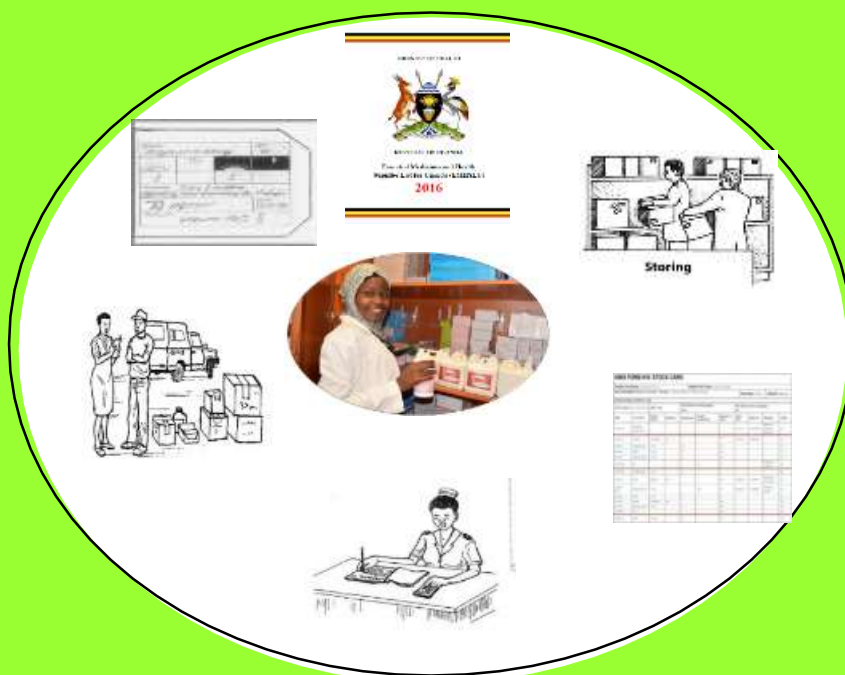




# UGANDA ESSENTIAL MEDICINES AND HEALTH SUPPLIES MANAGEMENT MANUAL



DEPARTMENT OF PHARMACEUTICAL SERVICES AND NATURAL MEDICINES

MINISTRY OF HEALTH

GOVERNMENT OF UGANDA

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## PREFACE

This is the second manual for the management of Essential Medicines and Health Supplies, developed after the first (2012). This manual was developed by the Pharmacy Department, Ministry of Health, in collaboration with the United Nation Fund for Population Activities (UNFPA), Clinton Health Access Initiative (CHAI) with assistance from individuals in various fields including supply chain management, warehousing and distribution, quantification and procurement, health supplies monitoring and health workers representing all levels of care. The purpose of this manual is to provide health workers with a reference book on managing supply chain for Essential Medicines and Health Supplies (EMHS). EMHS form the second biggest expenditure in the health sector after human resources. Efficient management of these resources requires that health workers have the right skills, knowledge, attitude, and practice.

Supply chain management (SCM) is a continuous activity that involves selection, quantification, procurement, distribution, storage, and appropriate use of medicines and health supplies. Although a number of cadres in the health sector, such as pharmacists, pharmacy technicians, and supply officers, receive training in supply chain management as part of their basic training, many of the other cadres handling health commodities do not receive supply chain management training as part of their professional courses. Therefore, in-service training is needed to fill the gap. Over the years, several manuals have been developed that focused on specific categories of commodities, such as antiretrovirals (ARVs), tuberculosis medicines, and laboratory supplies. As a result, many tools and processes were developed just to handle specific items, leading to duplication and fragmentation that were costly burdens to the health care system.

This manual describes how to manage supplies based on revised and harmonized tools. It will act as a reference guide for health workers and focus on basic principles of supply chain management. If properly followed, it will promote efficient stock control and ordering of all EMHS. Health workers at all levels of care in the public sector are encouraged to use the stock management system described herein. Financial resources to procure needed medicines and health supplies are limited; therefore, appropriate stock management to ensure optimal use of resources cannot be overemphasized. Wastage through overstocking, expiry, and inappropriate use should be minimized. This manual outlines the use of the vital, essential, necessary (VEN) classification system in EMHS management. When funds are limited, the quantities to procure must be reduced and prioritized as outlined in this manual.

We believe that this manual will act as a building block for more comprehensive, integrated, and institutionalized training in medicines management in Uganda.

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# ACRONYMS

AMC	Average Monthly Consumption
CAO	Chief Administrative Officer
DDMC	District Disaster Management Committee
DEPRC	District Emergency Preparedness Response Committee
DHC	Diocesan Health Coordinator
DHO	District Health Office
DLFP	District Laboratory Focal Person
DMMS	District Medicines Management Supervisor
DTF	District Task Force
DTLS	District TB and Laboratory Supervisor
eLMIS	Electronic Logistics Management Information System
EM SPARS	Essential Medicines and Health supplies SPARS
EMHS	Essential Medicines and Health Supplies
EMHSLU	Essential Medicines and Health Supplies List of Uganda
EML	Essential Medicines List
EPI	Expanded Program on Immunisation (EPI)
FEFO	First Expiry First Out
FIFO	First In First Out
GHSA	Global Health Security Agenda
HMIS	Health Management Information System
HSD	Health Sub District
HSDP	Health Sector Development Plan
IML	Institutional Medicines List
IMT	Incident Management Team
INN	International Non-proprietary Name
IPD	Inpatients Department
JMS	Joint Medical Store
Lab SPARS	Laboratory SPARS
LMIS	Logistics Management Information System
LSS	Laboratory SPARS Supervisor
MAAIF	Ministry of Agriculture, Animal Industry and Fisheries
MAUL	Medical Access Uganda Limited

MB	Medical Bureau
MMS	Medicines Management Supervisor
MoFPED	Ministry of Finance, Planning and Economic Development
MOH	Ministry of Health
MTC	Medicines and Therapeutics Committee
NADDEC	National Diagnostic and Diseases Epidemiologic Centre
NDA	National Drug Authority
NECOC	National Emergency Coordination and Operations Centre
NMS	National Medical Stores
NPA	National Planning Authority
NPSSP	National Pharmaceutical Sector Strategic Plan
NTF-LC	National Task Force Logistics Committee
OPD	Outpatients Department
OPM	Office of the Prime Minister
PFM	Pharmaceutical Financial Management
PGD	Practical Guideline for Dispensing
PHEOC	Public Health Emergency Operations Centre
PNFP	Private Not for Profit
SCM	Supply Chain Management
SDG	Sustainable Development Goals
SPARS	Supervision Performance Assessment and Recognitions Strategy
STG	Standard Treatment Guidelines
TB SPARS	Tuberculosis and Leprosy SPARS
UCG	Uganda Clinical Guideline
UHMG	Uganda Health Marketing Group
VIMCB	Vaccines and Injection Materials Control Book
VMMC	Vaccine Vial Monitor
VEN	Vital, Essential, Necessary
WHO	World Health Organization

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## DEFINITIONS

<b>Credit line</b>	The credit line is a virtual budget/account at NMS/JMS allocated to all MoH accredited Government and PNFP health facilities from which they order for and/or are supplied EMHS. The credit line is funded by the Government of Uganda.
<b>Discrepancy</b>	This is a situation when there is a difference between what has been received and what is written on the invoice/delivery note or if the items received were not of good quality.
<b>Forecasting</b>	It is the process of estimating the expected consumption of commodities based on historical consumption, service statistics, morbidity and/or demographic data or assumptions when data is unavailable, to calculate the quantities of commodities needed to meet demand during a particular time frame.
<b>Forward logistics</b>	Forward logistics is the flow of products through the supply chain towards the consumer i.e. from the supply side to the demand side. It encompasses movement of products at any stage from manufacturer, warehouses, and facilities to consumers or patients.
<b>Procurement planning</b>	Procurement planning is the process of defining or selecting the products/services and the respective quantities to be procured for a particular time period taking into consideration the budget. EMHS procurement planning in Uganda occurs at Ministry of Health, warehouse (NMS/JMS), district and facility levels.
<b>Pull system</b>	This refers to a supply mechanism whereby the facility determines items and quantities to order.
<b>Push system</b>	This refers to a supply mechanism whereby the items and quantities to be supplied to a health facility are pre-determined not requiring an order from the health facility.
<b>Quantification</b>	It is the process of estimating the quantities and cost of the products required for a specific health program (or service), and determining when the products should be delivered to ensure uninterrupted supply for the program.
<b>Redistribution</b>	Redistribution is a practice that involves movement of usable medicines and or health commodities from one health facility to another.
<b>Reverse Logistics</b>	Reverse logistics is the flow of products from any stage of the supply chain back to preceding stages; that is from the demand side to the supply side.

- Standardized Kit** This is a list of predetermined items and quantities for a specific user supplied periodically.
- Supply Chain** A supply chain is the collection of processes and resources required to make and deliver a product to the final customer.
- Supply Planning** It is the final output of quantification; supply planning details the quantities required to fill the supply pipeline, costs, lead times, and arrival dates of shipments to ensure optimal procurement and delivery schedules.

# CHAPTER | 1 | MEDICINES POLICY AND REGULATION

## 1.1. National Medicines Policy

The Ministry of Health is mandated to develop policies and regulations that govern availability, access, and use of medicines, and oversee their implementation. The Health Sector Development Plan (HSDP) 2015/16-2019/20 outlines the strategic direction and implementation of Uganda's aspirations of Universal Health Coverage. One of these objectives is: "To ensure that essential, efficacious, safe, good quality and affordable medicines and health supplies are available and used rationally at all times in Uganda". This objective is detailed in the National Medicines Policy (NMP) 2015 and is implemented under the direct oversight of the Department of Pharmacy in the Ministry of Health. The implementation of the NMP is detailed in the third National Pharmaceutical Sector Strategic Plan 2015/16-2019/20 (NPSSP III)<sup>1</sup>.

## 1.2. Medicines Regulation

Medicines regulation can be defined as the combination of legal, administrative, and technical measures that governments take to ensure the safety, efficacy, and quality of medicines, as well as the relevance and accuracy of product information<sup>2</sup>. This section gives an overview of the regulatory framework for the management of medicines in both the public and private sector.

### 1.2.1 Justification for Medicines Regulation

The use of ineffective, poor quality or harmful medicines can result in therapeutic failure, exacerbation of disease, resistance to medicines, adverse events and sometimes death. It also undermines confidence in the health system, health professionals, pharmaceutical manufacturers and distributors. Access to medicines is a fundamental element of the right to health and is a key target to attainment of Sustainable Development Goal (SDG) 3<sup>3</sup>. The Government of Uganda, therefore, has a constitutional mandate to fulfil the fundamental rights of Ugandans to opportunities and access to health services, and to protect its citizens from social or economic exploitation that is likely to be harmful to their health or physical, mental, spiritual, moral or social development. Government of Uganda Vision 2040 enshrines a competent healthcare system as being essential for attainment of Middle Income status<sup>4</sup>. The Government has therefore, established an effective national regulatory framework to ensure that the manufacture, trade, importation, exportation,

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<sup>1</sup> Uganda Ministry of Health, 2015. *National Pharmaceutical Sector Strategic Plan 2015/16-2019/20 (NPSSP III)*

<sup>2</sup> Lezotre, P. 2014. *Convergence and Harmonization of Pharmaceutical Regulations*. Academic Press (Elsevier).

<sup>3</sup> World Health Organisation, 2015. *Sustainable development goals*

<sup>4</sup> Uganda National Planning Authority, 2017. *Uganda Vision 2040*

distribution and use of medicines are regulated appropriately and that the public has access to accurate information on medicines.

### ***1.2.2 Regulation of Medicines and Health Supplies in Uganda***

The National Drug Authority is mandated under Chapter 206 of the laws of Uganda with the improvement of Government regulation and control of manufacture, production, importation, exportation, marketing and use of medicines<sup>5</sup>. The Narcotics Drugs and Psychotropic Substances Control Act 2015 provides for the control, possession and trafficking of narcotic drugs and psychotropic substances. Uganda is currently reviewing the Indigenous and Complementary Medicines Bill to control and license the practice of indigenous and complementary medicine.

The Pharmacy and Drugs Act Chapter 280 of the laws of Uganda prescribes the standards in the practice of Pharmacy. Other acts govern the other professions in the health sector, including the Allied Health Professionals Act (Chapter 268), the Nurses and Midwives Council Act (Chapter 274) and the Uganda Medical and Dental Practitioners Act (Chapter 272).

The National Medical Stores Act (CAP 207) provides for the efficient and economical procurement of medicines and other medical supplies and the secure, safe and efficient storage, administration and distribution to the public health sector. Under the Public Private Partnerships Policy for health, MOH has engaged private warehouses to complement the National Medical Stores, including Joint Medical Stores, Medical Access (U) Ltd and others.

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<sup>5</sup> National Drug Policy and Authority Act 1993, Part I (5).

## CHAPTER | 2 | SELECTION, QUANTIFICATION AND PROCUREMENT PLANNING

### 2.1. Selection of Essential Medicines and health supplies

Essential Medicines are those health commodities that satisfy the priority health care needs of the population, at a price they and the community can afford<sup>6</sup>. Public sector medicines and health supplies are included in the Essential Medicines and Health Supplies List of Uganda (EMHSLU) 2016, which is used to guide procurement and supply. The list is developed at the national level on the basis of the Uganda Clinical Guidelines, National Laboratory Test Menu and Techniques and other national guidelines. The rationale for the selection and use of a limited number of essential medicines is that it leads to an improved supply of medicines, more rational prescribing and lower costs.

