Implementing an Inventory Management Program

In establishing an inventory control program, there are a number of factors to consider. A system should be designed so that the laboratory can closely monitor the condition of all supplies and reagents, know what quantities are available, and be alerted when there is a need to re-order.

The following are important steps for implementation:

- assign responsibility—without this, nothing may get done;
- analyze the needs of the laboratory;
- establish the minimum stock needed for an appropriate time period;
- develop needed forms and logs;
- establish a system for receiving, inspecting, and storing supplies;
- maintain an inventory system in all storage areas, and for all reagents and supplies used in the laboratory.

A laboratory needs a process for analyzing its needs for materials; and for determining how many kits for a particular test should be on hand.

The laboratory should make a list of all the tests it performs and identify all the supplies and reagents that are needed for each test.

It is wise to use all available information to help estimate the usage of supplies and reagents for the period of time between ordering new materials. The information necessary for analyzing needs includes:

- a complete description of each item used;
- the package count or number of units in which the item is supplied, e.g., a kit can include 12 tests or 100 tests and pipette tips can be packaged as 100 per box, or 1000 per box;
- approximate usage per month (quantification), for example, 6 boxes used per month;
- the priority or importance level the item has in doing the work of the laboratory—i.e., is it used every day or only once a month?
- length of time required to receive a delivery—will the order take a day, week, or month to arrive?
- storage space and conditions—will a bulk order use too much storage space? Does the item require storage in a refrigerator?
Quantification

Why?

How can a laboratory determine how much of any particular item to order?

Quantification is a very important process that can help calculate how much is required of any particular item for a given period of time, and it is an essential part of a successful inventory management program.

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.

When?

Quantification is performed when making annual plans for the laboratory and this planning will take into account the usual usage of supplies and reagents.

There are times when it is important to consider how new demands on the laboratory will create a need for greater testing volume. This often occurs when new health programs are being implemented, and in preparation for epidemics, either identified or potential.

How?

The two frequently used methods are consumption-based quantification and morbidity-based quantification.

Consumption-based quantification

Laboratories most frequently use the consumption-based method, drawing on their experience over time. This method is based on actual consumption, so there are a number of factors to consider. For example, to determine the actual usage, it is important to also estimate how much wastage has occurred and how many expired or spoiled reagents and supplies have been discarded.

For planning, it is a good idea to consider whether any supplies or reagents have been out of stock for more than 15 days during any time of the year. This may mean that supplies are not ordered in sufficient quantities, or that the wastage or expiry is
higher than predicted.

**Morbidity-based quantification**

In using the morbidity-based quantification method, the laboratory must take into account the actual number of episodes, illnesses, and health problems that require laboratory testing. In other words, the laboratory needs to estimate an expected frequency of the disease in question—how many cases will occur per unit of population (per 1000, per 10,000, etc). Then, considering how many people the laboratory serves, it can estimate the total number of cases the community might reasonably expect to observe. Using standard guidelines for diagnosis and treatment and considering how well health care providers adhere to these guidelines can help to estimate how many laboratory tests will be performed.

A good morbidity-based quantification method is more accurate than the quantification by consumption method, but it depends on accurate data.
Monitoring Inventory

Continuous monitoring of inventory

Procedures should be developed and put in place for continuous monitoring of the inventory. To ensure this is done effectively:

- assign the responsibility for this task to an appropriate person or persons; someone must be in charge;
- be sure that all supplies and reagents in the laboratory are covered by the system and maintain inventory management in all of the storage areas;
- conduct weekly physical counts of reagents and supplies in order to check the system, and as a part of the monitoring process;
- make sure that all records relevant to inventory management are updated and maintained.

Computerized inventory management

In many laboratories, a simple computerized system can be set up for management of inventory.

There are many advantages to using a computer. A computer will:

- keep track of the exact number of supplies and reagents on hand, as it can be updated daily;
- allow for good management of expiration dates; the system can be set up to alert when lot numbers are near the expiration date, and therefore use of resources can be optimized;
- generate statistics that will help when planning and making purchases;
- help manage the process for distributing reagents to satellite laboratories;
- ease the burden of inventory management.

Some drawbacks to setting up a computerized system are:

- an on-site computer is needed, and it could be expensive to purchase;
- staff using the system will need to be trained.

Example

Annex 4-C provides an example of a computerized inventory report.

The software program that developed this inventory report example is free of charge and is available on the CD. There are other free software programs available.