Annex A3:

Examples of inventory control forms

Stock or bin card

Stock (or bin) cards keep track of stock movements within a store or health facility. A stock card is the basic record needed to establish accurate quantities of individual items to reorder. A separate stock card is needed for each inventory item.

Basic components of a stock card

A stock card should contain the following components.

- *Full name and chemical formula*. Enter the full name (for all items) and the chemical formula (as appropriate) for the commodity; for example:
  - Unigold HIV rapid test kit
  - potassium iodide [KI]
  - sulfuric acid [H_2SO_4].
- *Unit*. Provide the distribution unit of measure. Determine in what unit the item will be distributed (e.g. by packs of 100 tests or by base units, such as grams or litres). When supplies arrive and are not in predetermined units of measure, employees in the storeroom can become confused when attempting to fill out stock cards.
- *Item code*. Record the unique identification code used by the health system. This code is normally found in the catalogue of the medical stores.
- *Expiry date*. Find the expiry date printed on the container. This date is determined by the manufacturing company. When the item passes this date, the manufacturer does not guarantee the potency, purity or safety of the product.
- *Minimum stock level*. Determine and record the minimum stock level. When stocks are depleted to the minimum stock level, the item must be reordered.
- *Maximum stock level*. The maximum stock level is the total quantity necessary to meet the needs of the health facility for a specific period.

How to use the stock card

1. Enter the opening balance and the date the stock is checked.
2. *Receiving stock*. Enter the date stock is received, the quantity received according to the issue unit, and the stock balance (in this case, the stock balance will equal the previous balance plus the quantity received).
3. *Issuing stock*. Enter the date stock is issued, the quantity issued according to the issue unit, and the stock balance (in this case, the stock balance will equal the previous balance minus the quantity issued).
4. *Tracking loans*. Enter the date stock is borrowed and the location the goods are loaned to or borrowed from. Enter the quantity issued or received according to the issue unit, and record the stock balance (in this case, the stock balance will equal the previous balance minus the quantity loaned or plus the quantity borrowed).

Figures AA3.1 and AA3.2 show the format of a typical stock card and an example of a stock card for a laboratory storeroom.

Figure AA3.1 Typical stock card

Name and strength	Unit	Item code	Expiration date
Average monthly consumption		Minimum level	Maximum level

RECEIPTS				DISBURSEMENTS			STOCK		
Date	Document number	Quantity	Location	Document number	Quantity	Destination	Quantity	Unit value	Total value

Figure AA3.2 Typical stock card - example for laboratory storeroom

Name and strength	Unit	Item code	Expiration date
Glass slides	Box (100 slides)	P500	None
Average monthly consumption		Minimum level	Maximum level
		50	150

RECEIPTS				DISBURSEMENTS			STOCK		
Date	Document number	Quantity	Location	Document number	Quantity	Destination	Quantity	Unit value	Total value
1 Jan	Inventory						50		
15 Jan				Req #1	5	Lab	45		
18 Feb				Req #3	20	Lab	25		
22 Mar				Req #10	5	Lab	20		
6 Apr				Req #43	8	Lab	12		
10 May	LI-3	100	Lab store				112		
15 May				Req #50	25	Lab	87		
20 Jun				Req #53	30	Lab	57		
30 Jun				Req #59	25	Lab	32		
1 Jul				Req #62	15	Lab	17		
3 Aug				Req #70	17	Lab	0		
Sep							0		
Oct							0		
4 Nov	SU-15	200	Lab store				200		
6 Nov				Req #72	30	Lab	170		
8 Nov				Req #78	40	Lab	130		
31 Dec	Inventory						130		

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 × 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

Page no: _____

Name of store or laboratory _____ 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: _____ Confirmed by: _____

Function or category: _____ Function or category: _____

Figure AA3.4 Example of completed inventory control form

Name of store or laboratory _____ Date completed: ____/____/____

Code no.	Product name	Stock unit	Quantity on stock card	Physical count	Unit price (USD)	Total price (physical count × unit price)	Discrepancy (stock card minus physical count)	Expiration date
P500	Glass slides	Box (500 slides)	130	130	8.00	1040.00	-	
P511	Sputum collection containers	Carton (1000)	72	56	70.00	3920.00	16	
R26	Basic fuchsin powder	100 g	8	8	35.00	280.00	-	
R28	Auramine O powder	50 g	7	7	20.00	140.00	-	
R27	Methylene blue powder	100 g	11	10	60.00	600.00	1	
R43	Immersion oil	100 ml	14	14	20.00	280.00	-	
P482	Nichrome wire	Roll (10 metres)	5	5	8.00	40.00	-	
A28	Disposable gloves	Box (100)	32	25	10.00	250.00	7	
T22	Microscope bulb	1	12	8	25.00	200.00	4	
R18	Lysol disinfectant	Bottle (5 litres)	43	43	7.00	301.00	-	
T23	Spare eyepiece for microscope	1	6	2	200.00	400.00	4	
					TOTAL	7451.00		

Prepared by: _____

Function or category: _____

Confirmed by: _____

Function or category: _____

List of expired laboratory supplies

A typical form for listing expired laboratory supplies is shown in Figure AA3.5. The list can be used to reveal two common problems.

- The expired items may have been over-stocked.
- Goods may have been received that have a shelf-life that is shorter than the reorder period.

The first of these problems can be overcome by more accurate quantification. The second suggests either that orders should be placed more frequently, or that items with unduly short expiry dates should not be accepted, or both.

A second use for the list of expired laboratory supplies is to find evidence of theft. To do this, users should compare the list of expired laboratory supplies with the inventory control form, subtracting the amount of expired stock from any discrepancy and allowing for normal wastage. The result can point to the possibility of theft. This information can then be used as the basis for investigating and taking necessary action to prevent such theft from happening again.

A third use for the list of expired laboratory supplies can be to record expired, damaged or deteriorated stock that has been destroyed. In all cases, stock that has been returned or destroyed or is otherwise unusable should be deducted from the stock on hand in the stock records – it does not constitute part of the regular use of that item.

The data gathered in this list provide an indicator and can be used periodically to help manage the laboratory's work. The results can be sent to the procurement team with the consumption data.

An example of a completed list of expired laboratory supplies is given in Figure AA3.6.

Figure AA3.5 List of expired laboratory supplies

Stock number	Product description	Expiry date	Quantity	Unit price	Total price
			TOTAL:		

Date completed: _____

Figure AA3.6 Example of completed list of expired laboratory supplies

Stock number	Product description	Expiry date	Quantity	Unit price	Total price
R27	Methylene blue powder, 100 g	May 2005	1	60.00	60.00
R28	Auramine O powder, 50 g	June 2009	3	20.00	60.00
			TOTAL: USD 120.00		

Date completed: _____