

Facilitator Guide (FG1)

***PROCUREMENT AND INVENTORY MANAGEMENT***

SUMMARYOF MODULE AT A GLANCE

\* Refers to either Xpert MTB/RIF and / or Xpert MTB/RIF Ultra

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| **Purpose of module:** | To provide participants with an overview of procurement and inventory management of consumables for the Xpert MTB/RIF (Ultra)\* tests | |
| **Total time of module** | 2 hours 45 minutes | |
| **CONTENT OUTLINE** | | |
| **Power point: TB Diagnostics Global Policies and Strategies** | Aim: to provide participants with an overview of procurement and inventory management of consumables for the Xpert MTB/RIF (Ultra) tests  Learning objectives:   * List all supplies required for performing the Xpert MTB/RIF (Ultra) tests * Forecast supplies needed based on the number of tests performed during a specific period * Describe the procurement processes * Explain the use and importance of the stock log book in maintaining an adequate inventory * Explain storage and shelf life requirements of Xpert MTB/RIF (Ultra) kits | 2 hours |
| **Discussion Questions** | 1. What is included in supply chain management? 2. Why is a physical stock count necessary? 3. List two items provided with the GeneXpert MTB/RIF (Ultra) kit? 4. List two items NOT provided with the GeneXpert MTB/RIF (Ultra) kit? | 15 minutes |
| **Exercise 1: Forecasting** | Aim: to correctly forecast reagent testing requirements for Xpert MTB/RIF (Ultra) | 30 minutes |
| **Handout and exercise/prac­ticals in module** | 1. Worksheet (W1:M3): Forecasting 2. Worksheet (W2: M3): Forecasting 3. Worksheet (W3: M3): Forecasting 4. Handout (H1: M3): Forecasting 5. Handout (H2: M3): Forecasting 6. Handout (H3: M3): Forecasting |  |
| **Additional resources or references:** | * Logistics supply management tool. TB CARE I. [www.tbcare1.org/publications/toolbox/lsm/](http://www.tbcare1.org/publications/toolbox/lsm/) * Guidance for countries on the specifications for managing TB laboratory equipment and supplies. Geneva, World Health Organisation. 2011. <http://whqlibdoc.who.int/publications/2011/9789241503068_eng.pdf> * Guidelines for Managing the Laboratory Supply Chain: Version 2. Arlington, Va.: USAID | DELIVER PROJECT, Task Order 1 2008. <http://deliver.jsi.com/dlvr_content/resources/allpubs/guidelines/GuidManaLabSC_v2.pdf> |  |

Module notes

Slides 6 a diagrammatic representation of main areas within supply chain management. Selection, compromising product specification and forecasting, proceed the ordering process. Distribution may be managed through various mechanisms, but must ensure the correct products are adequately delivered to the laboratory for use. Within the laboratory, storage and stock management ensure the quality of products for testing

**Slide 9 & 11** these slides must be customized to describe the supply chain systems in your country

**Slide 17** a diagrammatic representation of distribution networks. Use the slide to discuss the distribution network in your country

**Slide 21** if Xpert MTB/RIF Ultra is not available in your country, this slide can be skipped

**Slides 25-43** systematically take participants through the calculations for forecasting Xpert MTB/RIF Ultra supplies. Ensure that participants fully understand the concepts, as they will be required to repeat the example in the following exercise. It may be necessary to support some participants who require held with the math of this example.

EXERCISE: FORECASTING

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| **Purpose of exercise:** | To correctly forecast reagent testing requirements for Xpert MTB/RIF |
| **Preparation:** | * Work in pairs * Review the information provided for each calculation * Perform the calculations to forecast the reagent testing requirements for Xpert MTB/RIF |
| **Materials required:** | Full list of materials participants need:   * Pens * Calculator or phone * Worksheet- Calculation #1 (W1:M3) * Worksheet- Calculation #2 (W2:M3) * Worksheet- Calculation #3 (W3:M3) * Handout- Calculation #1 (H1:M3) * Handout- Calculation #2 (H2:M3) * Handout- Calculation #3 (H3:M3) |
| **Total time of exercise:** | 30 minutes |
| **Feedback expected:** | * Ask participants to complete one exercise at a time * Observe the answers as pairs complete the exercise & choose a pair with the correct answer * When all pairs are complete, allow the pair to share their answers with the participants * Provide the participants with the Handout for the exercise * Check that all other pairs have the correct answer, or understand their mistake(s) * Proceed to the following exercise & repeat |

