2015 Version

MODULE 3

Inventory Management

SLMTA Trainer's Guide

Overview

MODULE 3. INVENTORY MANAGEMENT

Performance Outcome

With satisfactory participation in the training and successful implementation of laboratory improvement projects, a participant's laboratory should achieve the following outcome:

- No over-stocking
- No under-stocking
- No stock-out

Checklist Items Supported by this Module

This module supports the requirements for the following items from the SLIPTA Checklist:

1.5, 1.6, 2.1, 2.2, 5.16, 7.1, 7.2, 7.3, 7.4, 7.5, 7.6, 7.7, 7.8, 7.9, 7.10, 7.12, 8.12, 10.1, 11.4, 12.6, 12.9, 12.11

Learning Objectives (Management Tasks)

By the end of this module, participants should be able to perform the following management tasks:

1. Review inventory log of all equipment and parts
2. Review inventory log of all supplies and reagents
3. Monitor consumption rate and inventory level to determine when and how much to re-order
4. Enforce good stock management practices (proper storage, stock cycling, inspection of incoming orders, etc.)
5. Inspect quality of existing inventory and dispose of expired test kits, reagents, supplies and equipment according to policy

What's in this Module?

ACTIVITY TITLE	PURPOSE	DURATION
Creating a List of Supplies for a Test	To create a comprehensive inventory list, the laboratory must first identify which essential supplies are needed to support the total testing process. In this activity, participants create a supply list for a specific test. Essential supplies, commonly overlooked, will become more apparent for the participant during this activity.	45 min
What's Wrong with this Storeroom?	An important component of inventory management is the storage oversight and handling of reagents and supplies needed for laboratory testing. In this activity, participants assess the deficiencies of a simulated store room.	40 min

Overview

ACTIVITY TITLE	PURPOSE	DURATION
Did You Receive What You Ordered?	A laboratory must have a process developed to inspect the quality and quantity of reagents and supplies before they are placed into storage or use. In this activity, participants compare the purchasing document with the shipping invoice and the items received. In addition to the receipt inspection, participants learn to place and submit orders properly, maintain proper inventory records, track orders placed, and resolve discrepancies.	1 hr 5 min
	TOTAL ACTIVITY TIME:	**2 hrs 30 min**

Overview

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ACTIVITY Creating a List of Supplies for a Test Module 3

PURPOSE:

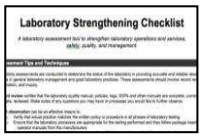
To create a comprehensive inventory list, the laboratory must first identify which essential supplies are needed to support the total testing process. In this activity, participants create a supply list for a specific test. Essential supplies, commonly overlooked, will become more apparent for the participant during this activity.

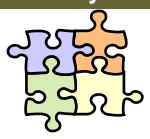
RESOURCES FOR FACILITATOR:

- ❑ PowerPoint slide: 3.7
- ❑ Tool 1: UA Supply Table
- ❑ Tool 2: Glucometer Supply Table
- ❑ Tape
- ❑ Flipchart and markers

RESOURCES FOR PARTICPANT:

None

This activity supports the following laboratory management tasks and SLIPTA checklist items	
Management Tasks 	2.5 Ensure that safety equipment is accessible and readily available (e.g., place safety equipment such as sharp box and PPE close to work station to encourage use) 3.1 Review inventory log of all equipment and parts 3.2 Review inventory log of all supplies and reagents
Checklist Items 	5.16 Laboratory Testing Services Has the laboratory provided uninterrupted testing services, with no disruptions due to equipment failure in the last year (or since the last audit)? 7.1 Inventory and Budgeting System Is there a system for accurately forecasting needs for supplies and reagents? 7.5 Budgetary Projections Are budgetary projections based on personnel, test, facility and equipment needs, and quality assurance procedures and materials? 7.12 Laboratory Testing Services Has the laboratory provided uninterrupted testing services, with no disruptions due to stock outs in the last year or since last audit?

This activity is related to the following activities:	
	Module 6: Using Standard Operating Procedures

ACTIVITY AT-A-GLANCE				
Step		**Time**	**Resources**	**Key Points**
1	Introduce the activity	10 min	Slide 3.7	
2	Conduct the activity	15 min		
3	Debrief the activity	15 min		
4	Conclude the Activity	5 min		
	TOTAL TIME:	**45 min**		

PROCESS

Preparation

- Choose a test that is performed at every participant's laboratory, such as routine urinalysis with microscopy or glucose by glucometer. Refer to Tool 1: UA Supply Table or Tool 2: Glucometer Supply Table for a list of supplies separated by testing phase. If another test is selected, then apply the same general guidelines to determine the list.
- Tape three flipchart pages on the wall. Label them: "Pre-analytical, Analytical, and Post Analytical."
- Write the selected test's name on a flipchart page at the start of the activity. Below the test's name, include the following table:

Criteria For Essential Supplies
▪ Quality
▪ Safety
▪ Usefulness
▪ Timeliness
▪ Cost-effectiveness

Step 1. Introduce the activity — 10 min

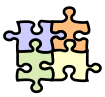
- Indicate that we use lists in our personal and professional lives. For example, when planning for a trip, we create a list of items to pack, those items essential for a successful trip. Creating lists is an organizational tool that can be used in the laboratory as well.
- Explain that essential supplies are ones that can affect the quality of your laboratory services. Without these supplies, testing is interrupted or impacted. Refer to the flipchart and explain the criteria for essential supplies. For example, safety supplies are essential because injury or illness to a staff member will impact the laboratory's productivity.
- Project Slide 3.7 to introduce the activity.
- Refer to the selected test written on the flipchart page and the three flipchart pages taped to the wall. Instruct participants to create a list of supplies essential for each phase of the testing process for the selected test.
- Ask the participants to pair up (groups of two) with the person next to him or her. Indicate each group will generate a list of essential supplies for each phase
- Suggest an approach participants can use to ensure all supplies are listed by envisioning themselves performing the test from beginning to end and noting all the supplies and equipment they use. Indicate they have 10 minutes to create their list.

Step 2. Conduct the activity — 15 min

- Provide 10 minutes of group activity time.
- Select three volunteers from three separate groups who appear to have completed their list first. Assign the volunteers to a specific phase of the testing process. Ask the volunteers to write their supplies on the appropriate taped flipchart page specific to their assigned testing phase.
- Allow the volunteers to finish writing their list on the taped flipchart pages.