Essential medicines are selected according to the following criteria:

- Disease pattern;
- Public health relevance;
- Evidence on efficacy and safety;
- Adequate scientific data and evidence of performance in a variety of settings;
- Adequacy of quality;
- Favourable cost-benefit ratio;
- Desirable pharmacokinetic properties;
- Availability of health infrastructure and equipment;
- Capacity of medical staff to prescribe the medicine;
- The possibility for local manufacture; and
- Availability as single compounds (Management Sciences for Health, 2012).

#### ***Advantages of a limited list of essential medicines and health supplies***

- Majority of health problems are treated with a small number of medicines
- Health professionals use few medicines in practice (and use them more rationally)
- Procurement and distribution are more efficient with fewer medicines
- Patients can be better informed when fewer medicines are used

#### ***2.1.1. Guiding Principles of the EMHSLU***

In Uganda, the EMHSLU is made up of four (4) categories, namely essential medicines, general health supplies list, specialist health supplies list and the laboratory supplies list.

The following principles are applied in the EMHSLU:

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<sup>6</sup> WHO, 1977. *The Selection of Essential Drugs. Report of a WHO Expert Committee.* World Health Organization.



- Categorization of medical supplies according to therapeutic indication and VEN classification
- Stratification according to relevance at the different levels of care
- Use International Non-proprietary (generic) Names.

## The VEN Concept

The **Vital, Essential, Necessary (VEN)** classification aims to prioritise items by the magnitude of their clinical relevance to guide procurement by warehouses and medicine and supply selection, planning and ordering by health facilities. The aim is to ensure that the most vital medicines are given **first priority** when procuring so that they are always available at all times. The VEN principle applies to all health commodities including sundries, laboratory items and consumables.

- **V: Vital** drugs are potentially lifesaving, and unavailability would cause serious harm and side effects, must be available always
- **E: Essential** drugs are effective against less severe but nevertheless significant forms of illness but are not absolutely vital to providing basic health care
- **N: Necessary** (or sometimes called **non-essential**) drugs are used for minor or self-limited illnesses, are of questionable efficacy, or have a comparatively high cost for a marginal therapeutic advantage.

## 2.2. Quantification

Quantification is the process used to determine how much of the specific EMHS is needed for procurement for a specific period. If the procurement plan is to cover a twelve months period, the consumption data for the past twelve months should be reviewed if available. EMHS can be quantified using one or a combination of the standard methods. These include consumption, morbidity and proxy method.

### 2.2.1. Consumption Method

Involves use of the past consumption records for individual medicines to project future needs. In many instances, the consumption method is the most precise method for quantifying EMHS usage provided the source data are complete, accurate, properly adjusted for stock outs and anticipated changes in demand and use. The likely sources for data on consumption include stock cards, stock book, Electronic Logistics Management Information Systems (eLMIS) such as RX solution<sup>®</sup> among others.

**How to use the updated stock card and stock book to extract consumption data for each EMHS item.**

- **Using a stock card**
  - Determine the quantity consumed in 12 months or 365 days

- Calculate the number of months or days you were out-of-stock for this item in 12 months or 365 days.
- Determine the number of days or months the item was available in the period of review by subtracting the days or months you were out of stock from 365 days or 12 months
- Divide the consumption by the number of months or days it was available, and multiply by 12 months or 365 days.
- Using a stock book
- Add up the calculated monthly consumption for the last 12 months in the “adjusted MC” column (aMC) for each EMHS.
- Make a note of the total at the bottom of the page for each item

It is important to realize that the appropriateness of past drug use may or may not correspond with public health priorities and needs, thus irrational drug use may be promoted with the consumption method. For example, the use of expensive EMHS might be interpreted as a need, whereas cheaper EMHS would suffice.

### **2.2.2. Morbidity Method**

Estimates the need for specific medicines based on the population and patient attendances, actual or projected incidences of health problems and standard treatment guidelines. The approach involves the following steps:

1. List the major specific health problems or diseases encountered at the health facility
2. Use the standard treatment guidelines to determine the appropriate generic name of dosage form and strength of each drug to be used in the treatment for each health problem
3. Calculate the quantity required to treat an episode of the disease(QE) by the formulae below:

$$= \text{Basic units per dose or administration} * \text{Number of doses per day} * \text{Length of treatment in days}$$

#### **Example**

The standard treatment guidelines state that pneumonia treatment includes use of 500mg amoxicillin, 3 times per day for 7 days. Amoxicillin is available as 250mg tablet.

$$QE = (500\text{mg}/250\text{mg}) * 3 * 7$$

$$QE = 42 \text{ tablets}$$

4. Determine the number of treatment episodes of each health problem at the facilities. A treatment episode is a patient contact for which a standard course of drug treatment is required.

For example in the past year there were 300 episodes of pneumonia per 1000 contacts in 100,000 population. The number of treatment episodes is calculated as follows:

$$\text{Treatment episodes } (300 \times 100,000) / 1000 = 30,000 \text{ episodes per year}$$

5. Calculate the total Quantity for each commodity required for the forecast period with the formulae below:

$$\text{Quantity of the drug} \times \text{Number of treatment episodes} = \text{Total quantity of a drug required for a specified standard of the health problem course of treatment a given health problem}$$

Therefore, the quantity of amoxicillin required in the management of Pneumonia is  
 $42 \text{ tablets} \times 30,000 = 1,260,000 \text{ amoxicillin tablets}$

The challenges associated with using this method is limited data on morbidity patterns and difficulty in defining standard treatments thus applying this method to every health problem is hard. Despite the limitations of this method, it is the best alternative for quantification if consumption data is unavailable, or for estimating budget needs, or a new program with no consumption history such as HIV/AIDs program rolling out antiretroviral therapy. Where a facility decides to use the morbidity method in quantification, there is need to cross reference with the consumption method. If both these methods are in agreement, then the morbidity method can be used, and if not consider the consumption method.

### **2.2.3 The Proxy Consumption Method:**

Uses data on medicine consumption, demand, or use and/ pharmaceutical expenditure for different facilities and extrapolates this information to facility taking into consideration the population coverage or service level. This method is used when the other methods of quantification are unreliable. The steps involved in this method include:

1. Selection of standard facilities; when selecting the standard facilities, they should closely resemble the facility parameters for which the estimate is made if feasible. These parameters include, population served, morbidity patterns, prescribing patterns, level of care.
2. Review the records of the standard facility to compile population data that is the number of patients that visited the facility
3. Determine the consumption rate for the standard health facilities: This is calculated by dividing the annual consumption by the number patients that visited the facility.
4. Extrapolate the standard health facility's consumption rate to the target facility by multiplying the consumption rate by estimated number of people the target facility is expected to serve

This is also used for new facilities which may lack consumption or morbidity data through the use of data from facilities with similar characteristics (similar level of care, catchment population, disease burden and diagnostic capacity). This method is not very accurate since it uses data from another facility. Hence routine monitoring of consumption should be emphasized.

### **2.3. Making Annual Procurement Plans**

The Government of Uganda has centralized the funds for the procurement of EMHS in the public and PNFP sector. The warehouses procure and distribute EMHS to the health facilities based on the EMHS budget allocations and the aggregated facility procurement plans. This section describes the recommended approach to procurement planning at both high and lower level facilities.

#### **What is procurement planning?**

At a facility level, procurement planning is the process of defining or selecting the products/services and the respective quantities to be procured for a particular time period, taking into consideration the budget.

#### **Why develop procurement plans?**

Procurement plans developed at health facility level are aggregated to inform the procurement plan at national level. This means that inaccurate quantification at health facility level can result into an inaccurate national procurement plan, leading to non-availability or over stocking of EMHS, yet the allocated resources are scarce.

#### **Who should be involved in development of a procurement plan?**

Procurement planning team should include prescribers, user departments, stores manager, pharmacy staff, finance staff. In facilities where there is an active MTC, they should lead the procurement planning process. MTC may co-opt additional members to support the process such as stores person. Where necessary, warehouse representatives may provide technical guidance during the procurement planning process. Facilities that require additional support should contact the local Medicine Management Supervisor (MMS).

#### **Tools and information needed to develop a procurement plan are as follows:**

1. Updated Uganda Clinical Guidelines
2. Treatment and Prescribing guidelines
3. Other disease specific guidelines
4. Essential Medicines and Health Supplies List of Uganda (EMHSLU)
5. Past and projected patient attendance
6. Price catalogues or latest invoices/delivery notes with prices of commodities
7. Health facility annual allocation
8. Updated Stock books

## 9. Updated Stock cards with AMC

### STEPS FOR PROCUREMENT PLANNING

#### Step 1: Selection

Involves the critical assessment of medicines and supplies required in diagnosis, treatment and care, taking into consideration specific needs required within each level of care. The rationale of the product selection processes is to increase resource optimization and efficiencies within the procurement system. The selection of commodities to be quantified is guided by the following:

- Consumption data
- Uganda Clinical treatment guidelines
- Expected changes in morbidity patterns
- EMHSLU guidance for level of care requirements.

The EMHSLU classifies all commodities by “level of care” as illustrated in Figure X below.

Figure 1: Sample page from EMHSLU 2016

MEDICINE	DOSAGE FORM	STRENGTH	LEVEL OF CARE	VEN
Albendazole	Tablet	400mg	HC2 (HC1)	V
<b>Antischistosomes</b>				
Praziquantel	Tablet	600mg	HC4	E
<b>Antibacterials</b>				
<b>Beta-lactam medicines</b>				
Amoxicillin (as trihydrate)	Tablet	250mg	HC2	V
Amoxicillin (as trihydrate)	Capsule	500mg	HC2	V
Ampicillin (as sodium salt)	powder for injection	500mg	HC3	V
Azithromycin	Tablet	250mg	RR	N
Azithromycin (as monohydrate)	oral suspension	200mg/5mL	HC2	N

For example, if the level of care for an item is marked “HC4”, then only HC4 and the levels above can order this item. Therefore, in this scenario, HC2 and HC3 cannot order for this item. Only in exceptional circumstances, and upon consultation with DHO and NMS, facilities can plan for commodities which are normally supplied to higher level of care.

#### Step 2: Quantification and forecasting

The different methods of quantification presented in section 2.1 should be used to determine the quantities of EMHS needed to meet the needs of the population being served for the specified period. For disease specific commodities (e.g. antimalarials), both methods should be used.

#### Step 3: Costing

Apply the indicative prices for each item to the estimated quantities to order from above and add up the costs for all items to obtain a costed non-vetted requirements list or “wish list”. Indicative unit costs used for procurement planning should be provided by the warehouse.

Each government health facility is required to have a needs’ based wish list to inform the development of the district costed non-vetted requirement list. Lack of these individual wish lists, will result into under representation of the individual facilities during the development of a kit.

#### **Step 4: Vetting/Prioritizing**

When funds are not available to purchase all the health commodities included in the wish list, reducing the list according to health system resources is required. The following tools can help with prioritization.

- a. The VEN concept involves the reducing or complete removal of the necessary (N) Items to fit within the budget. If after removal of the N items the need still exceeds the budget, consider reducing the E. If after complete removal of the E items, the need still exceeds the budget, consider reducing the V items.
- b. Therapeutic category analysis: Analysis of the therapeutic choices to help select the best medicines for treating common diseases while minimizing overall cost to the health facility. This helps to remove duplicates (e.g. anti-hypertensive of the same class) and select the cheapest: note that if a good selection has been made, this should not be an issue.
- c. ABC analysis: is analysis of expenditure and quantities of items consumed over a certain period of time in order to identify the items that account for the high cost and high use when considering ways to reduce procurement costs.

#### **Step 5: Approval of the final procurement plan**

After developing the procurement plan, ensure that it is approved by the authorized person at the different levels of care before submitting to the respective warehouses.

#### **Step 6: Procurement plan performance monitoring**

Ideally if the perfect procurement plan was developed, the health facility order would not vary so much from the procurement plan. It is the responsibility of the health facility to monitor its adherence to procurement plan submitted. Monitoring adherence to the procurement involves comparing the submitted orders with the procurement plan for that financial year.

- Calculate the difference in quantities between what was included in the procurement plan and order form
- Sum up the items that were under planned. For government facilities, under planned items are those whose quantity ordered exceeded 20% of the quantity in the plan
- Sum up the items that were over planned. For government facilities, over planned items are those whose quantities ordered where below 20% of the quantity in the plan

- Calculate the percentage of over planned items = (Over planned items/ total number of items in the procurement plan) \*100
- Calculate the percentage of under planned items = (under planned items/ total number of items in the procurement plan) \*100

The higher the percentage of over planned and under planned items, the more reason the facility needs to investigate, identify and prevent the underlying factors from happening in future.

Failure to adhere to the plan may imply changes in disease patterns, prescribing patterns, poor quantification and changes in the standard treatment guidelines (STGs).

