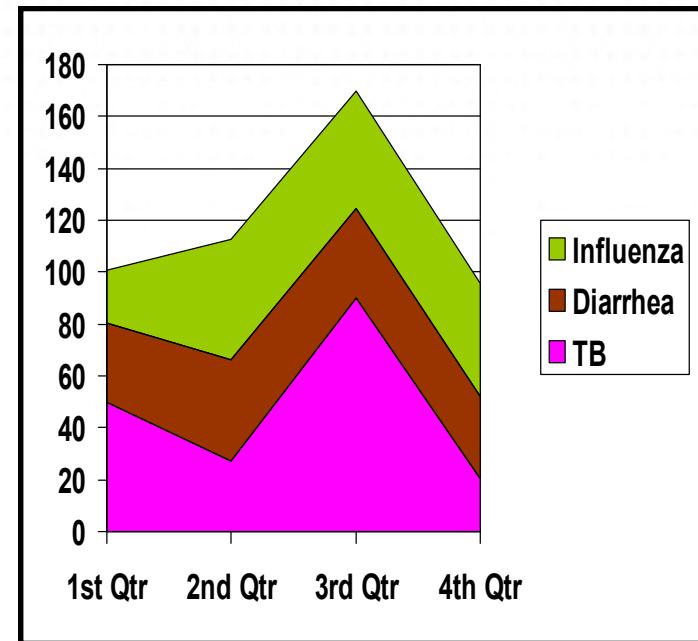
# Quantification: Consumption-based

- Based on the actual usage
- Must take into account:
  - Health supplies actually used
  - Wastage—expired or spoiled supplies
  - Supplies out of stock for more than 15 days during any time of the year



# Quantification: Morbidity-based

- Based on the actual number of episodes
- Must take into account:
  - Population size
  - Disease incidence
  - Accuracy of morbidity data
  - Treatment guidelines



# 4. Forms and Logs



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# Inventory Control: Documentation

Maintain records:

- Date received
- Lot number
- Pass or fail acceptance criteria
- Date placed in service or disposition

May be useful to keep records in stockroom.