Step 3. Debrief the activity — 15 min

- In plenary, review the list in each phase and discuss. Relate the listed items to the criteria used to determine essential supplies.
- Ask participants if they have any additional supplies. Add the missing items to the flipchart. For example, 'gloves' may not be sufficient, but may need to be expanded to include small, medium, and large sizes to accommodate the safety needs of all staff members.
- Emphasize areas that are commonly overlooked but will impact the ability to perform the test, such as needed items for ancillary equipment essential to the total testing process.
- Explain that creating a list of required supplies for each laboratory procedure from the standpoint of the total testing process, a comprehensive inventory list can be generated. Stress that to determine when and how much to re-order, the essential supply item must first be identified.
- Remind participants about the "Materials and Reagents" portion of a Standard Operating Procedure (SOP). Indicate by using this activity format, they can ensure their list is comprehensive for the particular test's SOP. Link this concept to the *Using Standard Operating Procedures* activity.



Step 4. Conclude the Activity — 5 min

- Highlight or reiterate the key messages below.
- Make certain participants achieved the objectives of the activity.

KEY MESSAGES

- An essential supply is one that is capable of affecting the quality of the laboratory's services.
- Essential supplies can be identified by reviewing the pre-analytical, analytical, and post analytical phases of the total testing process.
- An essential supply item must first be identified before it can be incorporated into the laboratory's inventory process.

Can they:

- Create a list of essential supplies for a specific test?
- Recognize the essential supplies needed for a test at each phase of the total testing process?

ACTIVITY OBJECTIVES MET?

➢➢ Connections and Applications

- Centrifuge brushes, microscope bulbs, or glucometer batteries are commonly overlooked. Unfortunately for many laboratories, these essential supplies become apparent when spares are not available.
- A laboratory must maintain adequate supplies to ensure uninterrupted service. Quantities needed for a supply are never determined based on overlooked items.
- For an inventory log to be complete, all essential supplies must first be identified.

Tool 1: UA Supply Table

Routine Urinalysis with Microscopy		
Pre-Analytical	**Analytical**	**Post Analytical**
○ Collection cups ○ Collection towelettes ○ Safety Items ▪ Bleach ▪ Wash bottle to prepare 1:10 bleach solution ▪ Gloves, ▪ Lab coat ○ Pens ○ Log books for specimen receipt ○ Instructions for patient's at home collection ○ Specimen transport bags ○ Requisition forms ○ Waste management (trash bag liners, etc.) ○ Waterproof markers ○ Pedi UA collection bags	○ Reagent strips ○ Cover slips ○ Positive and negative controls ○ 4x4 gauze ○ Color interpretive chart ○ Safety Items ▪ Bleach ▪ Wash bottle to prepare 1:10 bleach solution ▪ Gloves, ▪ Lab coat ○ Pens ○ Log books for QC ○ Waste management items (trash bag liners, etc.) ○ Waterproof markers ○ Timer with alarm ▪ spare batteries for timer ○ Disposable plastic pipettes ○ Disposable plastic centrifugal aliquot tubes ○ Centrifuge ▪ Spare centrifuge brushes ○ Microscope ▪ Spare bulb ▪ Spare fuse ▪ Lens cleaner ▪ Lens paper ○ Slides	○ Pens ○ Log books for result reporting ○ Report forms

Tool 2: Glucometer Supply Table

Glucose by Glucometer		
Pre-Analytical	**Analytical**	**Post Analytical**
○ Lancet ○ Alcohol pad ○ 2x2 gauze ○ Band aid ○ Safety Items ▪ Bleach ▪ Wash bottle to prepare 1:10 bleach solution ▪ Gloves ▪ Lab coat ○ Pens ○ Log books for specimen receipt ○ Waste management ▪ Trash bag liners ▪ Sharp container	○ Glucometer ▪ Spare battery ○ Glucometer strips ○ Glucometer calibrator and controls ○ Safety Items ▪ Bleach ▪ Wash bottle to prepare 1:10 bleach solution ▪ Gloves ▪ Lab coat ○ Pens ○ Log books for QC ○ Waste management items (trash bag liners	○ Pens ○ Log books for result reporting ○ Report forms

ACTIVITY What's Wrong with this Storeroom? Module 3

PURPOSE:

An important component of inventory management is the storage oversight and handling of reagents and supplies needed for laboratory testing. In this activity, participants assess the deficiencies of a simulated storeroom.

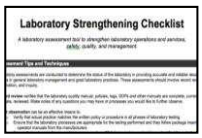
RESOURCES FOR FACILITATOR:

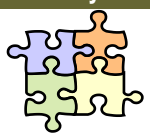
- ❑ PowerPoint slide: 3.9
- ❑ Freestanding shelf unit or two tables
- ❑ Mini-refrigerator or large cardboard box
- ❑ Supplies required to set up a simulated storeroom
- ❑ Watch or timer
- ❑ Flipchart and markers
- ❑ Tool: Temperature Chart

RESOURCES FOR PARTICIPANT:

- ❑ Job Aid: Proper Inventory Storage Guidelines (301)

This activity supports the following laboratory management tasks and SLIPTA checklist items

Management Tasks 	2.7 Ensure reagents & chemicals are stored properly 3.4 Enforce good stock management practices (proper storage, stock cycling, inspection of incoming orders, etc.) 3.5 Inspect quality of existing inventory and dispose of expired test kits, reagents, supplies and equipment according to policy 6.4 Validate new equipment, reagents, and supplies
Checklist Items 	1.5 Laboratory Policies and Standard Operating Procedures Are policies and/or standard operating procedures (SOPs) for laboratory functions, technical and managerial procedures current, available and approved by authorized personnel?(Purchasing and Inventory Control; Accommodation and Environmental Conditions; Laboratory Safety Manual) 2.1 Routine Review of Quality and Technical Records Does the laboratory routinely perform a documented review of all quality and technical records? 7.4 Inventory Control Does the lab maintain records for each reagent and consumable that contributes to the performance of examinations? 7.7 Laboratory Inventory System 7.8 Storage Area Are storage areas set up and monitored appropriately? 7.9 Inventory Organization and Wastage Minimization Is First-Expiration-First-Out (FEFO) practiced? 7.10 Product Expiration Are all reagents/test kits in use (and in stock) currently within the manufacturer-assigned expiration or within stability? 8.12 Are environmental conditions checked and reviewed accurately? 12.6 Laboratory Storage Areas Is laboratory-dedicated cold and room temperature storage free of staff food items, and are patient samples stored separately from reagents and blood products in the laboratory refrigerators and freezers? 12.9 Laboratory Safety Manual Is a laboratory safety manual available, accessible, and up-to-date? 12.11 Hazardous Chemicals Are hazardous chemicals / materials properly handled?