#### **KEY POINTS**

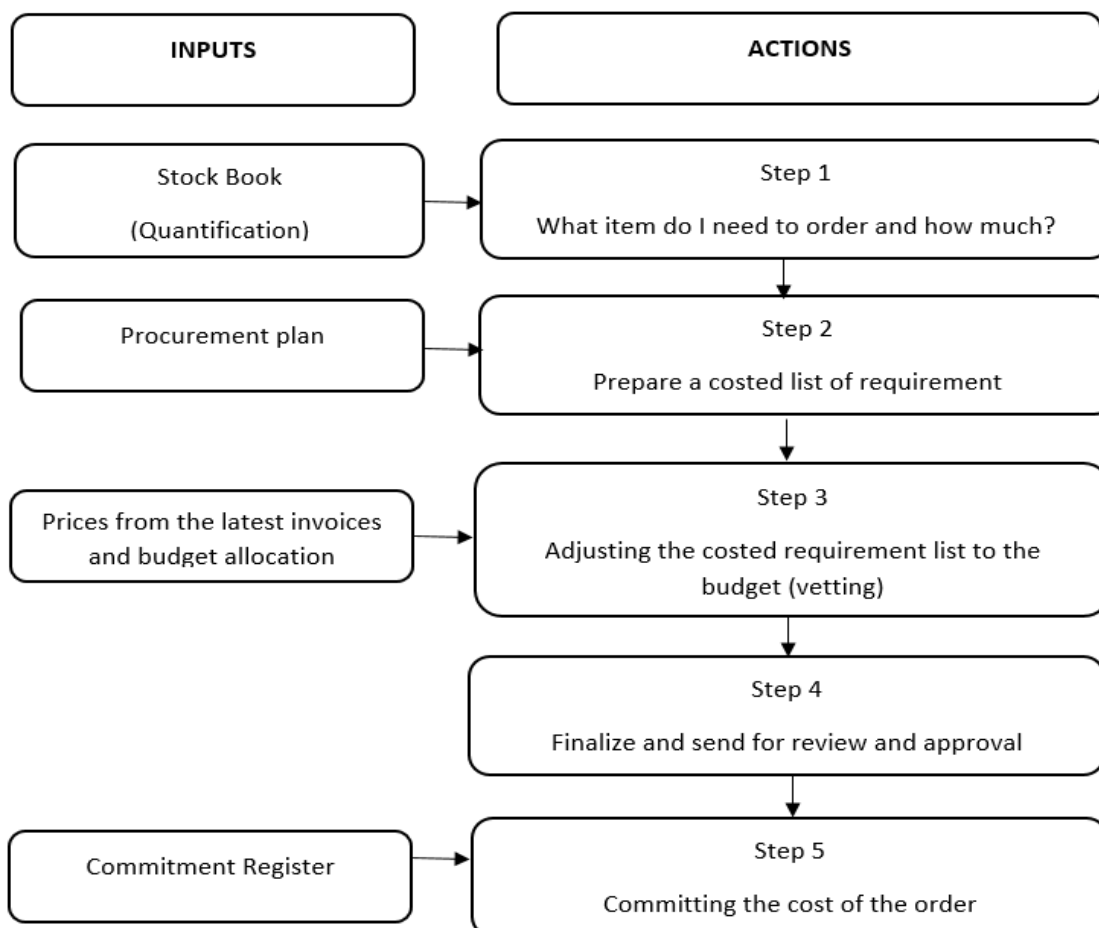
- Essential Medicines Concept has been applied worldwide to increase access to EMHS
- Limited resources should be used to provide priority medicines that meet 80% of the population requirements
- The VEN classified lists should be the guide to health facility workers and planners
- A representative, credible and competent team should be responsible for selection and classification of health commodities.

## CHAPTER | 3 | ORDERING EMHS

All Essential medicines and health supplies, including contraceptives, laboratory commodities, and vaccines, should be systematically controlled and ordered. The system described in this manual is applicable to all items independent of procurement source. This part will describe the procedures for ordering (e.g., from NMS) and completing requisitions. Sometimes an emergency occurs, therefore instructions are provided on how to make special orders. Finally, the procedures related to vetting and costing are described. Ordering for special commodities (blood and vaccines) are addressed in dedicated chapters.

### 3.1. How to Order EMHS

Figure 2: Steps for preparing an order





## **STEP 1. WHAT ITEMS DO I NEED TO ORDER AND HOW MUCH?**

Every two months, or in accordance with a schedule agreed upon with the warehouse supplier, the facility must prepare an order. The process of preparing an order should be started in time so that you are sure to meet the supplier's deadlines for submission of orders.

### **What to order**

Only order those items indicated in the EMHSLU that are authorized for and needed by the facility according to the procurement plan.

### **Which items should be ordered?**

To start, make a physical count of each item in the store room, enter the figures onto the stock card and use a red pen to draw the line, and then enter the physical count into the stock book. For every item in the stock book, compare the recorded "balance on hand" (this month's physical count) with the recorded "Maximum stock quantities". If the balance on hand (physical count) is more than the maximum stock level, an order is NOT needed. If the balance on hand figure is less than the maximum stock quantities, then an order is needed (Maximum stock level is four months of stock for most medicines).

### **How much to order**

Using the stock book, you can determine the quantity to order. Subtract the figure recorded under balance on hand from the figure recorded under maximum stock quantities. This gives you the amount to order:

$$\text{Quantity to order} = \text{Maximum stock quantities} - \text{Balance on hand}$$

Enter the figure in the quantity to order column in the stock book. Go through all items in the stock book in a similar manner and decide whether to order, and if an order is to be made, calculate the quantity to order and enter the quantity to order in the stock book.

Taking the example from the stock book for August:

$$\text{Balance on hand} = 27; \text{Maximum stock quantities} = 100;$$

$$\text{Quantity to order: } 100 - 27 = 73$$

You should respect the suppliers' minimum units of issue when making an order. For example, if the minimum unit of issue is 50, the quantity ordered should be in multiples of 50 (50, 100, 150, etc.). This issue is minimized by introducing pack size instead of single units such as tablets.

### **When to order**

Orders should be submitted according to the suppliers' order and delivery schedules except for emergency situations. For government facilities, lower levels- HC II and HC III- receive district facility based kits (Push) except for ART and anti TB medicines for which all accredited health facilities are required to pull. HC IV and above make their orders according to needs and resources available (Pull).

## **STEP 2. PREPARING A COSTED LIST OF REQUIREMENTS**

The items identified as required from the stock book as described in Step 1 are compiled into a Requirement List. This list has items and quantities that are required by the facility for that period. Go through page by page in your stock book and list those items for which you recorded a number in the “Quantity to order” Column. Include the item name/strength and the unit size information from the stock book, so that you can clearly identify the item, and the quantity to order, and then list the VEN classification from the EMHSLU (See table 1 below).

*Table 1: Requirement List*

Item	VEN	Unit	Quantity to order	Unit cost
<i>Mebendazole 500 mg</i>	<i>E</i>	<i>1.000</i>	<i>20</i>	
<i>Amoxicillin 250 mg</i>	<i>V</i>	<i>1.000</i>	<i>9</i>	
<i>Benzyl benzoate 25%</i>	<i>N</i>	<i>1 bottle 100 ml</i>	<i>50</i>	
<i>Cetrimide + chlorhexidine sol 0.15% + 0.015%</i>	<i>N</i>	<i>1 bottle 500 ml</i>	<i>5</i>	
<i>Cotrimoxazole tabs 480</i>	<i>V</i>	<i>1.000</i>	<i>23</i>	
<i>Doxycycline 100 mg</i>	<i>V</i>	<i>100</i>	<i>90</i>	
<i>Magnesium trisilicate compound 250+120 mg</i>	<i>E</i>	<i>1000</i>	<i>5</i>	
<i>Paracetamol 500 mg</i>	<i>E</i>	<i>1.000</i>	<i>12</i>	
<i>Calamine lotion 5% 100 ml</i>	<i>N</i>	<i>1 bottle</i>	<i>7</i>	

Based on the requirements list, you can now calculate the cost of what you would procure if sufficient funds are available. This requirements list will enable you to reduce or remove items and quantities based on the available funds as allocated in the procurement plan and VEN classification before filling in the order form.

### ***Calculating the Cost of Order***

Multiply the unit cost of the item by the number of units being ordered to find the total cost for each item. Add up these totals to find the total cost of the whole order.

***Step-by-step instructions are given below for working out the estimated cost of your order:***

1. As you write down each item that you intend to order, write its price in the “Unit cost” column on the requirements list sheet. The price you should use is the latest price obtained from the supplier or from the received invoice.
2. Using a calculator, multiply the unit cost by the unit quantity that is being ordered and write the figure in the column marked “Total cost” (round off to the nearest Uganda shilling [UGX], 100, 1,000, or 10,000, depending on the UGX value, to make calculations easier).
3. Add up the total cost as shown in Table 2.

Table 2: Costed requirement list

Item	VEN	Unit	Quantity to order	Unit cost	Total cost (quantity x unit cost)
Mebendazole 500 mg	E	1.000	20	5300	106,000
Amoxicillin 250 mg	V	1.000	9	32,750	294,750
Benzyl benzoate 25%	N	1 bottle 100 ml	50	1,050	52,500
Cetrimide + chlorhexidine sol 0.15% + 0.015%	N	1 bottle 500 ml	5	37,900	189,500
Cotrimoxazole tabs 480	V	1.000	23	15,200	349,600
Doxycycline 100 mg	V	100	90	2,900	261,000
Magnesium trisilicate compound 250+120 mg	E	1000	5	3,900	19,500
Paracetamol 500 mg	E	1.000	12	7,700	92,400
Calamine lotion 5% 100 ml	N	1 bottle	7	1,450	10,150
					<b>1,375,400</b>

### STEP 3. ADJUSTING THE COSTED REQUIREMENT LIST TO THE ALLOCATED BUDGET (VETTING)

#### *Adjusting to the Available Budget*

The total cost that you have just calculated is now compared to the medicines and health supplies budget for that cycle (as in the procurement plan). How to find out about the budget and how to keep track of expenditures can be found in the Pharmaceutical Financial Management Manual. If the cost is higher than your budget you will need to revise your requirement list to reduce the total cost and remain within the available budget. In many cases the facility budget will not be enough to buy all the EMHS that meet the estimated requirements. The VEN methodology can be used to prioritise or vet the items and quantities.

(Vetting)



It is important to note that some items are supplied “free of cost” to the health facility (i.e., the items do not reduce the health facility credit line and hence should not be included when costing and vetting the order). Current examples include Artemether/Lumefantrine tablets, ARVs, Fluconazole tabs, contraceptives, HIV test kits and anti-TB medicines. The suppliers (NMS or JMS or MAUL) or MOH programs will periodically update the health facilities on which items belong in this category.

**Revising the total cost of the order should be based on VEN prioritization**

The first step in the vetting (as illustrated in Table 2) is to remove some or all of the N items and re-calculate the costing. If the total cost is still above the budget, remove or reduce the quantities of E items. Only when all E items are removed can you consider reduction of quantities of V items to fit your budget. When the cost of the list of requirements is within the allocated periodic budget, transfer this information and fill in the supplier's (NMS) blank order form, HMIS 085. The vetting should be done for all your medicines and health supplies together because they are taken from the same budget. Laboratory supplies have a separate budget, and you should follow the same practices when ordering laboratory supplies.

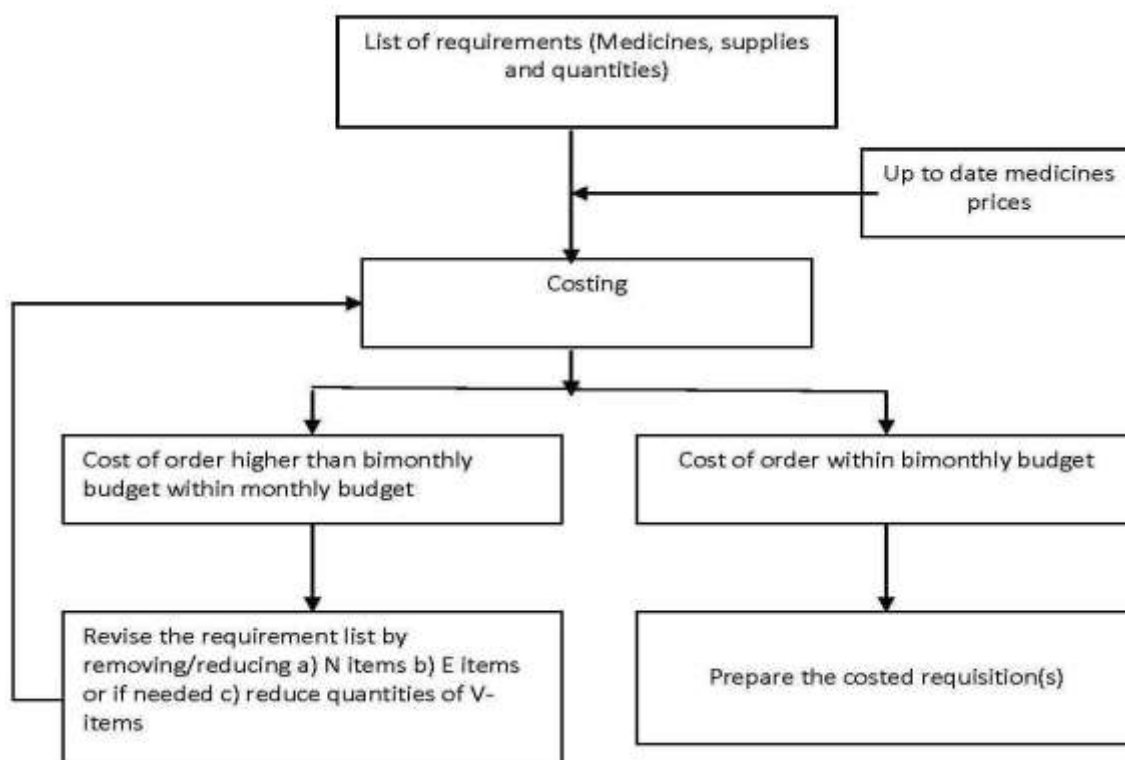
If the annual budget is UGX 6 million. This gives you a budget of  $(6.000.000/12 \text{ month}) = \text{UGX } 500.000$  per month, and  $(500.000 \times 2) = \text{UGX } 1.000.000$  for 2 months (bimonthly). The estimated cost in Table 2 was, UGX 1.375.400. You will therefore need to cut to fit the available budget/funds of UGX 1 million. In this case, the cost of UGX 1,375,400 was reduced to 999,250 as shown in Table 3 below. The process of vetting is easy to do using an excel spreadsheet if you have access to a computer, but is also easy to do manually, although it takes more time. Keep the final requirements list in your files.

