Using the stock card to calculate average monthly consumption

Average monthly consumption (C_A), adjusted for stock-outs (due to damage, expiry or problems with delivery), is a measure of how much stock is used in an average month over a specific period. This information is critical for those responsible for calculating quantities to be procured or to be supplied by stores to an individual laboratory.

Average monthly consumption can be calculated using the sum of quantities used or distributed over a period of time, normally 12 months.

Average monthly consumption, adjusted for stock-outs (C_A), **is defined as the average number of units used per month.**

The formula for calculating C_A is:

$$C_A = C_T \div [R_M - (D_{OS} \div 30.5)]$$

where:

C_T = total consumption during the review period

R_M = total consumption review period, in months

D_{OS} = number of days an item was out of stock during the review period

30.5 = average number of days in a month.

Example

Using the stock card for glass slides shown in Figure AA3.2, it is possible to obtain two pieces of information that will assist in calculating the average monthly consumption over 12 months.

- The total consumption over 12 months is obtained by summing all the disbursements made between 1 January and 31 December of the year covered by the stock card. The total consumption was 220 boxes of glass slides.

- The number of days out of stock can be obtained by looking at the STOCK column. This shows that, from 3 August to 4 November, there were no boxes of slides in stock. Therefore, the number of days the item was out of stock was 92 days.

These values can be entered into the above equation to calculate C_A, as follows:

$C_A = C_T \div [R_M - (D_{OS} \div 30.5)]$

$C_A = 220 \div [12 - (92 \div 30.5)]$

$C_A = 220 \div [12 - 3.02]$

$C_A = 220 \div 8.98$

$C_A = 24.5$ boxes.

Note: failing to take into account the number of days out of stock would give a lower (and inaccurate) result of $220 \div 12 = 18.3$. This would subsequently affect all other calculations and result in inaccurate quantification of needs for the laboratory.

Minimum safety stock

Safety stock is necessary to protect the storeroom from stock-outs; it also provides a safety net for variation within the procurement system. There is no single formula for calculating the safety stock level; however, this number is usually calculated from C_A. For example, if stock is normally distributed every month and the laboratory wishes to have sufficient safety stock for two months to account for slower than normal delivery, safety stock would be calculated as follows:

Safety stock = $2 \times C_A$

   = 2 months extra for distribution $\times$ the number of units per month.

In the case of the glass slides, the safety stock required is:

$2 \times 24.5 = 49$ boxes.

When stocks are depleted to this level, the item must be reordered.

To avoid stock-outs, the stock should not be allowed to go below the amount needed to cover two months. The approaches and strategies used to maintain adequate inventory levels should be reviewed. In the calculations presented above, the average inventory level can be lowered by reducing either the safety stock or the order quantity. However, if the order quantity is reduced, the item will need to be ordered more frequently to prevent stock-outs. This results in a reduced average inventory. More frequent ordering makes it easier to adapt to changes in demand and means that a lower level of safety stock is required. This reduction in the safety stock further reduces the average inventory. A shortened order interval increases some costs related to procurement, including:

- administrative costs – there will be a greater workload in the ordering process;
- shipping and transportation costs – more deliveries will be needed;
- unit costs – the cost per unit may be higher when purchasing smaller quantities.

In summary, shortening the order interval can reduce the average inventory level and thereby reduce the costs of holding inventory. However, procurement costs may increase.

Inventory control form

The inventory control form is a form that allows the store or the individual laboratory to summarize the quantities and value of stock on hand. It also makes it possible to record discrepancies between the amount of stock that is actually on hand and the amount that should be on hand. An example of such a form is shown in Figure AA3.3.

Stock may become unavailable due to stock-outs, deterioration, expiry, breakage or theft. Losses due to deterioration, expiry, breakage or theft often constitute a large part of the budget, so all means to reduce such losses should be taken. The quantification process can correct for, or at least minimize, stock-outs and losses due to over-stocking, but it cannot correct for the other factors.

Used in conjunction with the list of expired laboratory supplies, the inventory control form is a critical record because it identifies stock losses that may have occurred at the storeroom level.

Another method for checking for stock losses within the laboratory is to compare the amount of stock ordered for the laboratory against the test register. It can be difficult to check everything; therefore, it is best to select a few key high-value or problematic items, and monitor these regularly. Losses above those expected due to calibration of equipment or breakage may indicate some other cause of loss, which should be investigated.

Loss from any cause should be minimized to make the laboratory more efficient. Money saved by minimizing stock losses can be used for improving or expanding services at no extra cost to the facility.

Using the inventory control form

This exercise should be performed at least once per quarter.

- Using the information on the laboratory's stock cards, enter the details for each product and the current balance.

- Assign a member of staff to make a physical count of each of the items that have been listed on the inventory control form.

- Enter the physical count in the appropriate column and compare with the quantities on the stock card.

- Record the discrepancies in the appropriate column.

In the example of a completed inventory control form (Figure AA3.4), there are discrepancies between the balance on the stock card and the physical count for five items. Possible reasons for such discrepancies could be that:

- the stock cards have not been accurately maintained;

- the physical stock count was inaccurate; or

- stock has been stolen from the storeroom.

This should be further investigated and corrective action taken.

Figure AA3.3   Inventory control: quarterly stock-taking form

Name of store or laboratory _____

Page no: _____

Date completed: ____ / ____ / ____

Code no.	Product name	Stock unit	Quantity on stock card	Physical count	Unit price	Total price (physical count × unit price)	Discrepancy (stock card minus physical count)	Expiration date

Prepared by: _____

Function or category: _____

Confirmed by: _____

Function or category: _____