This activity is related to the following activities:	
	Cross-Cutting: Workstation Set-Up Module 3 and 4: Did You Receive What You Ordered?

ACTIVITY AT-A-GLANCE				
Step		**Time**	**Resources**	**Key Points**
1	Introduce the activity	5 min	Slide 3.9	
2	Conduct the activity	15 min	Watch/timer	
3	Debrief the activity	15 min	Job Aid	
4	Conclude the activity	5 min		
	TOTAL TIME:	**40 min**		

PROCESS

Preparation

- Obtain supplies for this activity from a participating laboratory. If a freestanding shelf unit is not available, then stack two tables to represent shelves. If a mini refrigerator is not available, then procure a large cardboard box and label it 'Store Room Refrigerator.' Set the box so that participants can view the reagents stored in this mock refrigerator.
- Prepare a copy of Tool: Temperature Chart to demonstrate insufficient temperature monitoring practices.
  - Fill in the appropriate month/year. If training is held during the first week of the month, then note the previous month (i.e. new log not posted on the first day of the month).
  - In addition to acceptable entries, record some temperatures that are out of range, not initialed, and missing entries (partial or for the entire day).
  - Post the completed chart on the refrigerator or next to the shelving unit.
- Set up a storeroom so that it contains various problems – see table below for suggestions.
- Compose a list of the problems to refer to during the debrief portion of the activity.
- Do not allow any participants to inspect your storeroom until the activity begins. Set it up in a separate room or while participants are outside the classroom during break or lunch.

Suggested Problems for Storeroom Set-up

❑ Empty reagent boxes/containers ❑ Shelves not labeled ❑ Ash tray ❑ Specimens in storeroom ❑ Bottle not upright, bottle not labeled ❑ Chemicals on top shelf; breakable bottles on top shelf ❑ Product in use are in stockroom (opened box of gloves) ❑ Corrosive material not stored separately ❑ Organization of shelves - items not grouped by categories (chemistry, hematology, serology, etc.) ❑ Item stored upside down	❑ Short expiry items not in front of longer expiry items ❑ 4 degree C material stored in storeroom ❑ Food & personal items in the storeroom ❑ Labeled cardboard boxes to represent old, non-functioning equipment cluttering storeroom ❑ Mini-refrigerator or a labeled 4'C cardboard box to represent a refrigerator ○ Food in reagent refrigerator ○ Reagents are expired ○ Reagents & samples stored in close proximity

Step 1. Introduce the activity 5 min

- Explain the importance of keeping a storeroom clean and organized. An organized storeroom facilitates proper storage and cycling, physical stock-

counts, and accurate inventory records. Emphasize that improper storage and handling of reagents and supplies affects patient testing.

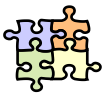
- Project Slide 3.9 to introduce the activity.
- Divide the class into groups of 4-6 participants.
- Explain each group will take turns to inspect the storeroom for 2 minutes.
- Indicate that each participant will need a paper and pencil/pen to record his/her observations.

Step 2. Conduct the activity — 15 min

- Start the timer as soon as the group reaches the storeroom.
- Announce when only 30 seconds are remaining.
- Announce when 2 minutes has ended, and the group must return to their seats.
- Continue with each group until every group has had a chance in the storeroom.
- Keep the pace fast to maintain energy and interest.

Step 3. Debrief the activity — 15 min

- Position the class so that they can see the storeroom as you debrief this activity. Inform participants to have their observation list and the checklist readily available for the activity debrief.
- Ask each participant to provide a problem he/she noted in the storeroom. Write the responses on the flipchart.
- Facilitate a discussion regarding their responses.
  - Emphasize how the problem will affect the storeroom maintenance and their inventory management.
  - Demonstrate how the simulated storeroom impedes proper storage and cycling, physical stock-counts, and accurate inventory records. Explain how a disorganized storeroom creates waste (wasted time and effort looking for supplies, or wasted time borrowing/ordering supplies that were available but overlooked, etc). Relate this to the "6S's of an Efficient Design" initially introduced (sort/straighten/shine/standardize/sustain/safety) during the *Workstation Set-Up* activity



  - Relate the provided responses to the checklist (7.0 Purchasing and Inventory) and discuss ways to address the problem.
  - Challenge participants to provide reasons that prevent them from maintaining a proper storeroom.
- Address any problem that was overlooked by the participants during initial assessment of the storeroom.
- Distribute Job Aid: Proper Inventory Storage Guidelines to participants. Indicate the job aid and checklist are tools participants can use to assess storeroom safety and storage issues at their site.

Step 6. Conclude the Activity — 5 min

- Mention that in your observation of this activity, each participant examined the storeroom with intense rigor and strong attention to detail. Emphasize that they must use the same rigor and detailed attention to identify problems in their own stock rooms and address those problems.

- Highlight or reiterate the key messages below.
- Make certain participants achieved the objectives of the activity.

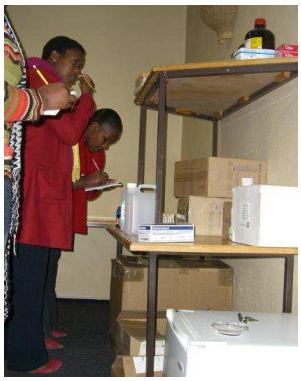
KEY MESSAGES

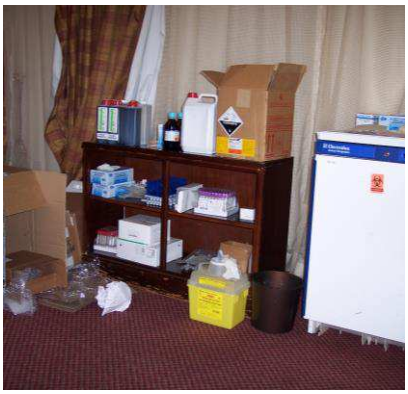
- An organized and clean stockroom is essential for inventory management.
- An organized storeroom facilitates proper storage and cycling, physical stock-counts, and accurate inventory records.
- Proper storage and handling of reagents and supplies is essential to the testing process.