CONDUCTING THE EXERCISE

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| Read out instructions (shown above in “preparation”) | 2 minutes |
| Break into pairs | 2 minutes |
| Perform the exercise (on exercise at a time) | 5 minutes × 3 = 15 minutes |
| Report back to full group (on exercise at a time) | 2 minutes per exercise (6 minutes) |

Key messages from exercise/practical

Forecasting of supplies is generally under control of a national system. However, supply chain managers must be familiar with ALL the items required to perform a test. Knowledge of the number of tests performed & good inventory control ensure that accurate numbers of stock-in-hand can inform forecasting requirements.

Worksheet FORECASTING (W1:M3)

**Instructions calculation #1:**

* Time period of order = Quarterly
* Number of Xpert MTB/RIF tests site performs per day = 10
* The lab works 21 days a month
* The lab uses 0.0015L bleach /test

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| Quarterly Supply requirements for Xpert MTB/RIF testing | | | | | | | |
| Laboratory **Regional reference laboratory** | | | | | | | |
| Region **Western Region** | | | | Supply Quarter **3** | | | |
| District **Urban** | | | | Year **2016** | | | |
| Total tests performed in previous quarter, including failed tests (A) | | | | | | | |
| Items | Quantity needed per test (B) | Stock for one month (C) =(A/3)\*B | Stock for quarter with 1 month buffer (D)= C\*4 | Stock on hand (E) | Calculated request (F) = D-E | Order unit (G) | Actual order (H) = F/G and round up |
| Sputum container |  |  |  | **30** |  | **100 pack** |  |
| Xpert MTB/RIF |  |  |  | **100** |  | **50 kit** |  |
| Concentrated bleach (L) |  |  |  | **0.25L** |  | **1L bottle** |  |

Worksheet FORECASTING (W2:M3)

**Instructions calculation #2:**

* Time period of order = Quarterly
* Number of Xpert MTB/RIF Ultra tests site performs per day = 5
* The lab works 25 days a month
* The lab uses 0.0015L bleach /test

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| Quarterly Supply requirements for Xpert MTB/RIF testing | | | | | | | |
| Laboratory **Regional reference laboratory** | | | | | | | |
| Region **Western Region** | | | | Supply Quarter **3** | | | |
| District **Urban** | | | | Year **2016** | | | |
| Total tests performed in previous quarter, including failed tests (A) | | | | | | | |
| Items | Quantity needed per test (B) | Stock for one month (C) =(A/3)\*B | Stock for quarter with 1 month buffer (D)= C\*4 | Stock on hand (E) | Calculated request (F) = D-E | Order unit (G) | Actual order (H) = F/G and round up |
| Sputum container |  |  |  | **75** |  | **100 pack** |  |
| Xpert MTB/RIF |  |  |  | **20** |  | **50 kit** |  |
| Concentrated bleach (L) |  |  |  | **1L** |  | **1L bottle** |  |

Worksheet FORECASTING (W3:M3)

**Instructions calculation #3:**

* Time period of order = Quarterly
* Number of Xpert MTB/RIF Ultra tests site performs per day = 12
* The lab works 21 days a month
* The lab uses 0.0015L bleach /test

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| Quarterly Supply requirements for Xpert MTB/RIF testing | | | | | | | |
| Laboratory **Regional reference laboratory** | | | | | | | |
| Region **Western Region** | | | | Supply Quarter **3** | | | |
| District **Urban** | | | | Year **2016** | | | |
| Total tests performed in previous quarter, including failed tests (A) | | | | | | | |
| Items | Quantity needed per test (B) | Stock for one month (C) =(A/3)\*B | Stock for quarter with 1 month buffer (D)= C\*4 | Stock on hand (E) | Calculated request (F) = D-E | Order unit (G) | Actual order (H) = F/G and round up |
| Sputum container |  |  |  | **250** |  | **100 pack** |  |
| Xpert MTB/RIF |  |  |  | **175** |  | **50 kit** |  |
| Concentrated bleach (L) |  |  |  | **3L** |  | **1L bottle** |  |