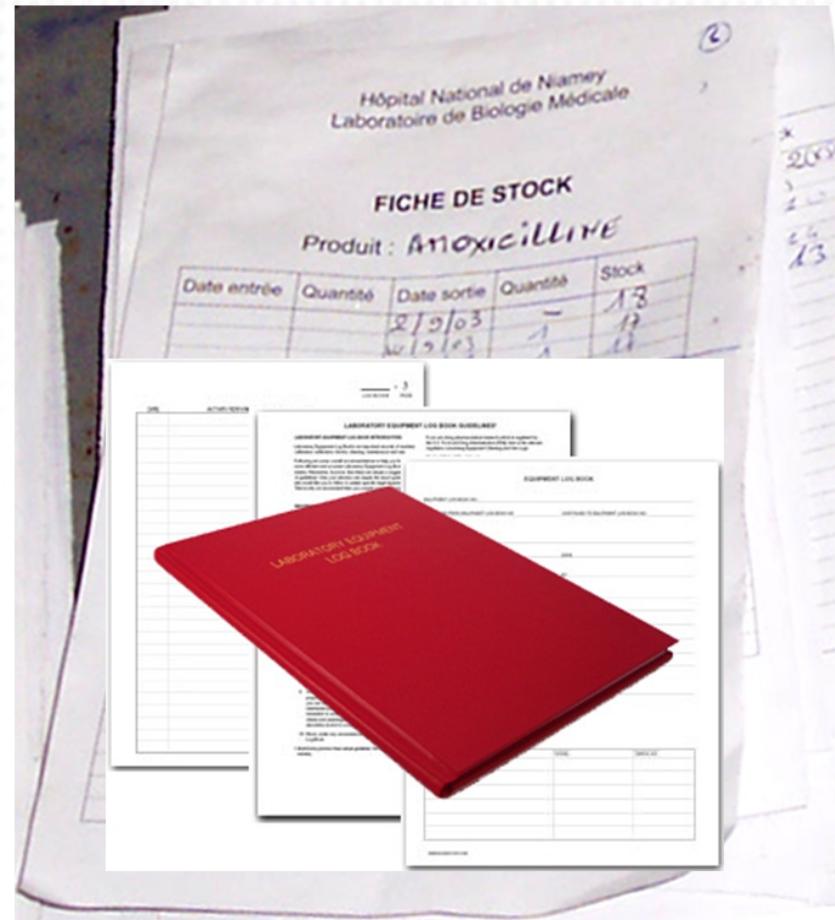
# Stock Logbook

## Includes:

- Name and signature
- Date of receipt
- Quantity
- Date of expiry
- Minimum stock
- Stock balance

## Other information:

- Shelf number
- Destination



# 5. Receipt and Storage supplies

# Inspect new orders at time of delivery

- Verify contents
- Check integrity
- Record date each item received
- Record expiration date
- Store new shipment behind existing shipment
- Create or update records



# Storage of Inventory

## Storeroom

- Clean
- Organized
- Lockable
- Well-ventilated
- No direct sunlight
- Good, sturdy shelving
- Items within reach
- Safety precautions available



# Shelving

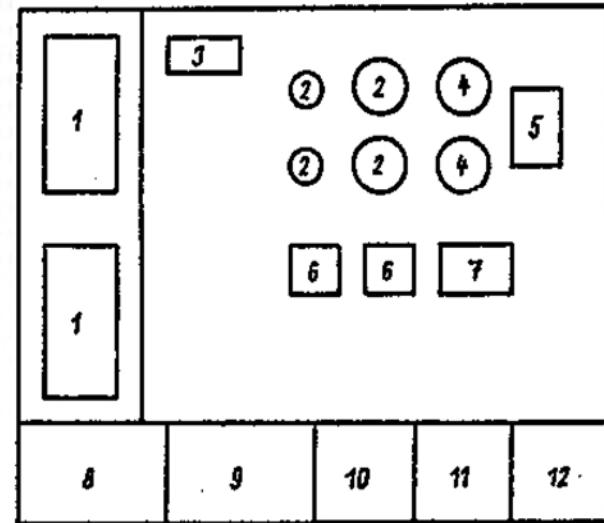


**Follow safety  
precautions**

# Shelf Organization

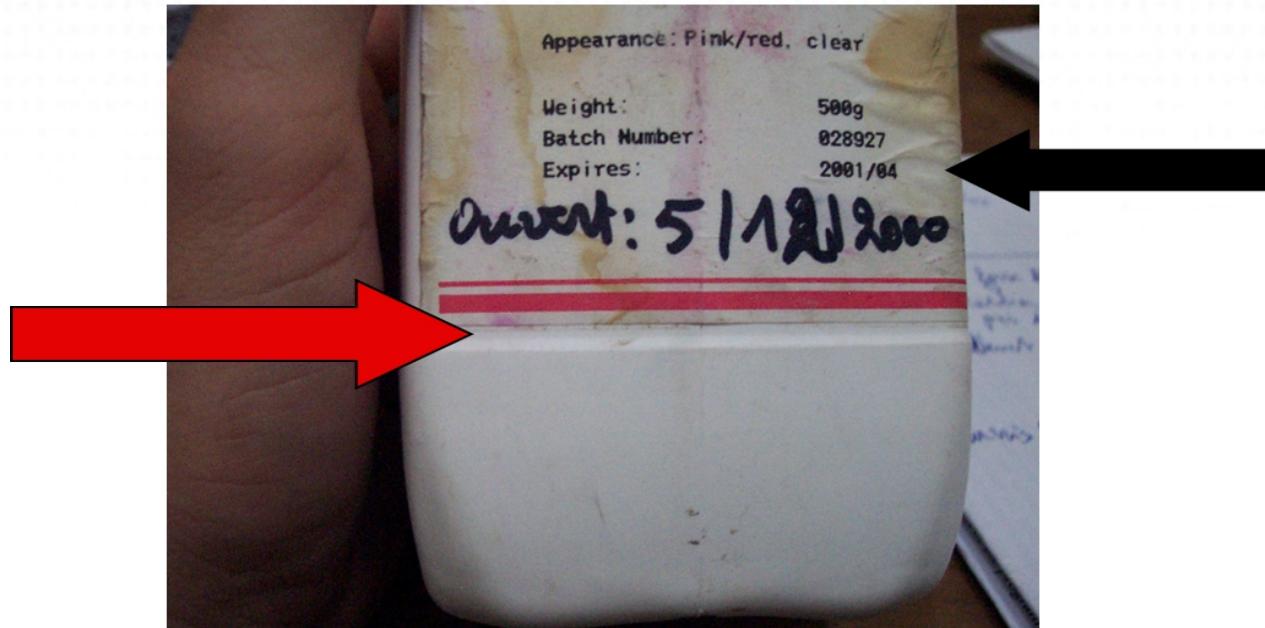
- Avoids “losing” a product
- Saves time
- Systemizes storage space