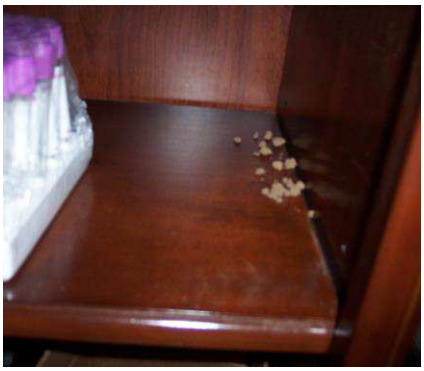
Can they:

- Recognize the important role an organized stockroom has in inventory management?
- Assess a storage area and identify issues?
- Provide solutions to address storeroom organizational issues?

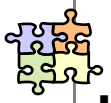
ACTIVITY OBJECTIVES MET?







Connections and Applications



- A component of reagent monitoring includes evaluating to determine acceptability of the reagent before it is placed into use. Therefore, the storage area needs to segregate any supplies and reagents that need to be evaluated before use until the evaluation has been completed. Link this concept to the activity, *Did You Receive What You Ordered?*
- Designating an area in the storage facility or placing labels on the items themselves can be used to indicate which lot numbers need to be calibrated/evaluated and which lot numbers are ready for use.
- Adverse environmental conditions, outdated reagents, improper reagent shipment, and improper reagent storage are all possible sources of error that can invalidate the results of the testing process.
- Proper storage of inventory includes monitoring the storage temperatures of reagent and supplies.

Tool: Temperature Chart

STOCK ROOM DAILY TEMPERATURE / MAINTENANCE LOG

month/year _____ review / date _____

DAY	ROOM TEMPERATURE acceptable range: (15 - 30'C) *(daily)*	REAGENT REFRIGERATOR acceptable range: (2 - 8 'C) *(daily)*	FREEZER acceptable range: (< - 20 'C) *(daily)*	INITIALS
1				
2				
3				
4				
5				
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11				
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31				

MAINTENANCE SCHEDULE

Daily: verify temperatures are within range & document / initial

As Needed and Documented Under Action: defrosting /internal cleaning of freezer/ refrigerator

Annually: verify thermometer accuracy/acceptability

Date:	Action	Initials

Job Aid: Proper Inventory Storage Guidelines

Identify a secure and adequate storage site

- ❑ Locked
- ❑ Accessible only to authorized personnel
- ❑ Free from extreme temperature and humidity
- ❑ Free from direct sunlight exposure
- ❑ Free of pests
- ❑ Free from excess moisture (water leaks and drips)
- ❑ Free of clutter and trash
- ❑ Adequate ventilation
- ❑ Sufficient lighting

Assess storage requirement

as indicated by manufacturer for each reagent and supply

- ❑ Keep ambient supplies in designated well maintained and monitored room (record temperature daily)
- ❑ Keep refrigerated supplies in designated well maintained and monitored refrigerators (record temperature daily)
- ❑ Keep frozen supplies in designated well maintained and monitored freezer (record temperature daily)

Ensure safety of storage area

- ❑ Appropriate storage of hazardous chemicals according to MSDS
- ❑ Glass or breakable items are stored on lower shelves
- ❑ All items are properly identified and labeled

Organize the supplies carefully

- ❑ Use shelves and bins to organize supplies
- ❑ Store according to temperature requirements
- ❑ Store similar items together (controls with controls, calibrators with calibrators)
- ❑ Group identical items in smaller groups that are easy to count
- ❑ Arrange items within each group by alphabetical order
- ❑ Store all items on shelves (not on the floor)
- ❑ Label the shelves with the name of each item in that area of the shelf
- ❑ Perform inventory management of supplies and reagents
  - Store all items on shelves with shorter expiry dates at the front (FEFO)
  - Rotate stock (FIFO)
  - Check for any expired reagents/supplies
  - Designate, where appropriate, an area or on the items themselves:
    - Received, not yet evaluated
    - Evaluated, ready for use
    - Not acceptable for use, to be returned or disposed

ACTIVITY Did You Receive What You Ordered? Module 3

PURPOSE:

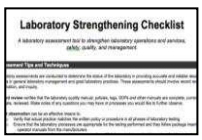
A laboratory must have a process developed to inspect the quality and quantity of reagents and supplies before they are placed into storage or use. In this activity, participants compare the purchasing document with the shipping invoice and the items received. In addition to the receipt inspection, participants learn to place and submit orders properly, maintain proper inventory records, track orders placed, and resolve discrepancies.

RESOURCES FOR FACILITATOR:

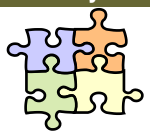
- ❑ PowerPoint slides: 3.10 to 3.13
- ❑ Tool 1: Activity Set-Up
- ❑ Tool 2: Physical Items (302)
- ❑ Tool 3: Inventory Cards (303)
- ❑ Tool 4: Calendar
- ❑ Tape
- ❑ Scissors
- ❑ Small box
- ❑ Flipchart and markers

RESOURCES FOR PARTICIPANT:

- ❑ Job Aid 1: Making a Phone Call (304)
- ❑ Job Aid 2: Receipt Checklist (305)

This activity supports the following laboratory management tasks and SLIPTA checklist items	
Management Tasks 	1.13 Communicate to upper management regarding personnel, facility, and operational needs 3.4 Enforce good stock management practices (proper storage, stock cycling, inspection of incoming orders, etc.) 4.3 Monitor procurement orders 4.4 Appropriately document and maintain accurate records of all purchase orders and requisitions
Checklist Items 	1.5 Laboratory Policies and Standard Operating Procedures Are policies and/or standard operating procedures (SOPs) for laboratory functions, technical and managerial procedures current, available and approved by authorized personnel? (External Services and Suppliers; Purchasing and Inventory Control; Identification and Control of Nonconformities) 1.6 Policy and SOPs Accessibility Are policies and SOPs easily accessible/ available to all staff and written in a language commonly understood by respective staff? 2.1 Routine Review of Quality and Technical Records Does the laboratory routinely perform a documented review of all quality and technical records? 2.2 Management Review Does the laboratory management perform a review of the quality system at a management review meeting at least annually? 7.2 Does the laboratory provide specification for their supplies and consumables that are required when placing a requisition? 7.3 Service Supplier Performance Review Does the lab monitor the performance of the suppliers to ensure that the stated criteria is met? 7.4 Inventory Control Does the lab maintain records for each reagent and consumable that contributes to the performance of examinations? 7.6 Management Review of Supply Requests Does management review/approve the finalized supply requests? 7.7 Laboratory Inventory System 10.1 Are all identified nonconforming activities/ work identified and documented adequately 11.4 Are quality indicators (TAT, rejected specimens, stock-outs, etc.) selected

	and tracked?