*Table 3: Requirements list adjusted to available Funds*

Item	VEN	Unit	Quantity to order	Unit cost	Total cost (Quantity× Unit cost)
Mebendazole 500mg	E	1.000	9	5,300	47,700
Amoxicillin 250 mg	V	1.000	9	32,750	294,750
Benzyl benzoate 25%	N	1 bottle 100 ml	0	1,050	0
Cetrimide + Chlorhexidine sol 0.15% + 0.015%	N	1 bottle 500 ml	0	37,900	0
Cotrimoxazole tabs 480	V	1.000	23	15,200	349,600
Doxycycline 100 mg	V	100	90	2,900	261,000
Magnesium trisilicate compound 250 +120 mg	E	1.000	0	3,900	0
Paracetamol 500 mg	E	1.000	6	7,700	46,200
Calamine lotion 5% 100 ml	N	1 bottle	0	1,450	0
<b>Total</b>					<b>999,250</b>

The process is summarized in the following flow chart:

Figure 3: Flowchart for preparing orders



#### STEP 4. FILL IN THE ORDER FORM

Using the final costed and adjusted requirements lists, fill in the order form(s).

##### ***How to fill in an order form***

When you are ready to start ordering, have final costed and adjusted requirements lists and the HMIS 085 order form (Fig. 4), some blank sheets, a calculator, and a pen on hand. Not all facilities use the HMIS 085 order form but instead they use the order form provided by the warehouse. Any order form will do as long as you fill it in following the steps described in this manual.


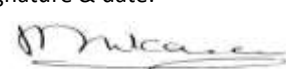

##### ***Order form for essential medicines and health supplies***

Transfer the information from your requirements list to a blank order form for EMHS. The form is used to order all medicines and health supplies, including ACTs, laboratory commodities, TB medicines, contraceptives, and condoms. Note that the order should only include items permissible for the facility's level of care as listed in the EMHSLU.

Table 4: Fields to complete in an order form:

Field on the order form	Action/explanation
Order to warehouse	Specify the name of the supplier
Facility name	Fill in the name of the health facility
District	Fill in the name of the district to which the facility belongs
Level	Circle the level of care of the health facility (HC II, III, IV, or hospital)
HSD	Fill in the name of the HSD to which the facility belongs
Date	Fill in the date
Facility code	Fill in the facility code; on that same line, fill in the year and month; this will guide the supplier in tracking the order made by the health facility
Year	Fill in the year
Month	Fill in the month
Order no.	On that same line, fill in the order number, which is based on the number of orders made by the facility
Item code	These are found in the supplier's (NMS/JMS) catalogue; fill in this code for each item being ordered
Item description	Fully describe the items being ordered, including the name, dosage form, and strength
Pack unit	Fill in the pack unit of the item being ordered as given in the supplier's catalogue (e.g., for Cotrimoxazole 480, the unit is a tin of 1,000 tabs)
Pack unit price	Fill in the price of each item as reflected in the supplier's catalogue
Quantity ordered	The quantity ordered is obtained by subtracting the current stock balance from the maximum stock level and depends on AMC which is in the stock book
Total cost	Transfer the calculated total cost from your prepared requirement list
Ordered by and signature and date	The person filling in the order form should write his or her name then sign and include date next to the signature
Reviewed by and signature and date	The health facility in-charge should approve the order form by confirming that the cost of the order lies within the facility's budget (vote 116) as provided by NMS); the person should write his or her name then sign and include date next to the signature
Confirmed by	The DHO should confirm that he or she agrees with contents therein and should write his or her name, sign and include date next to signature. For orders submitted directly to NMS or JMS, the DHO will not be confirming. However, ensure that a copy is sent to the DHO.

Figure 4: Filled in Order Form

<b>HMIS FORM 085: ORDER FORM FOR EMHS</b>					
Order to (NMS, JMS, Other): NMS			Facility Name: Kojja		
District: Mukono			Level : IV		
HSD: Mukono South			Date: 16th May 2011		
<b>Order details:</b>					
Facility Code: HF0828 Year: 2011 Month: May Order no: 3					
Item Code	Item Description	Pack Unit	Pack Unit Price	Quantity Ordered	Total Cost (UGX)
220 390	Mebendazole 500 mg	1,000	5,300	9	47,700
220 034	Amoxicillin 250 mg	1,000	32,750	9	294,750
220 185	Cotrimoxazole tabs 480	1,000	15,200	23	349,600
220 222	Doxycycline 100 mg	100	2,900	90	261,000
220 640	Paracetamol 500 mg	1,000	7,700	6	46,200
	<i>Total</i>				999,250
Ordered by: Odeke Boniface			Approved by: Dr. Mulwana (in charge)		
 Signature & date: 16th May 2011			 Signature & date: 18th May 2011		
Confirmed by Dr. Tumushabe DHO			 Signature & date: 18th May 2011		

**Note:** Incomplete orders might be returned to your health facility, causing delays.

The final order should be approved by authorized person/s before being sent to the supplier and a copy kept at the facility. Government lower level facilities presently receive kits and may order for special supplies i.e. ARVs.

#### **Filing the order and the vetted requirements list**

You must file your order and requirements list so that you can track your decision in preparing the order should you receive questions. You will also need to compare what you actually received to what you ordered.

#### **STEP 5. UPDATING THE COMMITMENT REGISTER**

The commitment register enables you to keep track of how much of the budget has already been spent or committed and how much remains (the balance). "Committed" means that an order has been placed for commodities and will be paid for at some point in the future (e.g., an order submitted to NMS). In other words, a commitment has been made to spend that amount. How to use a

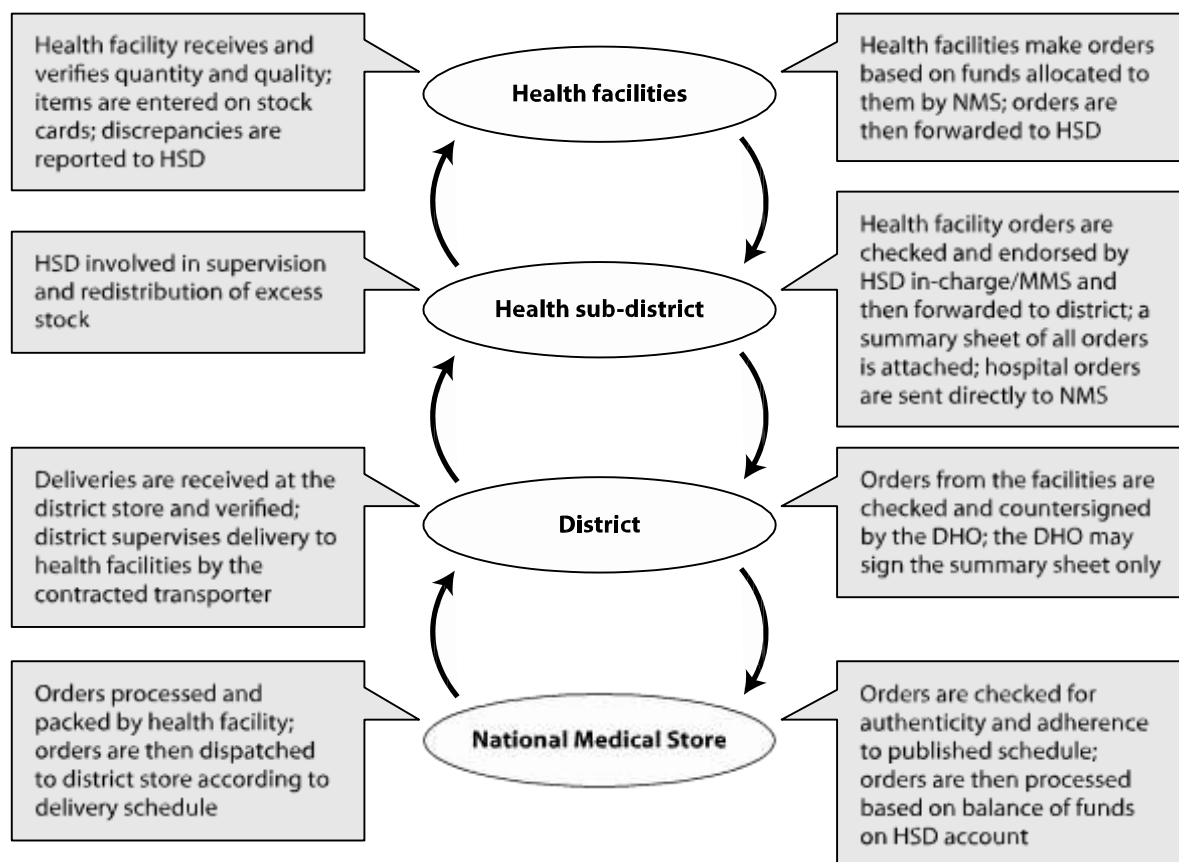
commitment register and undertake the financial management involved in ordering EMHS are explained in the Pharmaceutical Financial Management Manual.

### STEP 6. COMPLETING THE ORDER

The summary below outlines the current system of placing orders with central warehouses. Figure 5 below illustrates the process of ordering and delivering credit-line medicines to lower-level health units in the public sector. In summary:

1. The completed order form from lower level health facility should be sent via the health sub district in charge to the DHO. For HCIV, the order is sent to the DHO and for hospitals it is sent directly to NMS or the regional NMS office. A copy should always be provided to the DHO in case of direct ordering.
2. The DHO reviews and approves orders and forwards them to NMS before the specified order deadlines. The order is in triplicate—the original goes to NMS, one duplicate remains at the DHO, and the third copy is retained by the health facility.
3. NMS now ensures “to the door” delivery in accordance with planned delivery schedules.

Figure 5: Movement of Credit-Line Orders and Deliveries for the public sector



**Source:** Ministry of Health Uganda, 2008. *Medicines Management Manual: Medicines Logistics and Stores Management Procedures for Districts and Health Facilities*. Ministry of Health, Kampala.



### 3.2. Emergency Orders

There will be situations when the facility runs out or is likely to run out of vital items before an expected consignment arrives from the supplier. Health facility in-charges should contact the HSD or DHO to explain the situation. The authorities may make arrangements for the facility to borrow from others within the district. If the facility still has a balance of funds with the supplier (NMS), arrangements can be made to place an order outside the normal schedule.

### 3.3. Ordering and Reporting for Special Program Items

Ordering for ARVs, Hepatitis B TB medicines, and HIV test kits may require more information. HMIS Form 084b, the Bimonthly Report and Order Calculation Form, should therefore be used (Table 5). It should be filled in at the end of each reporting cycle (every two months). At that time, the stores personnel, laboratory personnel, or any other authorized person/s managing the items at the health facility will use stock cards and dispensing logs to complete the Bimonthly Report and Order Calculation Form. The report and order is sent by the health facility staff to the central level data processing unit on a designated date at the end of the reporting period.

The objectives of this report/order form are to: (i) provide stock on hand balances of items (ii) report bimonthly usage and (iii) assist planners in determining quantities of commodities to resupply to the health facility. Follow the principles as described previously when using this form to order ARVs, TB medicines, and HIV test kits.