Number cold room  
or refrigerators  
and freezers and  
label shelves



# Use clearly visible dating labels

- Date opened
- Date expires



# 6. Continuous Monitoring of Inventory



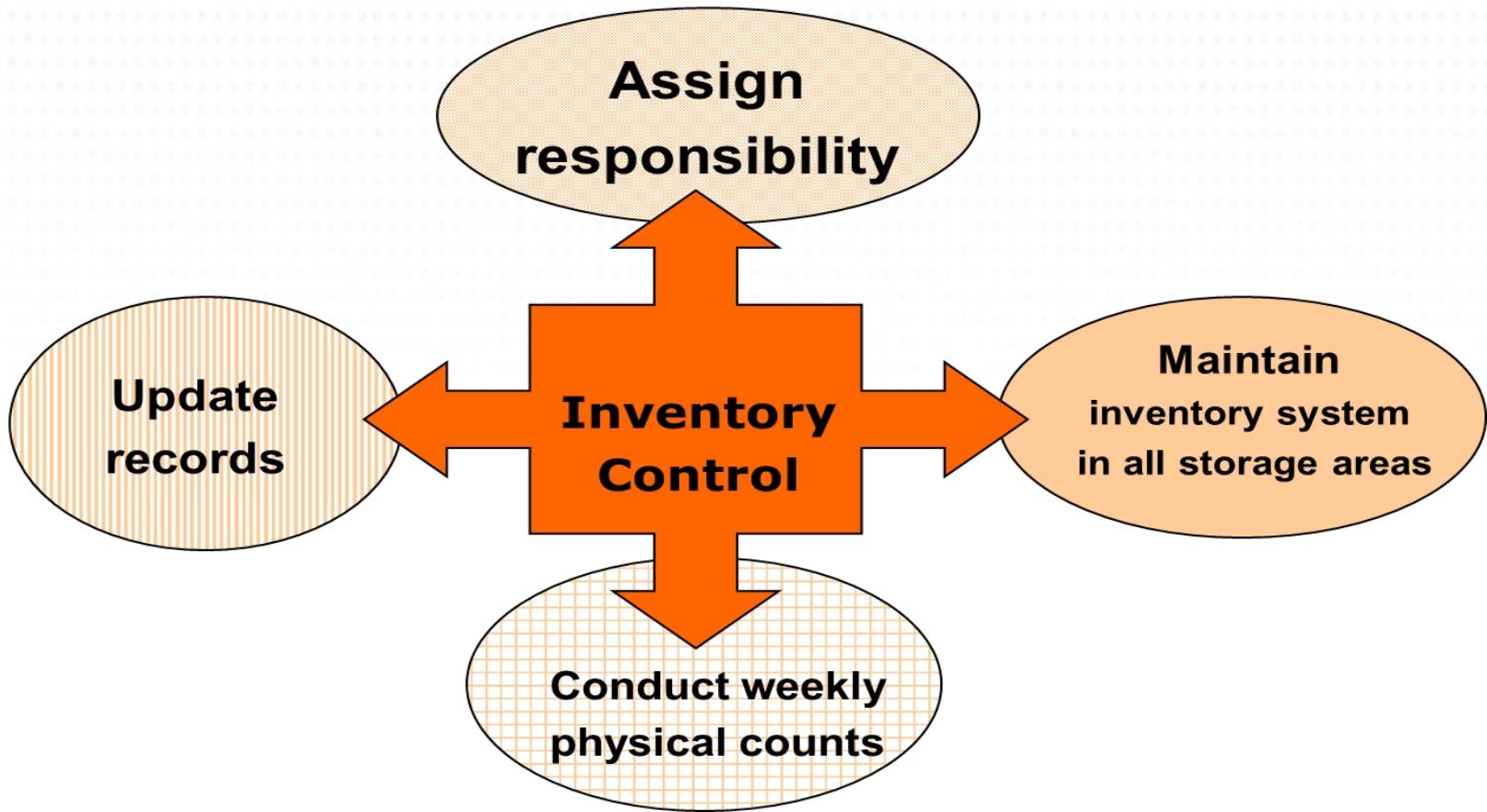
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# Continuous Monitoring of Inventory