This activity is related to the following activities:	
	Module 1: Creating a Management Calendar Module 3: What's Wrong with this Storeroom?

ACTIVITY AT-A-GLANCE				
Step		**Time**	**Resources**	**Key Points**
1	Introduce the activity	10 min	Slide 3.10 Small box Tool 1 Tool 2	
2	Conduct the activity	40 min	Tool 1 Tool 2 Tool 3 Wall Calendar (from Tool 4)	
3	Debrief the activity	10 min	Slides 3.11 to 3.13 Job Aid 1 Job Aid 2	
4	Conclude the Activity	5 min		
	TOTAL TIME:	**65 min**		

PROCESS

Preparation

- Review Tool 1: Activity Set-Up and become familiar with the teaching notes. You may decide to change some of the items' names to better reflect the inventory participants routinely encounter. If item names are changed, ensure you update the 'physical item' and the inventory cards as appropriate to reflect the modified items.
- Prepare note cards to represent the physical items received during the inventory receipt inspection.
    - Print one copy of Tool 2: Physical Items. Ensure Tools 2 are printed using a single-sided format. Any information printed on the flip side of a double-sided print format will be unusable.
    - Based upon the suggested expiration date indicated in Tool 1, calculate an actual expiry date based upon the time the activity will be facilitated.
    - Write the expiry date for each item next to the "Expiration Date:" row.
    - For example:

Date Activity will be Facilitated	Item from Tool 1:	Expiration date indicated on Tool 1	Expiry Date inserted on Tool 2
March 10, 2009	Isoton Diluent for FBC Analyzer	2 expire in 8 months, 1 expires next month	2 cubes expire 10/11/2009 1 cube expires 10/04/2009
March 10, 2009	LDH	expire in 1 year	10/03/2010

    - Cut out the items from Tool 2 using a scissors so that you separate and have 10 slips of paper (note cards) to represent 10 physical items.
    - For the example indicated above, the note cards for Isoton and LDH would appear as follows:

Item: Isoton Diluent for FBC Analyzer
Amount: 3 cubes
Expiration Date: *2 cubes expire 10/11/2009,*
1 cube expires 10/04/2009
Storage Requirements: 15-30'C
Shipping Container: room temp box
Item's Appearance: acceptable

Item: LDH
Amount: 3 boxes
Expiration Date: *10/03/2010*
Storage Requirements: 2-8'C
Shipping Container: room temperature box
Item's Appearance: acceptable

    - Place the 10 slips of paper (note cards) into a small box.
    - Write the word, 'Invoice' in large letters on a sheet of paper and tape it to the box lid. The small box containing the 10 note cards will simulate the physical receipt of the supplies to the laboratory. Participants are familiar with receiving a shipment that includes several boxes containing items with one box containing the supplier's invoice.
- Draw the shipping invoice and order request forms on the flipchart.
    - On a flipchart, write the invoice items on the left side and the order

request items on the right side but varying the sequence. See table below for example.

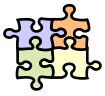
- Alternatively, you may use two flipchart pages – one for invoice items and the other for the order request. Position the 2 flipcharts side-by-side.

SHIPPING INVOICE	
Item	***Amount***
Isoton Diluent	3 cubes
Hgb Lyse	5 bottles
WBC Lyse	5 bottles
Rinse	3 bottles
FBC Controls	1 box
LDH	3 boxes
GGT	2 boxes BO 1box
Chemistry Calibrator Diluent	2 boxes
Abnormal Chemistry Controls	4 boxes
India Ink Stain Droppers	2 boxes
Total Protein	3 boxes

ORDER REQUEST	
Item	***Amount***
GGT	3 boxes
FBC Controls	1 box
Calcium	3 boxes
Hgb Lyse	5 bottles
LDH	3 boxes
WBC Lyse	5 bottles
Chemistry Calibrator (lyophilized)	2 boxes
Abnormal Chemistry Controls	4 boxes
India Ink Stain Droppers	2 boxes
Isoton Diluent	3 cubes
Rinse	3 bottles

- Print out Tool 3: Inventory Cards using a single-sided print format. Complete the next entry for the "Date Ordered" rows for the three cards. Select an ordered date that is approximately 2 months prior to the date this activity will be facilitated. During the activity, the participants will complete the entry's row. For example, using the same facilitation date of March 10, 2009, the inventory card for 'FBC Controls' would appear as follows:

	Date Ordered	Amount Ordered	Date Received	Amount Received	Notes
7	22-7-2009	2	3/10/2009	2	
8	*10/01/2009*	**1**			



- Print-out Tool 4: Calendar to create a 'Wall Calendar.' Tape this calendar to the wall near where the activity will be facilitated. If the calendar sheets from the activity, *Creating a Management Calendar*, are still posted, you may use those sheets to facilitate the follow-through entries demonstrated in this activity.

Step 1. Introduce the activity 10 min

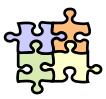
- Project Slide 3.10 to introduce the activity.
- Hold up the small box with the 'Invoice' sheet taped to the lid so that

participants can all see the box. Explain that the laboratory has just received a shipment of supplies. Indicate that the class will be inspecting the supplies and comparing the supplier's invoice sheet with their order request sheet and items received.

- Remove the 'Invoice' sheet taped to the lid while pointing to the invoice previously recreated on the flipchart page. Indicate that this is the invoice for this shipment. Point to the order request previously recreated on the flipchart page and indicate that is the submitted order to the purchasing department or supplier.
- Distribute the note cards among participants while explaining the note cards will simulate the physical items received.
- Indicate that each note card will be read aloud and compared to the invoice and order request. The class will reconcile each item and follow through on issues before proceeding to the next item.

Step 2. Conduct the activity 40 min

- **Inspect items received** - Ask a participant with a note card to read aloud information on the note card.
- **Reconcile items received with the invoice and order request.**
  - Ask the participant if the item matches the invoice and the order.
  - Place a checkmark (tick mark) next to the item listed on the invoice and order request if everything matches.
- **Facilitate problem resolution if item, quantity, or condition is unacceptable.**
  - Refer to the teaching notes in Tool 1: Activity Set-Up for key learning points.
  - Complete problem resolution with the class for that item before proceeding to the next note card.
  - Place a checkmark (tick mark) next to the item listed on the invoice and order request once an item is resolved
  - Additional tasks to be taught during this activity include:
    - Reports to management - discuss ways participants can begin documenting and reporting to upper management regarding chronic issues or unacceptable service. This documentation will be useful when supplier contracts are reevaluated.
    - Proper documentation of inventory records – discuss the importance of accurate records and documentation of corrective and follow-through actions. Demonstrate one method of maintaining inventory records using Tool 3: Inventory Cards.
    - Calling the supplier – choose 1 or 2 items that require contacting the supplier. Role play with the participant until they have resolved the issue. During the role play scenarios, provide dates when the replacement item will be shipped. Demonstrate how to update a management calendar by populating the expected replacement date on the 'Wall Calendar.' Link this to the activity, *Creating a Management Calendar*. Ensure they document the person they spoke with, the date and time of the call, and the follow-up action that will occur.