#### ***How to Fill in the Bimonthly Order and Patient Report Form HMIS Form 084b***

<b>Field Name</b>	<b>Instructions</b>
<b>Facility name</b>	Write in the name of the Health Unit and level of care that is completing the order/report form, e.g. Butebo HC IV
<b>Facility code</b>	Write the MOH code if applicable
<b>District</b>	Write in the name of the health sub/district to which this facility belongs
<b>Health sub-district</b>	Write in the name of the health sub-district where the facility is located. Example: Butebo HSD.
<b>Warehouse</b>	Fill in the appropriate warehouse (e.g. NMS) if applicable
<b>Report period</b>	Write in the beginning day, month, year, and ending day, month, and year of the specified report period following this format: DD-MM-YEAR to DD-MM-YEAR (or the months covered by the report)
<b>Date prepared</b>	Write in the actual date when the form is completed
<b>Item code</b>	Check in the NMS/JMS catalogue and write the item code in this column
<b>Item description</b>	Write the full name of the item to be ordered using the generic name, dosage form, and strength

Field Name	Instructions
<b>Basic unit/pack size</b>	By checking the NMS/JMS catalogue, identify and write the basic unit of the item to be ordered
<b>Opening/beginning balance</b>	The opening balance (of the current period e.g. August - September) is obtained from the closing balance/physical count from the report of the previous cycle (e.g. June-July). e.g.: Beginning Balance is 90 (picked from previous period of June-July report).
<b>Quantity received during the two months</b>	Enter the total quantity received by the facility from the official sources of supply (i.e., JMS/NMS) during the two-month reporting period. The quantities of each product received can be found in the quantity received column of the stock card.
<b>Consumption/quantity dispensed during the two months</b>	Enter the total quantity consumed during the two-month reporting period. The consumption data comes from the dispensing logs. Add up the totals from all the logs for the two months. Repeat the process for each item. You will need to retrieve all the logs you have completed for the two months you are reporting.
<b>Losses/adjustments</b>	<p>Calculate the total losses/adjustments from the stock cards for the same period. Enter the total amount of losses and adjustments that occurred during the two months of the report period. The value recorded is a net figure of losses and adjustments during that reporting period.</p> <p><b>Adjustments</b> are quantities of a product either issued or received, from any source other than NMS or JMS. For example, you received 100 tests from a local nongovernmental organization (NGO), which would be A + 100 adjustment or you loaned 100 tests to another facility, which would be A – 100 adjustment).</p> <p><b>Losses</b> are quantities removed from your stock for anything other than consuming. Samples at your facility (e.g., expired, lost, or damaged, recorded as negative number.) If the total amount of the adjustments for the month is positive, write a plus (+) sign next to the number. Example: +3. If the total amount of the adjustments for the month is negative, write a negative (–) sign next to the number. Example: –3.</p>
<b>Number of days out of stock</b>	Enter the number of days the item was out of stock during the 2-month review period. This information comes from stock cards.
<b>Adjusted average monthly consumption (AMC):</b>	<p>Calculate the adjusted AMC by dividing the total quantities used in the two-month period by 60 days minus days out of stock and multiplying by 30 (this could be auto-calculated in web-based ordering)</p> <p><u>(Quantity consumed during 2 months) X 30</u> (60 days – days out of stock)</p>
<b>Closing balance from physical count</b>	This is based on the physical count that is done prior to filling of the bimonthly report/order form. It should correspond with the calculated balance: if not, calculations and physical count need to be re-checked and if discrepancy persists, record it as an adjustment to make the result equal

Field Name	Instructions
<b>Months of stock at hand</b>	Divide this month's physical count with the adjusted average monthly consumption. The result is the months of stock available for use
<b>Minimum stock quantity (AMC X 2):</b>	Minimum stock level for ALL health commodities is two months of stock.
<b>Maximum stock quantity (AMC X4):</b>	Calculate the maximum stock quantity and write this number in this column. The maximum stock level for ALL health commodities is four months. NOTE: Consider the shelf life for laboratory commodities.
<b>Quantity required</b>	Determine the number of packs to be ordered by subtracting closing balance from the maximum stock (i.e., adjusted AMC X 4 less the closing balance/stock on hand)
<b>Remarks</b>	Use this space to explain losses/adjustments or other information on the data
<b>Prepared by</b>	Write in your full name, signature, designation, phone number, and the date
<b>Reviewed by</b>	The reviewer writes in his or her full name, signature, designation, phone number and the date.

Order forms for special program items also have a section for patient statistics to be filled from the appropriate patients' registers (e.g. TB Unit Register, HIV registers, etc.).

### 3.4. Web-based ordering and reporting system

This is the electronic system that is used to order and report to the warehouse. This system has some fields that auto-calculate which helps minimize calculation errors. If the facility has a computer and Internet access, fields are filled out at facility level and sent directly to the supplier. Otherwise, the facility fills out the paper-based order form, forwards it to the DHO who then sends an electronic version to the supplier.

Table 5: Bimonthly Order and Patient report form

<b>MEDICINES ORDER AND PATIENT REPORT FORM HMIS 084b</b>											
Facility Name: _____			Report Period (2 months): _____				Cycle: _____				
District: _____							Start date: _____				
Warehouse: _____							End date: _____				
Delivery Zone: _____							Date Prepared: _____				
Drug Formulation and Strength	Basic Unit/ pack size	OPENING BALANCE at start of 2 Month Cycle	QUANTITY RECEIVED during 2 Month Cycle	CONSUMPTION during 2 Month Cycle	LOSSES / ADJUSTMENTS (+ / -)	DAYS OUT OF STOCK during 2 month Cycle (≤ 60 days)	Adjusted AMC AMCA= $(C \times 30)$ (60-E)	CLOSING BALANCE (Physical Count in the Store + Physical Count in the Dispensing area )	MONTHS OF STOCK ON- HAND $\frac{G}{F}$	QUANTITY REQUIRED $= (4 \times F) - G$	Notes
		A	B	C	D	E	F	G	H	I	J
1											
2											
3											
4											

**KEY POINTS**

- Use your up-to-date stock book to prepare the order. Make a requirements list and determine the cost of the requirements using the most recent cost information from the supplier
- Adjust the order so that you can reduce the total cost to within the available budget. Give priority to Vital items first and then to Essential items
- Always prepare your order as soon as you conduct the physical count every other month
- Keep a copy of your order in a file for reference when you receive the items from the supplier

## CHAPTER | 4 | RECEIVING EMHS

Essential Medicines and Health Supplies are valuable. It is the responsibility of the health facility manager to ensure that the commodities listed on the delivery note/invoice are what has been delivered. The health facility will pay from their budget line for commodities listed on the invoice. All discrepancies should therefore be noted and reported to the warehouse within 7 days. This chapter describes how commodities are delivered, the types of documentation accompanying the commodities, the filing system that should be in place, how commodities should be received and checked, and what to do if there are any discrepancies.

Central warehouses are responsible for last mile delivery of health commodities to the facilities, and in some cases to the district store where necessary. EMHS should be delivered and received by facilities every day between 8.00am to 5.00pm. The central warehouses through their contracted distributor/s should communicate to the districts and/or facilities the approximate time the truck is likely to arrive at the facility. This enables the facility to organise the designated team to receive the commodities. It is recommended that the receiving team constitute; the technical team (store personnel, pharmacist or dispenser, a laboratory staff if applicable, and a representative of health facility management), at least one health unit management committee member and a representative of the local government depending on the facility level of care.

The documents required during receiving are:

- Copy of your order and or procurement plan
- Delivery note/Invoice
- Discrepancy report HMIS 087
- Complaint form

### 4.1. Receiving Procedure

1. Before the supplies arrive, prepare space and pallets to store the supplies.

#### ***Ensure the supplies are for your facility by***

2. Checking the documents delivered with the items to make sure the delivery is for your facility and that the shipment has your facility code, the total cost, and your budget. If the documents are not for your facility, decline to receive the shipment and follow up with the supplier to find out when you can expect your order.

#### ***Checking the delivered boxes***

- Count all the boxes and check that the quantity of boxes corresponds with the quantity recorded in the delivery note/invoice (Figure 6).
- Check that the cartons (boxes) are unopened/untampered with.
- Check that the carton boxes are in good order and not broken. If an item is missing or damaged, it must be recorded on the Discrepancy report HMIS 087.

Figure 6: Example of Delivery Note/invoice from NMS

**INVOICE/DELIVERY NOTE**

Plot 4-12 Nsamizi Road P.O. Box 16 Entebbe, Uganda.  
Toll Free (UTL & Uganda Telecom Mobile) 080012221 (MTN) 0800200015 Fax: 0414-321323/321469  
nms@nms.go.ug, http://www.nms.go.ug

Deliver to:  
KCC DISPENSARY (SENIOR STAFF)  
MC 2  
KAMPALA CENTRAL HSD  
KAMPALA  
ZONE 5  
Client No. HT1220  
Client NMS

Order No. 0844329  
Journey No. 181020-016  
Shipment Date 05/11/18  
Printed By: BKOGERE  
Program CCL  
No. of cartons 3.00  
Remaining Budget 1,626,820.49

Code	Description	Qty	UOM	Expiration	Lot	Unit Price	Total
201117	SEVERE SULFADIAZINE 1% CREAM TGC	1	1	30/03/21	114	1,477.44	1,477.44
202020	CHLORAMPHENICOL 1% EYE OINTMENT 30	5	1	30/12/20	0323	1,286.01	6,430.05
202021	CHLORAMPHENICOL 0.1% EYE DROPS 10ML	10	1	28/02/21	134573	635.33	6,353.30
202024	TETRACYCLINE 1% EYE OINTMENT 3.1% TUBE	20	1	30/12/20	CA50	1,127.52	22,550.40
223028	CO-PACKAGED ONE AND FIVE TABLETS	54	1	30/11/20	876003	1,571.42	53,428.28
23101	HYDROXYMETHYLCELLULOSE 1% ORAL SUSPENSION, 100ML	2	1	30/01/20	49218	2,041.54	4,083.08

Invoice Total 94,322.53

The receiver acknowledges that the above goods have been received in good condition

Approved By: BKOGERE  
Date Printed: 05/11/18  
Delivery: DF - DENIS KASOBI

Goods Received By: *[Signature]*  
Title: *[Signature]*  
Signature & Date: *[Signature]*  
Receipt Witnessed By: *[Signature]*

Delivery Clerk: *[Signature]*

**Key**  
HVL - ACTs, ARVs, Anti-TB and other supplies under a central budget  
CRL - EMHS under individual facility budgets  
TFT - Donations  
UAC - Vaccines under a central budget  
EMH - Ministry of Health emergency budget  
EMH - Ministry of Health under a central

KAMPALA CAPITAL CITY AUTHORITY  
CITY HALL CLINIC  
06 NOV 2018  
P.O. BOX 1010  
KAMPALA

Compare order and delivery note/invoice

6. Compare the delivery note/invoice with your approved orders. For facilities receiving kits, compare the shipment with the district kit for your level. If your order has been sent through the DHO for approval, ensure that you get a copy of the approved order that reflects changes that may have been made.

### ***Check physical quantities***

Physical check will be done when you unpack your deliveries. Opening the boxes and confirmation of content is done in the presence of the delivery team.

7. Do a physical count of all items you have received and ensure they tally with those listed on the delivery note.
8. For medicine kits, the same procedure should be applied because discrepancies between the delivery note and actual delivery might also occur and NMS should be informed about such discrepancies.
9. For all deliveries, each item needs to be checked off (✓) on the delivery note if the received quantity matches the delivery note. You should not check against your order because that has already been done during the document check.
10. Pay special attention to expiry dates and reject items with short expiry dates, particularly if it is unlikely that they will be consumed before they expire. For any rejected commodity, the health facility has to follow up with the supplier for the respective credit note except for the “free of cost” commodities.
11. Always check the packaging materials properly before discarding them. Small items may be hidden in there.

### ***Check physical quality***

12. **Check items that require cold storage first** (e.g., vaccines). If they are not packed in cold packs, **DO NOT** receive them.
13. Check the colour of medicines, vaccines, laboratory reagents, and test kits. If medicines or vaccines are discoloured, they have deteriorated. **DO NOT** accept them.
14. Check for broken containers and leaks. Carefully remove broken containers. If there is a leak, remove any supplies damaged by the leak. Fill in the customer complaints form and reject the affected items.
15. Check for unsealed or unlabelled items. Broken seals indicate that items may have been tampered with. It is dangerous to use unsealed and or unlabelled items. **DO NOT** accept them.

16. Open sealed containers only if you suspect deterioration. Once opened, check the quality.
  - a. Check for unusual odours of tablets and capsules—they may have deteriorated.
  - b. Check for broken, powdery, or sticky tablets and capsules. Check for cracked or swollen capsules. **DO NOT** accept any damaged tablets or capsules.
17. Check injectable liquids. Shake the vial and hold it to the light. Clear liquids should have no particles that reflect light. For amber-coloured containers, hold against a white background to check for particles. If a vial has small particles, the medicine has deteriorated.
18. Check the expiry dates for each of the items. **ONLY** receive items which have expiry of more than **four** months **UNLESS** you are confident you can use the quantities of items before expiry. You may receive only quantities that you can consume before expiry. Document this in the customer complaint form. **NOTE:** The health facility will be responsible for all expiries at the facility.
19. Return all the unaccepted items to the supplier immediately. Follow up with the supplier to provide you with a credit note or replacement items.

### ***Signing off the delivery***

20. If all is okay and there are no discrepancies, the Invoice/delivery note should be signed by the technical member of staff checking the order, by other members of the designated receiving team and the supplier's representative. You need to write: received date, name(s) and signatures.
21. **If there are discrepancies and/or rejections**, indicate on the invoice/delivery note any discrepancies observed from the box check, the document check, physical check (e.g., if a box is missing, or there were differences in what you ordered and what you received, or there is a difference between what was received and what the delivery note says) and if items have been found broken or of poor quality.
22. Then fill in a discrepancy report, which is sent back to the supplier together with the delivery note. When reporting discrepancies and/or rejections to the supplier/warehouse, you must use their special discrepancy and complaints report forms. In the case of NMS it is called the Customer complaints form while others have designated forms too.
23. When you have filled in the discrepancy report/customer complaints form, you can sign the delivery note as stated above (see the next section on how to fill in the discrepancy report)



24. Return the original discrepancy report /Customer complaint with the delivery note and file a copy. It is important to keep a copy so you can follow up and see that your budget has been changed to reflect the discrepancy.
25. The DHO/DHC should always be informed about any discrepancies and/or rejections following the chain of command.