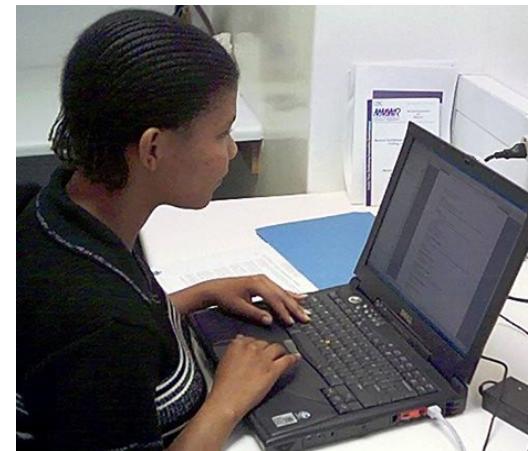
# Computerized Stock Management

## ■ Advantages:

- Exact current state of stock, product classification
- Management of expiration dates
- Statistics → planning purchase orders
- Management of possible distribution
- Makes inventory tasks easier

## ■ Drawbacks:

- An on-site computer is needed
- Requires trained staff



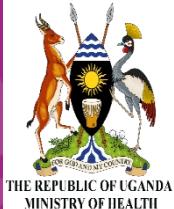
# Assessment

1. List the steps required to implement an inventory control program.
2. Name factors to consider in procurement of supplies.
3. Discuss the importance of documentation related to purchasing and inventory



# In Summary

- A well-managed laboratory will have a system for inventory maintenance and purchasing.
- The system will require planning and monitoring: analyzing needs, developing forms and procedures, and maintaining an inventory. The laboratory will maintain an inventory system for all reagents and supplies used in the laboratory.



# Key Message

Managing inventory results in:

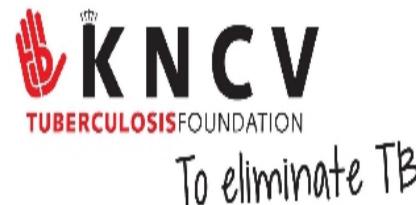
- ▀ Increased laboratory efficiency and effectiveness
- ▀ Assurance that patient or clinical needs are met
- ▀ Products available when needed



# Where do you get the standards>

- ☁ ISO 15189:2012 Medical Laboratories - Requirements for Quality and Competence  
« Clause 4.4, 4.5, 4.6, & 5.3. »
- ☁ CLSI
- ☁ ASLM

# Acknowledgement



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