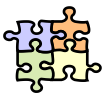


- Repeat the process until all items (note cards) have been read aloud. At the conclusion of the note cards, resolve the remaining discrepancies with the class. Resolve those items that do not have a tick mark next to them on either

the invoice or order request flipchart pages.

Step 3. Debrief the activity 10 min

- Emphasize the importance for the laboratory to retain a copy of their order request. Indicate the invoice must be reconciled with their order request.
- Distribute Job Aid 1: Making a Phone Call and review with the participants. Emphasize the importance of documentation and follow-through on issues and discrepancies.
- Explain the need to have an SOP available for all phases of inventory management, including how to inspect an incoming order, how the newly arrived items will be integrated into their storeroom, and what proper documentation of inventory records is expected. Distribute Job Aid 2: Receipt Checklist to participants as a guide to receiving and inspecting inventory.



- Project Slides 3.11 to 3.13. Emphasize that once the shipment order is inspected upon receipt, proper storage and cycling of the newly received stock is essential. Link this task to the activity, *What's Wrong with this Storeroom?*

Step 4. Conclude the Activity 5 min

- Highlight or reiterate the key messages below.
- Make certain participants achieved the objectives of the activity.

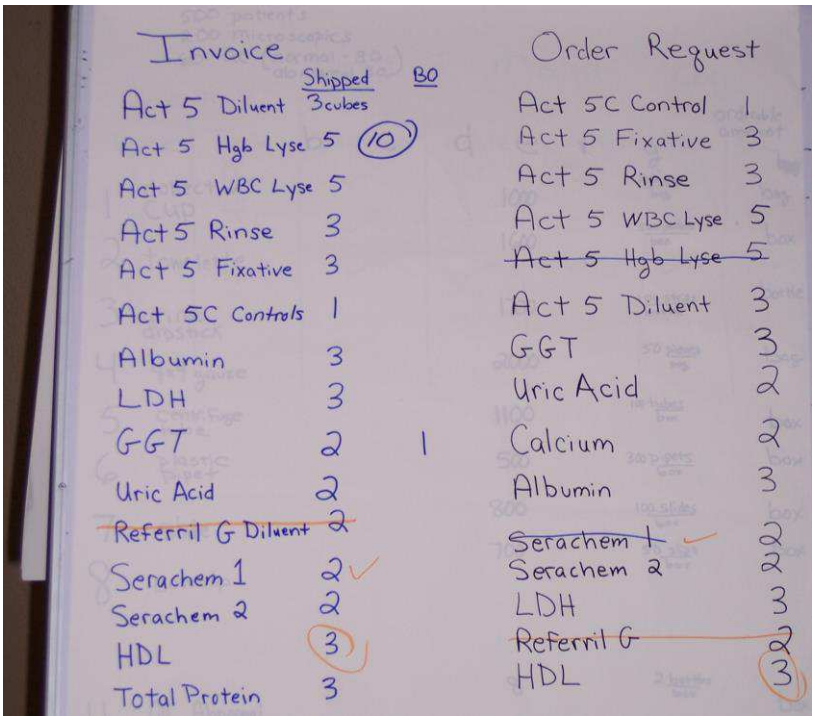
KEY MESSAGES

- The laboratory must have a process to inspect the quality and quantity of reagents and supplies before they are placed into storage or use.
- The order request must be compared and reconciled with the shipping invoice and the items received.
- Any discrepancies or issues encountered during the receipt of inventory inspection must be addressed and documented.

Can they:

- Compare the order request with the shipping invoice and the items received?
- Identify discrepancies and issues during the receipt of inventory inspection?
- Suggest follow-through actions to resolve discrepancies and issues?
- Update inventory records?

ACTIVITY OBJECTIVES MET?



➢➢ Connections and Applications

- The laboratory becomes a customer when it purchases and receives inventory from a supplier. The supplier should be receptive to discussing and following-through on issues and concerns of their laboratory customers.
- Pre-qualification conditions should be used when selecting a qualified supplier to ensure the supplier is capable of fulfilling essential supplies and support services.
- The supplier must be able to meet the cold chain requirements specified by the manufacturer for these supplies during the transport and shipping processes.
- The laboratory must establish a communicative mechanism to provide feedback on the products and services the supplier provides. The laboratory should maintain a file for each supplier that contains copies of complaints or problems. Periodic cumulative reports regarding the supplier's services should be forwarded to upper management.
- Feedback to the suppliers should occur as soon as problems are encountered, especially during the 'inspection of receipt' process performed by the laboratory staff. The complaint should be fully documented and added to the supplier's file.
- Laboratories should have an understanding of the contract agreements signed with the supplier. A laboratory should be aware of the policies regarding unusable or expired reagents, and the details defining the percentage of the available shelf-life remaining on newly received reagents.
- If the inventory shipment is received in a different location or after-hours, the laboratory must communicate any special handling instructions with the receiving department.
- Standardizing the inspection process for the receipt of inventory ensures the supplies meet the necessary quality requirements before items are placed into storage or in-use.
- The laboratory should periodically review the manufacturer's package insert for

➢➢ Connections and Applications

each item to see if the manufacturer has made any changes. Frequently, significant changes are accompanied by a brightly colored insert alerting the customer to the change. Review of package inserts can quickly be performed by comparing the revision dates printed on the insert.

- Laboratory reagent and supplies that affect the quality of your patients' results need to be evaluated for functionality before being placed into storage and/or use.
- Any reagent or supply deemed unacceptable during the inspection process should be labeled (placed into a designated quarantine area of the storage facility or marked directly on the item) so that it is not available for use. Contact the supplier immediately for follow-up instructions. Document the issue and place a copy in the supplier's file.
- Store supplies according to the manufacturer's requirements. Segregate those items that must be evaluated before they are available for use. Consider labeling the items themselves or creating designated areas in the storage facility as follows:
  - Received, not yet evaluated.
  - Evaluated, ready for use.
  - Not acceptable for use, to be returned or disposed.
- A quality indicator used to monitor the inventory process is the number of stock-outs each month. Stock-outs interrupt the laboratory services essential for patient care.