### ***Discrepancies and/or poor quality items discovered after delivery***

If a facility staff notices discrepancies and/or poor quality items in the supplies after the delivery truck(s) have left, fill out the discrepancy form and/or customer complaints form. Alert the facility In-charge or person in charge of procurement of health commodities so that the problem can be followed up with the warehouse/supplier to ensure the missing items are supplied or respective credit note is issued.

### **UPDATE THE STOCK CARDS AND/OR eLMIS**

As soon as the delivery note has been signed and the truck has left, you should get all your supplies into the storage area and record all the entries on the stock cards and/or eLMIS e.g. Rx solution; if you leave it until later, you may forget to do it.

**DO NOT** start using supplies from a consignment before the items are entered on their stock cards and/or eLMIS. File all the paperwork, requisitions, delivery notes, and discrepancy reports chronologically and store them for at least five years.

### **WHAT TO DO IF THE ORDERED COMMODITIES ARE NOT SUPPLIED**

When a consignment arrives in the district, but no delivery is made to your facility, make an enquiry with the DHO/DHC's office. This office will contact the supplier/warehouse and notify the facility on the status of the order in question. When required, provide details of the order (e.g., the order numbers and the date the order was placed).

#### **KEY POINTS**

To minimize problems encountered during receiving:

- Check the delivery note/invoice and carefully compare them with the consignment sent
- Check the items and ensure they are of the correct quality and quantity
- Immediately note and report in writing all discrepancies and/or quality issues
- Fill the discrepancy form and/or customer complaints form where necessary

- Have an independent person witness all receiving activities

## 4.2. How to Handle Discrepancies during Deliveries

A discrepancy occurs if there is a difference between what has been received and what is written on the invoice/delivery note or if the items received were not of good quality. This has to be brought to the attention of the warehouse (such as NMS, JMS and others) so the anomaly can be corrected. Failure to alert the supplier means that you will pay for items that the facility did not receive or want. A **discrepancy report/customer complaint** is used to document the variance and notify the responsible suppliers.

**Suppliers only accept discrepancy reports within a limited period of time after delivery. i.e. 1 week for NMS and JMS.**

A discrepancy report/customer complaints form should always accompany the delivery note. If the order is satisfactory, there is no need to fill the discrepancy report form.

Circumstances under which a discrepancy report/customer complaints form can be filled:

Boxes or items are missing or broken

- Items delivered but not ordered
- Products are of poor quality and have to be returned
- Items with very short expiry dates that the facility cannot consume

### FILLING IN THE DISCREPANCY REPORT

Figure 19 and Figure 20 show examples of discrepancy report/customer complaints forms. The order number must be written on the discrepancy report to enable the medical store to follow up on the report.

Both the NMS form (Figure 8) and the HMIS form 087 (Figure 8) can be used to report issues.

Figure 7: Example of a filled in Discrepancy Report

## HMIS FORM 087: DISCREPANCY REPORT

Date : 21st Nov 2011	Order No: 3346-06	Delivery note Number:	
Name Health Facility: Busiu		HSD: Bungokho South	
Level of Health Facility: HC IV		District: Mbale	
Number of boxes on packing list: 69		Number of packs received: 69	
Details of discrepancy: 200 vials of Lignocaine injection received instead of the 400 vials on the delivery note			
Details of breakages: NA			
Details of missing items: NA			
Details of items received not ordered for: NA			
<b>Any other item discrepancy</b>			
Item Description (name, formulations, strength)	Quantity on Delivery note	Quantity Received	Reasons for not receiving right quantity
Lignocaine HCL 2% injection 20ml	400	200	Not delivered in the consignment
Client section		Transporter	
Verified by: Maroha Sarah Sign:  Telephone: 0752 666000 Email: Date: 21/11/11		 Names of Driver: James Ariho Vehicle number: UAD 963 V Sign: Title: Date:21/11/11	
Comments:			
To be returned to NMS within 14 days of receipt of supplies			

Warehouses will accept return of goods if:

- Warehouse staff has made mistakes in the order processing (i.e. you did not order the commodities)
- Commodities have less than four months' shelf life and this fact was not brought to the attention of the customer at the time of delivery
- EMHS were damaged at the time of delivery
- Poor quality items were delivered
- Wrong items and/or quantities were delivered as per the invoice/delivery note





Below is an example of a filled in "NMS Customer Complaints Form"


Figure 8: Example of a filled in NMS customer complaint form

 <b>NMS</b> <small>NATIONAL MEDICAL STORES</small> <small>PROVIDING WHAT YOU WANT</small>		<b>NATIONAL MEDICAL STORES CUSTOMER COMPLAINTS FORM</b> <b>SERIAL NUMBER: 0002911</b>	
<b>DETAILS OF COMPLAINANT (Fill in the right hand columns)</b>			
Name of Person lodging complaint	Makoha Sarah		
Designation	In-charge		
Address (District, Facility Name)	Busu Heiv Mbale		
E-mail			
Telephone No	0752 666 000		
<b>DETAILS OF COMPLAINT (Fill in the right hand columns)</b>			
Date of incident	21/11/11		
Order number(s) (if applicable)	3346-06		
<b>Subject(s) of complaint</b> <b>NB:</b> • For quality related issues, clearly indicate the Item code, Item Description, Unit of Measure, Batch/Lot number, Manufacturer & expiry, where applicable) • For order not fully serviced indicate % of items not supplied as per order made.	<input checked="" type="checkbox"/> Discrepancy <input type="checkbox"/> Quality issues <input type="checkbox"/> Order not fully serviced <input type="checkbox"/> Item not ordered for	<input type="checkbox"/> Short-dated/ Expired items <input type="checkbox"/> Non delivery <input type="checkbox"/> Delayed Delivery <input type="checkbox"/> Others - specify below	
The Health facility received only 200 vials of Lignocaine instead of 400 vials			
 <b>Signature</b>		21/11/11 <b>Date</b>	
<b>NMS WILL ACCEPT YOUR COMPLAINT IN THE FOLLOWING WAYS:</b>			
<ul style="list-style-type: none"> <li>• By faxing 0414-321 323/0414 - 321 062</li> <li>• By mailing P.O. Box 16 Entebbe.</li> <li>• By e-mailing sales@nms.go.ug</li> <li>• By physically delivering your complaint to our Liaison offices or main office at Entebbe.</li> <li>• By telephoning 0800200015/08002221 toll free and requesting for the Customer Complaints Form</li> </ul>			
<b>NMS WILL ACKNOWLEDGE ALL COMPLAINTS AND TRY TO RESOLVE THEM WITHIN 7 WORKING DAYS</b>			
<b>Distribution: Original</b> - National Medical Stores; <b>1st Copy</b> - District Health Office/Hospital; <b>2nd Copy</b> - Health Facility			

## HOW TO RECEIVE ESSENTIAL MEDICINES AND HEALTH SUPPLIES

Table 6: Job aid to follow when receiving EMHS.

STEPS	What to do	What to pay attention to
STEP 1	Prepare space and pallets	Secure adequate space for opening every box. Prevent boxes from direct sunshine and rain
STEP 2	Ensure the supplies are for your facility	Check that the shipment has your facility code If this is not the case, reject the shipment
STEP 3	Ensure the essential documents are at hands	<ul style="list-style-type: none"> <li>✓ Make sure that you have the following documents;               <ul style="list-style-type: none"> <li>● Copy of your order and or procurement plan</li> <li>● Delivery note/Invoice</li> <li>● Discrepancy report HMIS 087</li> <li>● Complaints form</li> </ul> </li> </ul>
STEP 4	Check the boxes 	<ul style="list-style-type: none"> <li>✓ Count all the boxes to check if the quantity of boxes corresponds with the quantity recorded in the delivery note/invoice</li> <li>✓ If there are discrepancies, indicate on the delivery note any discrepancies and fill in a discrepancy report (STEP 8)</li> <li>✓ Check that the carton boxes are unopened/untampered with, in good order and not broken. If an item is missing or damaged, it must be recorded on the delivery note</li> </ul>
STEP 5	Check physical quantities 	<ul style="list-style-type: none"> <li>✓ Unpack and do a physical count of the deliveries in the presence of a verification team and the drivers</li> <li>✓ Every item needs to be checked off (✓) on the delivery note if the received quantity matches the delivery note</li> <li>✓ If there are discrepancies, note them on the delivery and fill in a discrepancy report (STEP 8)</li> <li>✓ Pay special attention to expiry dates and reject items with short expiry dates, particularly any item expiring in four months' time</li> </ul>
STEP 6	Check physical quality 	<ul style="list-style-type: none"> <li>✓ Check the conditions of items. Reject the item if you find any of the following               <ul style="list-style-type: none"> <li>● Cold chain commodities (check this first)_not packed appropriately,</li> <li>● Discoloration of vaccines and lab reagents</li> <li>● Broken containers, leaks and unsealed or unlabelled items</li> </ul> </li> <li>✓ If there are unwanted or poor quality items, note them on the delivery and fill in a discrepancy report (STEP 8)</li> </ul>
STEP 7	Signing off the delivery 	<ul style="list-style-type: none"> <li>✓ Sign the delivery note if all is okay               <ul style="list-style-type: none"> <li>● Write the received date</li> <li>● Names and signatures by the facility staff person checking the order and by the deliverer are required</li> </ul> </li> <li>✓ File the invoice and delivery note</li> </ul>

STEPS	What to do	What to pay attention to
STEP 8	<b>Discrepancy Report</b> 	<ul style="list-style-type: none"> <li>✓ If there are discrepancies, indicate on the invoice/delivery note any discrepancies and fill in a discrepancy report</li> <li>✓ The discrepancy report known as the warehouse Customer Complaints Form is obtained from the warehouse driver. For JMS, photocopy the HMIS FORM 087: DISCREPANCY REPORT</li> <li>✓ Only fill in the discrepancy report form under the following circumstances: <ul style="list-style-type: none"> <li>• Boxes or items are missing or broken</li> <li>• Items were received that were not ordered or were poor quality</li> </ul> </li> <li>✓ Write the following information into the discrepancy form: <ul style="list-style-type: none"> <li>• Health facility name, District/HSD name</li> <li>• Number of boxes on packing list</li> <li>• Number of packs received</li> <li>• Details of discrepancy/breakages/missing items/items received not ordered for</li> <li>• Names and signatures by the facility staff person checking the order and by the deliverer are required.</li> </ul> </li> <li>✓ Send the report and delivery note with the damaged items/unwanted items to the supplier (NMS) through the driver and inform the DHO</li> <li>✓ If any discrepancies are found after the delivery trucks have left, fill out the discrepancy report and send the documents to NMS (for HC II/III, through DHO)</li> </ul>

#### KEY POINTS

- Frequent discrepancy reports indicate a problem with the supplier or transporter, which can only be solved if the problems are reported.
- If the discrepancy reports are not filled in, the facility will be asked to pay for items that were not delivered.
- Health facility staffs are responsible for carefully checking goods received for discrepancies.
- In case of discrepancies, the facility must complete and submit a discrepancy report immediately.
- Make entries on the stock cards/eLMIS immediately after receiving the consignment.
- Discrepancy report, invoice/delivery note must be dated, signed, stamped: file the facility copy and send the other copies to the respective recipients for follow up.

#### 4.3. What to do if the warehouse is out of stock

Always ensure that the facility has optimal stock on hand (stock levels between minimum and maximum), so that the facility will not be immediately affected by stock-outs at the supplier. Keeping a maximum stock level of four months and topping up supplies when ordering provides a “buffer zone” of stock that averts crisis when NMS/JMS is out of stock for a short time.

When you receive the consignment from a warehouse, and an item you ordered was not supplied, you should still be okay if you have more than your minimum stock of two months, and you just order the item again during the following order period. Using the principles described in Chapter 3, the quantity to order will bring you up to a four-month supply. However, if the main supplier continues to be out of stock, you will eventually be affected, and you will need to identify alternative sources for the items. These include:

- Requisitioning the item from other facilities (redistribution; for details refer to Chapter 9)
- Procuring it from the private sector if the budget allows
- Receiving donations from NGO and others sources

### **Private Sector Procurement**

If the items are not available at the warehouses and cannot be borrowed from elsewhere, and if the DHO/DHC or the facility has funds, you may procure emergency and stocked out items from a private supplier/others sources if the budget allows. Use the procurement form 5 to place in an order for such items.

