Quality Management Systems for non-laboratory settings – Toolkit

Define site needs, buffer and alert stocks and calculate quantity to order

World Health Organization

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Quantification involves estimating the quantities of tests and other materials needed to satisfy demand over a specified period.

The required quantities of testing commodities are influenced by factors such as population size, disease prevalence, health programs, and the nature of the intervention. To assess these requirements, the site supervisor works together with various site staff members (testing providers, pharmacists, stock managers) to review historical data, population needs (including population size and disease prevalence), past consumption trends, and both current and anticipated types of activities. To note that when quantifying commodities for seasonal disease, for example malaria, the peak season period should be considered.

In addition, to avoid shortages, each testing site **needs to set a buffer and alert stock levels**.

The **buffer stock, also known as safety stock**, is a defined quantity of each item that must be available anytime to prevent stockouts due to unexpected demand fluctuations, supply chain disruptions, or longer lead times (the time between an order is placed and its delivery).

The **alert stock** is calculated to cover predefined periodic activities, and when this level is reached, it triggers an emergency order to prevent stock-outs. It is essential to consider lead times, the sites' **average monthly consumption (AMC)**, and potential fluctuations in demand (e.g. malaria). This alert stock should be sufficient to cover the anticipated consumption during the lead time for new supplies to arrive. It is important to inform the site supervisor/QA officer immediately when the alert stock is reached.

The **AMC** is the number of tests used on average during one month over a representative period. To be representative, AMC should be calculated using the consumption of a period at least 3 consecutive months, and ideally, during the intervals between 2 orders.
To note that for seasonal disease (e.g. malaria), peak and non peak AMC should be calculated as they can be drastically different.

AMC can be calculated from data from testing registers (see document "data collection and analysis tools from Pillar 3: Procurement, supply chain and inventory management and any other relevant forms (e.g. stock cards). The average monthly consumption is essential for determining the number of commodities needed to maintain operations without shortage or overstock for a specific period.

Each site should use standardized request/order form (see document "Order form template") and **have a predefined procedure and schedule for regular orders** (e.g. HIV test should be ordered every 6 months) **and have a specific process to place emergency orders** (e.g. place an order when alert stock is reached).

Checking the supply upon reception is an important activity to ensure that quantity and quality of items received correspond to what has been ordered. **In case of discrepancy, it is critical to inform the site supervisor/QA officer**, report to the supply center and ask for replacement when necessary.

Calculate AMC, buffer stock, Site alert stock level and quantity to order (always check national procedure for calculation):

- **AMC** = Total Consumption over a Period/Number of Months
  e.g. if a site used 600 HIV tests over 6 months, the site AMC is 100 (600 tests /6 months =100 tests/month).

- **Buffer Stock** = Average Lead Time (months) × AMC
  e.g. if the average lead time is 6 months and AMC is 100, the buffer stock is 600 tests (6 months x 100 tests)

- **Site Alert Stock Level** = AMC x Lead time (in months) + Buffer stock (in months)
  e.g. if the average lead time is 6 months, the AMC is 100 and the buffer stock is 600: the alert stock is 1200 (100 tests x 6 months + 600 tests).
  When the available stock reaches 1200 the site must place a new order.

- **Quantity (Qty) to order** = AMC x (months to cover + lead time) + Buffer stock - Current stock
  e.g. a testing site wants to place an order to cover 3 months of activity for one HIV test knowing that:
  Average lead time= 6 months,
  the AMC= 100 tests/month
  the predefined buffer stock= 600 tests
  the current stock (from physical inventory)=150 tests
  Qty to order = 100 (3+6) + 600-150
  = 100 x 9 +600 -150
  = 900 + 450
  = 1350 tests

To note:

- It is important to take into consideration all testing points (ANC, laboratory, community testing, ER, TB wards…) from a site when calculating quantity to order
- Shelf life and the AMC of each tests need to be reviewed to make sure ordered tests will be used before they expire

Tools available:

- A specific module of the **SLMTA e-learning training curriculum focuses on purchasing and inventory.** It included training modules on:

  - Forecasting and Calculating Order Amounts Introduction 2024**:** Estimate the quantities of commodities required to meet needs based on historical data, population needs, and consumption patterns

  - did you receive what you ordered? Inspect quality and quantity of supplies