Tool 1: Activity Set-Up

ON FLIPCHART				ON NOTE CARDS						
INVOICE		ORDER REQUEST		ITEMS RECEIVED						**Teaching Note**
Item	Amount	Item	Amount	Item	Amount	Expiration date (DD/MM/YY)	Storage Requirements	Shipping Container	Reagent Appearance	
Isoton Diluent	3 cubes	Isoton Diluent	3 cubes	Isoton Diluent for FBC Analyzer	3 cubes	2 expire in 8 months, 1 expires next month	15-30'C	room temp box	acceptable	If the supplier is consistently sending short-expiry dated items, tracking and documenting chronic problems should be done. Chronic issues should be communicated to upper management. Laboratories should be aware of what constitutes an acceptable remaining shelf-life of a newly received item (60-80% remaining shelf-life). An inventory card is available for this item.
Hgb Lyse	5 bottles	Hgb Lyse	5 bottles	Hgb Lyse For FBC Analyzer	10 bottles	expire in 9 months	15-30'C	room temp box	acceptable	5 extra bottles were shipped. Manufacturers will use similar container packaging for an analyzer's reagents. Close inspection is essential upon receipt. In this case, the Hgb Lyse bottle containers are the same size and color as the WBC Lyse bottles. However, one label is blue and the other label is yellow indicating a different item. The vendor's shipping department mistakenly packed the wrong item.
WBC Lyse	5 bottles	WBC Lyse	5 bottles	no note card, will discover error after all cards have been read aloud						None received; 5 extra Hgb Lyse were shipped instead of WBC Lyse.

Tool 1: Activity Set-Up

ON FLIPCHART				ON NOTE CARDS						Teaching Note
INVOICE		ORDER REQUEST		ITEMS RECEIVED						
Item	Amount	Item	Amount	Item	Amount	Expiration date (DD/MM/YY)	Storage Requirements	Shipping Container	Reagent Appearance	
Rinse	3 bottles	Rinse	3 bottles	Rinse for FBC Analyzer	3 bottles	expire in 9 months	15-30'C	room temp box	acceptable	No action needed with vendor
FBC Controls	1 box	FBC Controls	1 box	FBC Controls	1 box	expire in 3 months	2-8'C	refrigerated box	cold packs are no longer cool, QC material appears brown	The shipping temperature did not remain at 2-8'C. Always check the coolant packs to ensure they are still cool upon arrival An inventory card is available for this item..
LDH	3 boxes	LDH	3 boxes	LDH	3 boxes	expire in 1 year	2-8'C	room temperature box	acceptable	The vendor transported this item at the wrong shipping temperature. A laboratory must be aware of the manufacturer's storage/shipping requirements.
GGT	2 boxes BO 1box	GGT	3 boxes	GGT	2 boxes	expire in 1 year	2-8'C	refrigerated box	acceptable	The back order of this supply is noted on invoice. This accounts for the quantity discrepancy at the time of receipt inspection. However, follow-up to ensure delivery of the BO item still must be performed. An inventory card is available for this item

Tool 1: Activity Set-Up

ON FLIPCHART				ON NOTE CARDS						Teaching Note
INVOICE		ORDER REQUEST		ITEMS RECEIVED						
Item	Amount	Item	Amount	Item	Amount	Expiration date (DD/MM/YY)	Storage Requirements	Shipping Container	Reagent Appearance	
Chemistry Calibrator Diluent	2 boxes	no entry		Chemistry Calibrator Diluent	2 boxes	expire in 1 year	2-8'C	refrigerated box	acceptable	The wrong item was requested by supply department due to similar sounding product name. The diluent is used to reconstitute the lyophilized Chemistry Calibrator
no entry		Chemistry Calibrator (lyophilized)	2 boxes	no note card, will discover error after all cards have been read aloud						
Abnormal Chemistry Controls	4 boxes	Abnormal Chemistry Controls	4 boxes	Abnormal Chemistry Controls	4 boxes	expire in 1 year	2-8'C	refrigerated box	1 box crushed	An accident while shipping occurred. Similar shipping issues can be product leakage. Safety issues for handling broken or leaking products must be considered.
India Ink Stain Droppers	2 boxes	India Ink Stain Droppers	2 boxes	India Ink Stain Droppers	1 box	expire in 1 year	15-30'C	room temp box	acceptable	The quantity shipped does not match the invoice. There is no indication of BO on the invoice.
Total Protein	3 boxes	no entry		Total Protein	3 boxes	expire in 1 year	15-30'C	room temp box	acceptable	The item was never requested by the laboratory.
no entry		Calcium	3 boxes	no note card, will discover error after all cards have been read aloud						This item was never ordered. There was a catalogue number inversion with Total Protein (Calcium Catalog # 13-587) and Total Protein Catalog # 13-578).

Tool 2: Physical Items

Item: Isoton Diluent for FBC Analyzer **Amount:** 3 cubes **Expiration Date:** **Storage Requirements:** 15-30'C **Shipping Container:** room temp box **Item's Appearance:** acceptable	**Item:** Hgb Lyse for FBC Analyzer **Amount:** 10 bottles **Expiration Date:** **Storage Requirements:** 15-30'C **Shipping Container:** room temp box **Item's Appearance:** acceptable
Item: Rinse for FBC Analyzer **Amount:** 3 bottles **Expiration Date:** **Storage Requirements:** 15-30'C **Shipping Container:** room temp box **Item's Appearance:** acceptable	**Item:** FBC Controls **Amount:** 1 box **Expiration Date:** **Storage Requirements:** 2-8'C **Shipping Container:** refrigerated box **Item's Appearance:** cold packs are no longer cool; QC material appears brown
Item: LDH **Amount:** 3 boxes **Expiration Date:** **Storage Requirements:** 2-8'C **Shipping Container:** room temperature box **Item's Appearance:** acceptable	**Item:** GGT **Amount:** 2 boxes **Expiration Date:** **Storage Requirements:** 2-8'C **Shipping Container:** refrigerated box **Item's Appearance:** acceptable