### **Important!**

- Only use generic products—the price difference can be enormous
- Reserve private procurement for the emergency supply of V (vital) Items only
- By implementing the stock control system and calculating maximum stock and AMC levels carefully, short-term stock-outs at the main supplier will not cause serious problems
- If the supplier’s stock-out is long term, you may need to borrow from other facilities. This should be restricted to vital (V) items
- Districts and public facilities with funds from sources other than credit line may procure from private sector companies when the main suppliers are out of stock. However, these orders must follow the appropriate procedures. Your supervisors from the district will guide you on how to make the procurement



## CHAPTER | 5 | STORAGE

Storage and handling of EMHS in stores should ensure that the conditions recommended by the manufacturer are maintained throughout the supply chain in order to guarantee the quality and safety of the commodities. The key aspects of good storage and distribution include:

1. Appropriate infrastructure
2. Good storage facilities
3. Inventory management
4. Appropriate transport facilities
5. Appropriate Human resources

### **Storage of EMHS**

Essential medicines and supplies have a specific period of time during which they should be used (shelf life). This is indicated by the date of manufacture and expiry on the item's label. The shelf life indicates the time the item can be used safely if it has been stored under the manufacturer's recommended storage conditions. Essential medicines and health supplies should be stored appropriately in order to maintain their potency and quality. Poor storage can result in deterioration or the development of poisonous degradation products that can be hazardous to the patient.

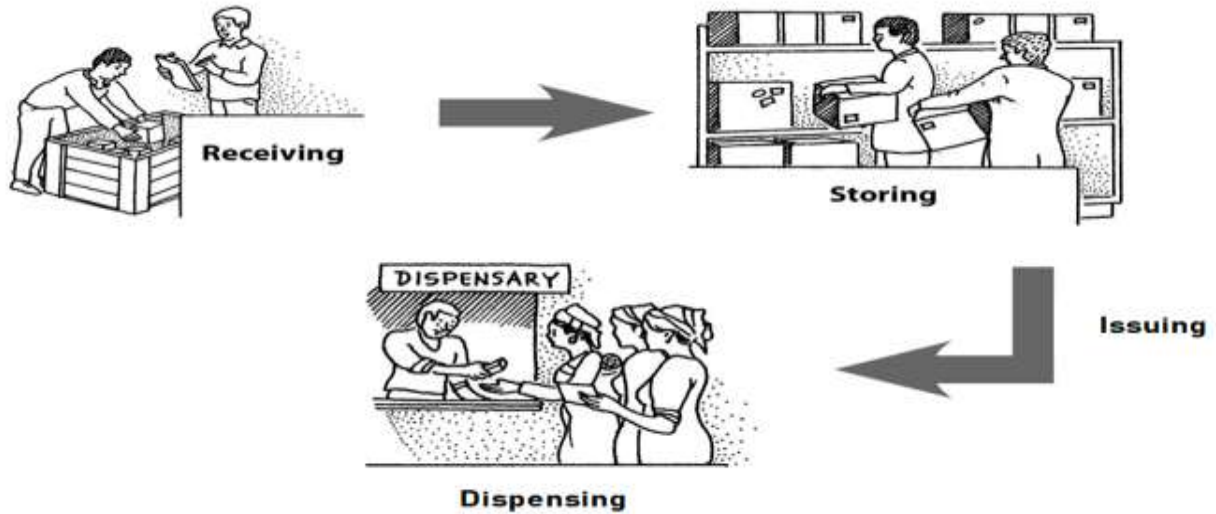
Figure 9: Factors to maintaining good quality of EMHS



Health workers in charge of medical supplies must monitor and adhere to the storage conditions recommended by the manufacturer. The two most important factors that affect the quality of medicines and supplies during transit and storage are temperature and humidity. This part of the manual describes how to organize the store and the supplies so that their quality does not deteriorate before use.

- Conduct physical counts of inventories at least monthly to verify inventory records
- Store health commodities according to their defined categories e.g. flammables, infusions, narcotics, etc. to avoid any accidents and misuse

Figure 10: Flow of Medicines at the Facility Level



*Adapted from RPM Plus Program. Monitoring-Training-Planning Training Materials. Arlington, VA: MSH.*

## 5.1. Organizing the Store

### **Stock control at all storage areas**

Medical supplies should always be kept in a secured, designated storage space because they are very costly and yet very important for any health care service delivery. These items need proper care or they may deteriorate, resulting in loss of potency or development of poisonous degradation products that might harm patients. Medicines and health supplies should be kept in secure and adequate storage facilities.

### **Record keeping in the store**

The fundamental documents in the stores are the stock cards, the stock book, requisition/issue voucher, delivery notes/invoice, order forms and expiry register.

It is important to note that proper management of the store and stock records requires that **only one store** should provide medicines and health supplies to all departments in the health facility, and only **one stock card** is used per item. For special commodities which cannot be kept in the store (e.g. vaccines, some laboratory items) the stock card should be where the stock is (vaccine store, laboratory store), but stock movement information should be entered in the stock book

on a monthly basis. A requisition and issue voucher should be used at all times to record the stock issued out and received from the store(s).

The dispensing log shall be used at all dispensing points to track medicines and health supplies given directly to patients.

### ***Important points to remember***

*Keep the following issues in mind when organizing and operating the store:*

- Designate a secure room or cupboard at your health facility to be the store.
- Windows must be burglar proof
- Ensure that there is adequate ventilation and lighting (avoid direct sunlight). Some supplies are very sensitive to light and should be protected from direct sunlight. These include x-ray films, latex products such as condoms and gloves, and certain medicines such as Zidovudine.
- Separate the store from the dispensing area; do not dispense medicines to patients directly from the store.
- Make a schedule for issuing supplies from the store to user units. Recommended not more than two times a week.
- Designate an area as a receiving and issuing bay where staff remain while waiting for the store personnel to serve them. Non authorized staff should not access the store.
- Every main store should have a class-A (Dangerous Drugs Act - DDA) cupboard.
- There should always be a well-organized and witnessed staff handover at all storage points in the case of change of staff.
- Prevent humidity and spillage of liquids in the storage area as they may cause deterioration of medicines.
- Conduct physical counts of inventories at least monthly to verify inventory records.
- Store health commodities according to their defined categories e.g. flammables, infusions, narcotics, etc. to avoid any accidents and misuse

## **5.2. Temperature Control**

The store temperature should not exceed 27°C. Simple measures to make your store cooler are to:

- Make sure the store has a ceiling; ask for assistance from your DHO/DHC to obtain one.
- All storage areas should have windows. Open the windows to allow for aeration during working hours.
- Install air vents and/or a ceiling fan in the store.
- Install thermo-hygrometers in place to monitor daily temperature and humidity. Record temperatures/humidity in the store into the temperature monitoring log in the morning, afternoon and evening.
- Use the refrigerator to keep medicines and supplies that require a storage temperature of 2–8°C (e.g., ELISA tests, VDRL reagents); never store food or water in the refrigerator with medicines.
- Ensure that the refrigerator is lockable.
- Protect all EMHS from direct sunlight.
- Many laboratory commodities require special storage conditions (Table 8).

*Table 7: Examples of Storage Conditions for selected health Supplies:*

Reagents	Shelf life	Storage temperature	Packaging
Blood typing sera	24 months	2–8°C	5 mL bottle
Bacteriological media	36 months	21–30°C	500 g bottle
Chemistry reagent kits	12 months	2–8°C or 21–24°C	100 tests per kit
CD4 antibody reagent	≥ 7 months	2–8°C	50 tests per kit
Testing controls	3 months	2–8°C	50 tests per kit
Sickling test (for use)	12 hours	Room temp	As required
Stains, dry powder	60 months	21–30°C	25 mL bottle

**Note:** Vaccine storage temperatures should be strictly adhered to.

***Protect the store room from water and moisture penetration***

Water can destroy EMHS and their packaging. Repair the store room so that water cannot enter.

Take these steps to control water and moisture in the store by:

- Making sure there are drainage channels around the outside of the store and gutters with pipes running down from the roof.
- Repairing all leaks as soon as possible to reduce damage.

- Stack EMHS off the floor on pallets at least 10 cm high and 30 cm away from walls to prevent moisture that seeps in through walls and floors from making contact with the products. Items should not be stacked more than 2.5 m high or according to the manufacturer's recommendation.
- Leaving sachets of desiccant (non-edible drying crystals) in containers of tablets and capsules after the containers have been opened; the desiccant keeps the inside of the container free of moisture.
- Not using products if the inner packaging is damaged because the medicines might have been exposed to humidity and it might have deteriorated.

### **5.3. Cleaning and Disinfection of the EMHS Store Room**

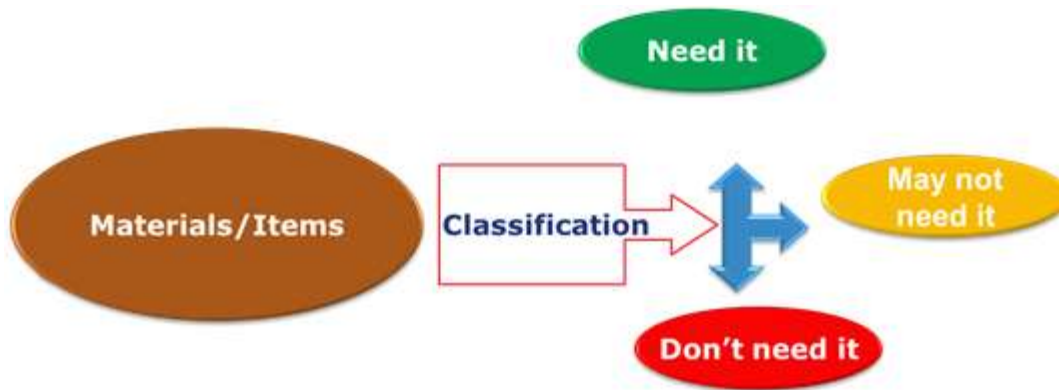
The EMHS store room should be arranged according to the 5S approach. 5S is an approach to organizing and managing the store (workspace) and workflow in the store with the intention of improving efficiency by eliminating wastage, improving flow and minimizing unnecessary procedures.

### **5.4. The 5S steps are: Sort, Set, Shine, Standardize and Sustain**

#### **STEP 1: SORT**

The purpose of this step is to ensure everything that is available is actually needed. Sometimes stores tend to keep items that are no longer usable or required. Assess all items to decide which items your facility needs or does not need and isolate any redundant items. Also, remove unwanted items from the store room regularly to make more space available for storage; for example you may remove or put away unusable EMHS. During this step, any expired, damaged or poor quality EMHS should also be removed (see section on handling expiries). Do not keep broken containers in the store because common pests, such as rodents, ants and wasps are attracted to spilled items like sugary liquids. In addition, keep food and drinks out of the storeroom as these also attract vermin and insects. The store should then subsequently be arranged appropriately.

Figure 11: Sorting of items/materials using 5S



### STEP 2: SET

After sorting, the objective of the “set” step is to make sure that everything is appropriately positioned. You should therefore organize the store items appropriately; you should have designated locations in the store for similar items, where ‘similar’ can refer to route of administration (external, internal or injectable) and type of formulation (powders/creams/syrups/suspensions/solutions etc.). The supplies should then be arranged on the shelves following the preferred arrangement method (e.g. alphabetically, therapeutically, formulation or a combination of more than one method) and the shelves labelled with the name of the item, preferably using the International Non-proprietary Name (INN) of each EMHS. Do not forget to follow FEFO when arranging the medicines and supplies on the shelves and FIFO for those without expiry dates or those with same expiry but delivered at different times.

### STEP 3: SHINE

The purpose of this step is to maintain the store in a neat state. During this step, cleaning is a major component. Clean and disinfect the storeroom regularly to prevent contamination of the EMHS.

- Set up a regular schedule for general cleaning and disinfection of the storeroom.
- Sweep and dust the shelves and then floors, then wash with disinfectant or liquid soap.
- Clean spills properly with detergent without delay and take precautions to prevent insects and pests from entering the store. Pests are less attracted to the storeroom if it is regularly cleaned and disinfected Mechanical devices such as insectocutors (devices used to attract insects and kill them with electricity) and rat traps are preferred so that dead vermin can be easily removed.

- When dealing with insects and vermin, use rat poisons and insecticides with a lot of caution in order not to contaminate EMHS and prevent personal injury.
- Make sure to keep the area outside the facility/store clean as well.
- Keep all bottles and containers closed when not in immediate use.

Figure 12: Shining process of 5S

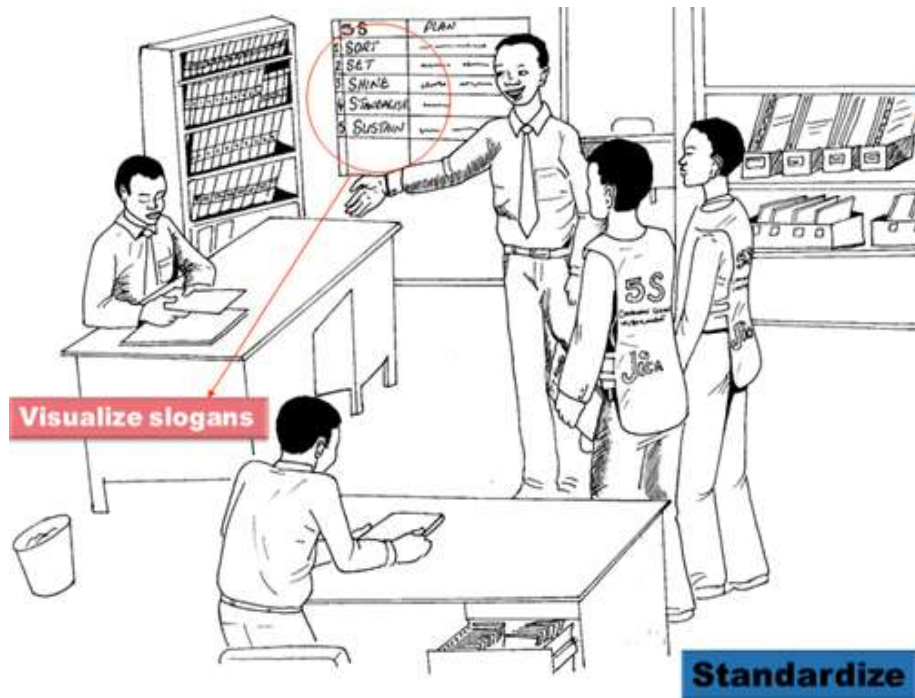


#### STEP 4: STANDARDIZE

In this step, you should create a mechanism to maintain the first 3S-steps. These mechanisms can include use of work instructions, standard operating procedures (SOPs) and color-coding or sign boards for workmates to easily understand and replicate the procedures you have instituted. SOPs are written instructions that document routines or repetitive activities followed by an institution and can be used to ensure that repetitive procedures are done to the required quality.