Handout FORECASTING (H1:M3)

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| Quarterly Supply requirements for Xpert MTB/RIF testing | | | | | | | |
| Laboratory **Regional reference laboratory** | | | | | | | |
| Region **Western Region** | | | | Supply Quarter **3** | | | |
| District **Urban** | | | | Year **2016** | | | |
| Total tests performed in previous quarter, including failed tests (A) **630** | | | | | | | |
| Items | Quantity needed per test (B) | Stock for one month(C) =(A/3)\*B | Stock for quarter with 1 month buffer (D)= C\*4 | Stock on hand (E) | Calculated request (F) = D-E | Order unit (G) | Actual order (H) = F/G and round up |
| Sputum container | **1** | **210** | **840** | **30** | **810** | **100 pack** | **9 packs** |
| Xpert MTB/RIF | **1** | **210** | **840** | **100** | **740** | **50 kit** | **15 kits** |
| Concentrated bleach (L) | **0.0015** | **0.315** | **1.26** | **0.25L** | **1.01** | **1L bottle** | **2 bottles** |

Handout FORECASTING (H1:M3)

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| Quarterly Supply requirements for Xpert MTB/RIF Ultra testing | | | | | | | |
| Laboratory **Regional reference laboratory** | | | | | | | |
| Region **Western Region** | | | | Supply Quarter **3** | | | |
| District **Urban** | | | | Year **2016** | | | |
| Total tests performed in previous quarter, including failed tests (A) **375** | | | | | | | |
| Items | Quantity needed per test (B) | Stock for one month   (C) =(A/3)\*B | Stock for quarter with 1 month buffer (D)= C\*4 | Stock on hand (E) | Calculated request (F) = D-E | Order unit (G) | Actual order (H) = F/G and round up |
| Sputum container | **1** | **125** | **500** | **75** | **425** | **100 pack** | **5 packs** |
| Xpert MTB/RIF Ultra | **1** | **125** | **500** | **20** | **480** | **10 kit** | **48 kits** |
| Bleach (L) | **0.0015** | **0.1875** | **0.75** | **1L** | **-0.25** | **4L bottle** | **0 bottles** |

Handout FORECASTING (H3:M3)

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| Quarterly Supply requirements for Xpert MTB/RIF Ultra testing | | | | | | | |
| Laboratory **Regional reference laboratory** | | | | | | | |
| Region **Western Region** | | | | Supply Quarter **3** | | | |
| District **Urban** | | | | Year **2016** | | | |
| Total tests performed in previous quarter, including failed tests (A) **756** | | | | | | | |
| Items | Quantity needed per test (B) | Stock for one month (C) =(A/3)\*B | Stock for quarter with 1 month buffer (D)= C\*4 | Stock on hand (E) | Calculated request (F) = D-E | Order unit (G) | Actual order (H) = F/G and round up |
| Sputum container | **1** | **252** | **1,008** | **250** | **758** | **100 pack** | **8 packs** |
| Xpert MTB/RIF Ultra | **1** | **252** | **1,008** | **175** | **833** | **10 kit** | **84 kits** |
| Bleach (L) | **0.015** | **0.378** | **1.512** | **3L** | **-1.488** | **4L bottle** | **0 bottles** |

MODULE ANSWERS

1. **What is included in supply chain management?**

A process that includes:

Product selection, specification & forecasting

Procurement and ordering

Distribution

Onsite stock management

1. **Why is a physical stock count necessary?**

To determine how much to order to avoid stock-outs and expiring of cartridges or other perishable consumables

1. **List two items provided with the GeneXpert MTB/RIF (Ultra) kit?**

Any two of the following:

Assay Cartridges

Sample Reagent

Disposable transfer pipettes

CD containing the Assay Definition File

1. **List two items NOT provided with the GeneXpert MTB/RIF (Ultra) kit?**

Any two of the items listed on slides:

Biohazard supplies (Slide 13)

PPE & lab supplies (Slide 14)

Stationary supplies (Slide 15)