Tool 2: Physical Items

Item: Chemistry Calibrator Diluent **Amount:** 2 boxes **Expiration Date:** **Storage Requirements:** 2-8'C **Shipping Container:** refrigerated box **Item's Appearance:** acceptable	**Item:** Abnormal Chemistry Controls **Amount:** 4 boxes **Expiration Date:** **Storage Requirements:** 2-8'C **Shipping Container:** refrigerated box **Item's Appearance:** 1 box crushed
Item: India Ink Stain Droppers **Amount:** 1 box **Expiration Date:** **Storage Requirements:** 15 - 30'C **Shipping Container:** room temp box **Item's Appearance:** acceptable	**Item:** Total Protein **Amount:** 3 boxes **Expiration Date:** **Storage Requirements:** 15-30'C **Shipping Container:** room temp box **Item's Appearance:** acceptable

Tool 3: Inventory Cards

Item FBC Controls

Catalogue Number 8547167

Vendor XYZ Vendor

Vendor's Information PO Box 1066, Durban, S.A. Phone +27317642830 Fax +2731764-3739

Unit Quantity box (contains 2 highs, 2 lows, 2 normals); opened exp date is 15 days

	Date Ordered	Amount Ordered	Date Received	Amount Received	Notes
1	17-2-2008	2	17-4-2008	2	
2	21-5-2008	1	23-7-2008	1	
3	16-9-2008	2	22-11-2008	2 / 1 leaking	1 box had a cracked normal control and was leaking; called Judy on 22-11-2008 at 1550 to report; shipping replacement box on 23-11-2008, should arrive on 30-11-2008 ASM (initials of staff performing follow-through)
4			30 -11-2008	1	replacement box TM (initials of staff performing follow-through)
5	28-2-2009	2	15-4-2009	2	
6	25-5-2009	1	6/6/2009	1	
7	22-7-2009	2	3/10/2009	2	
8		1			
9					
10					

Tool 3: Inventory Cards

Item Isoton Diluent for FBC Analyzer

Catalogue Number 8539167

Vendor XYZ Vendor

Vendor's Information PO Box 1066, Durban, S.A. Phone +27317642830 Fax +2731764-3739

Unit Quantity cube

called on 25-7-2008 at 0935 to investigate shelf-life of cubes, spoke with Judy, she indicated the shipped cubes received normally have a 6-9 months shelf life before expiring LLF (initials of Lead Tech)

All Staff Members: As of 25/7/2008, I want to be notified of expiration dates LLF

	Date Ordered	Amount Ordered	Date Received	Amount Received	Notes
1	17-2-2008	5	17-4-2008	5	4 cubes expire in 5 months, 1 cube expires next month but will be consumed LLF (initials of Lead Tech)
2	21-5-2008	3	23-7-2008	3	2 cubes expire next month, 1 cube expires in 6 months, will investigate LLF
3	16-9-2008	6	22-11-2008	5	1 cube expires at end of month, called John on 22-11-2008 at 1550 to report; shipping replacement cube on 23-11-2008, should arrive on 30-11-2008 LLF (initials of staff performing follow-through)
4			30 -11-2008	1	replacement cube, expires in 8 months TM (initials of staff performing follow-through)
5	28-2-2009	4	15-4-2009	4	
6	25-5-2009	7	6/6/2009	7	
7	22-7-2009	4	3/10/2009	4	2 cubes expire in 4 months, 1 cube expires next month but will be consumed ASM (initials of staff member) LLF OK'd it
8		3			
9					
10					

Tool 3: Inventory Cards

Item	GGT
Catalogue Number	18480300
Vendor	V&H Surgical Supplies
Vendor's Information	PO Box 1134, Pinewood, S.A. Phone +275059583 Fax +275059582
Unit Quantity	box

	Date Ordered	Amount Ordered	Date Received	Amount Received	Notes
1	*15-2-2009*	*4*	*17-4-2009*	*4*	
2	*21-5-2009*	*3*	*23-7-2009*	*3*	
3	*16-7-2009*	*4*	*1/11/2009*	*3*	
4		*3*			
5					
6					
7					
8					
9					
10					

Tool 4: Calendar

Monday	Tuesday	Wednesday	Thursday	Friday	Sat/Sun
	1	2	3	4	5/6
7	8	9	10	11	12/13
14	15	16	17	18	19/20
21	22	23	24	25	26/27
28	29	30			

Job Aid 1: Making a Phone Call

Making A Phone Call

When Making A Service Call

Make sure you have the following information:

- Instrument model
- Instrument serial number
- Description of the problem
- Actions already taken
- Appropriate contact information
  - –Direct service contact number
  - –Laboratory number for service technician to return calls

At the end of the call, you should know:

- Date/time of the call
- Person with whom you spoke
- Next steps to be taken
- When (timeframe) they will be taken
- Note date for follow-up on management calendar

TIPS

Make sure you have the correct number
Speak clearly and courteously
Gather all the information before the call
Have a pen ready to write down information
Always document the call afterwards

When Calling About An Order

Be ready to describe the problem with the order:

- Missing item?
- Wrong item?
- Wrong amount?
- Expiry date too close?
- Damaged product?
- Unacceptable condition?

After the call, document:

- Reason for the call
- Date/time of the call
- Person with whom you spoke
- Corrective action (what was promised, when will it take place, etc.)

Job Aid 2: Receipt Checklist

Receiving Inspection Checklist

Receipt Inspection Performed By: _____

Receipt Inspection Date: _____ Invoice Number _____

Shipment Arrival Date: _____

- ❑ The order is complete and acceptable
- ❑ All discrepancies are documented

Discrepancy	Item's Name
Wrong Item	
Wrong Quantity	
Damaged Item	
Defective Item	
Back-ordered Item	
Missing Item	
Item Not Requested by Laboratory	

Attach a copy of the invoice and order request with checklist.

- ❑ The correct items were shipped
- ❑ No items are missing
- ❑ Quantity of items received matches quantity indicated on invoice
- ❑ Quantity of items received matches quantity requested by laboratory
- ❑ Manufacturer's expiry date is acceptable
- ❑ Items transported at the correct shipping temperature
- ❑ Cold packs are cold (refrigerated items) or frozen or partially thawed (frozen items).
- ❑ Items are not crushed, broken or leaking.
- ❑ Any broken or leaking item has been handled safely and disposed of properly
- ❑ Any manufacturer's alerts or changes to the package insert are noted
- ❑ Inventory records are updated
- ❑ A copy of the invoice and order request is retained in the laboratory.
- ❑ Shipment is unpacked and properly integrated with existing inventory
    - Each item is labeled with the receipt date and the receiving person's initials before placed into storage or use.
    - Each item is stored behind existing items in the correct bin or area. (FIFO)
    - Items are rotated following FEFO
    - Items to be evaluated or returned to vendor are clearly marked and segregated from items ready for use.