Figure 13: Standardization process using 5S





### STEP 5: SUSTAIN

To maintain the good store arrangement, the store staff will need to have self-discipline and undergo periodic training (this may be done as on-job training) so as to maintain the stores management habits, practices and strict observation of stores rules. It may be necessary to display posters promoting the 5S steps done.

Figure 14: Sustaining step, using 5S



Figure 15: Before and after scenario for a 5S project



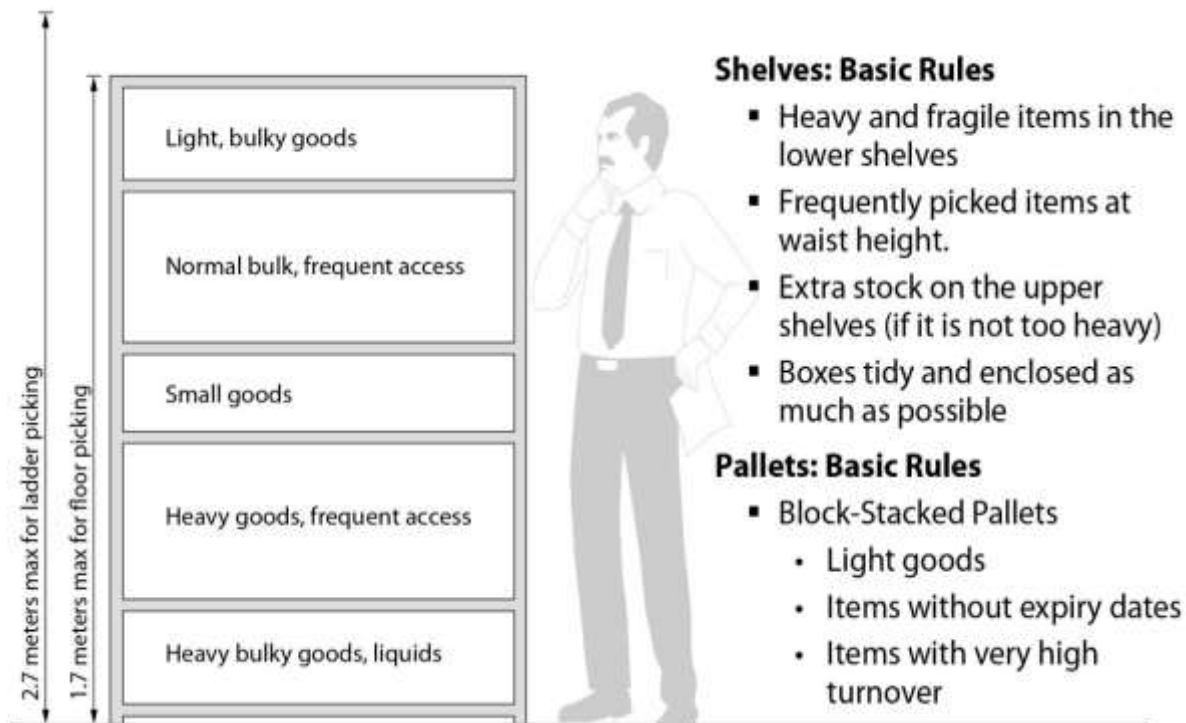
## 5.5. Arrangement of EMHS

- Try to store all medical supplies in one store room. If this is not possible, then keep the same types of medicines or supplies together so that it is easy to know how much stock is on hand.
- When medicines and health supplies are placed in the store, organize them so that finding the items is easy.

Other practices to follow include:

- Store bulky, heavy items and corrosive liquids on the lower shelves and flammable items (e.g., ether and ethanol) in a metal box or cabinet at ground level. Liquids may leak and so any items stored below them might be spoiled.
- Keep your storage system according to alphabetic, formulations, or therapeutic categories.
- Arrange the supplies on the shelves and label the shelves with the generic product names.
- Place each item at its correct label. Arrange items in the order that makes it easy to count, such as pairs or groups of 5s or 10s.
- Following these procedures makes it easy to organize your supplies. It is also easy to see which items are running short.
- Store items according to FEFO (first expiry first out) procedures and the expiry date must be visible. However FIFO (first In First Out) can apply if items with the same expiry date and batch are received at different times or for items with no expiry dates. Items with earlier expiry dates should be placed in front of those with later expiry dates. Figure 15 shows the rules for arrangement of pallets and shelves.
- When batch and expiry information are on the secondary packaging of a consignment of medicines and not on the primary packaging, do not remove the item from the secondary packaging.
- In the case of liquids, confirm that the containers are upright in the secondary packaging before placing them on the racks or shelving to eliminate accidental spillages as a result of a packing error.

Figure 16: Rules for Pallets and Shelves



*Source: Ministry of Health and Child Welfare of Zimbabwe, 2006, Managing Pharmaceutical Stock and Ordering, Stock Management Module.*

## 5.6. Safety and Security

### **Fire Safety in EMHS store**

Keep fire safety equipment available, accessible, and functional. Train employees how to use firefighting/safety equipment. Keep the following points in mind:

- Take caution to prevent fires. Have caution labels e.g. “No smoking”, “Fire assembly points”, “Emergency or fire Exit” visibly displayed
- Place well-maintained fire extinguishers at suitable positions in the store room
- Keep sand or soil in a bucket nearby, if a functional fire extinguisher is not available
- Organise routine staff trainings on use of fire prevention and safety equipment
- Store flammable health supplies in their original containers in the coolest possible location and away from sunlight
- Designate and clearly label fire assembly points
- Stop a fire before it spreads to save valuable products, minimise facility damages and to reduce the chances of injuries

### **Caution!**

Water is **NOT EFFECTIVE** on electrical and chemical fires

### **Personal safety in EMHS store**

Personal Safety refers to the freedom from any physical harm or threat of physical harm.

Workplace safety is very important for each and every employee in the workplace because all the workers desire to work in a safe and protected atmosphere.

Listed below are the measures to ensure personal safety in a drug store:

- 1) Bulk EMHS should not be put so high to avoid accidents.
- 2) The floor should always be dry to prevent staff from sliding.
- 3) Inflammables should be stored away from main storage area of other EMHS to prevent fire outbreaks.
- 4) Always put on gloves when handling corrosives e.g. sulphuric acid, etc.
- 5) Always put on a clinical/laboratory coat when accessing the store.
- 6) Always put on closed shoes when accessing the store.
- 7) Do not stack more than six layers of boxes.
- 8) Regular training of staff in personal safety protocols.

### **Handling of expired and damaged items**

- Identify and separate damaged or expired health commodities from usable stock.
- Designate a separate part of the storeroom for damaged and expired EMHS. For more information, see Chapter 8 on handling expired and short-dated items.
- Always inform the office of the DHO about any expired products and they will advise you on the necessary disposal steps.

### **Caution!**

DO NOT use expired and damaged EMHS!

### **Security in the EMHS store**

### ***Limit access to storage area***

The storage area should only be accessed by authorized personnel. In addition:

- The room must be locked when no activity is taking place.
- If the stores personnel is to be absent, he/she should ensure proper handover of the stores and keys to the in-charge or other responsible person.

#### **KEY POINTS**

- Store medicines in a clean, safe, well-maintained store, protected from heat, light, humidity, and pests
- Stick to FEFO for those items with different expiry dates and FIFO for items with the same or no expiry dates
- Remove expired stock to a designated area clearly marked for expired medicines and health supplies
- Redistribute excessive stock to other facilities
- Label the shelves with generic names and place each item at its correct label

## **CHAPTER | 6 | REQUISITIONING AND ISSUING SUPPLIES**

Issuing medicines and health supplies is the store personnel's regular activity and care should be taken to ensure proper recording of all items taken out of the store. No commodity should leave a store without a requisition from the user unit. Health facilities should always maintain one store where all stock cards and the stock book are kept. All user departments or wards such as the Inpatient pharmacy, Outpatient pharmacy, Theatre, Casualty/emergency and any other specialized units should request their authorized supplies from the main store using the requisition and issue voucher (HMIS 017).

User departments should not keep stock cards because their dispensing logs provide all the information needed for accountability and to track consumption. Keeping stock cards up to date and implementing good stock management is time consuming; therefore, the store keeper should be responsible. Pharmacy staff if available should train the stores personnel in inventory management and in preparing orders.

### **6.1. Issuing Supplies from the District Store**

The district stores personnel should record all the medicines and supplies received for onward distribution to the health facilities. Districts will often receive supplies in the form of kits or sealed boxes destined for specified health facilities. In this case, if the boxes are properly sealed, there is no need to verify the contents in the box, at this point the stores personnel should verify the shipment basing on the Shipment Manifest. The stores personnel should record the delivery note information in the book and prepare to forward the items together with the original papers to their final destination.

There are some circumstances when the district store receives non health facility specific EMHS for example neglected tropical diseases and child days plus EMHS among others. The facility should request for these items from the district stores using the requisition and issue voucher and the district stores personnel should issue using the same.

### **6.2. Requisitioning and issuing EMHS within the facility**

The following are the steps for facility-level stores to take:

- The store should work with the MTC to establish a schedule for issuing commodities to the departments within the facility e.g., outpatient department dispensary, antenatal department, TB clinic, and inpatient pharmacy among others.
- On designated days of the week, user departments should present requisitions for EMHS. The store will then issue products out to the different departments.
- A regular schedule to issue EMHS at most twice a week allows time for the stores personnel to update records and carry out other store functions.
- User departments should use HMIS Form 017 (*requisition and issue voucher*) to requisition supplies. The form should be filled out in duplicate/triplicate. If the forms are not available, improvised requisitions should still be made in duplicate/triplicate. Stores should only issue against approved requisitions.
- The requisitions should be approved by the pharmacist/head of the unit as a counter-check.
- Issues from stores to departments should as much as possible be in packs (e.g., tins of 1,000 tablets) or the smallest original container.
- When supplies are issued, the person collecting them should check and counter-sign to acknowledge receipt of the items.
- The stores personnel should always record the transaction on the stock card before issuing an item out of the store.

### **6.3. Using HMIS 017 - Requisition and Issue Voucher**

The delegated person in the user units including the dispensary must fill in a requisition and issue voucher every time they need new supplies from the store (Ref. to HMIS 017 requisitions and issue voucher – HMIS Manual 2018). Follow the steps below to fill in the requisition and issue voucher.

#### ***Filling in the requisition and issue voucher***

1. **Header information:** Fill in the name of the health unit making the requisition/issuing; also enter the user unit, and date the requisition/issue is made

#### ***Filling in the order***

2. **Ordered by:** The person making the requisition should write his or her name and sign
3. **Item code:** Enter the item code of the commodity as written in the NMS catalogue



4. **Item description:** Enter the full description of the commodity, including name, dosage form, and formulation; for example, quinine dihydrochloride injection 600 mg/2 ml ampoule
5. **Previous receipt:** Enter the quantity received from store to your unit/section/ depending on the previous order/requisition
6. **Physical count (current balance):** Enter the quantity of this item currently in stock;
7. **Quantity ordered:** Enter the quantity that your department wants to order.
8. **Authorized by:** The in-charge of the department should write his or her name, telephone number and then sign

#### ***Filling in the issue***

9. **Quantity issued:** The store personnel now enters the quantity of items issued from each batch.
10. **Batch number:** The store personnel should indicate the batch number for the quantity issued above.
11. **Issue date:** Enter the date of the transaction
12. **Name and signature of issuer:** The issuing officer (store personnel) should write his or her name and then sign.

#### ***Receipt of EMHS from health facility stores***

13. **Receipt date:** the person who receives the EMHS should enter the date on which the goods are received
14. **Name and signature:** Enter the name and signature of the person who received the EMHS.

Before signing ensure that:

- The right items have been issued
- The quantities are correct
- The EMHS are not expired
- Where applicable, cost calculations are correct

## **6.4. Issuing to Other Facilities**

Supplying medicines and health supplies to other facilities is sometimes necessary, for example, when other facilities run out of stock or when large quantities of slow-moving items need to be redistributed. For details refer to Chapter 9 on redistribution.

## CHAPTER | 7 | DISPENSING MEDICINES

Dispensing is the last station in the medicine pathway between the prescriber and the patient, so it is important to do it correctly. The objective of good dispensing is to ensure that the:

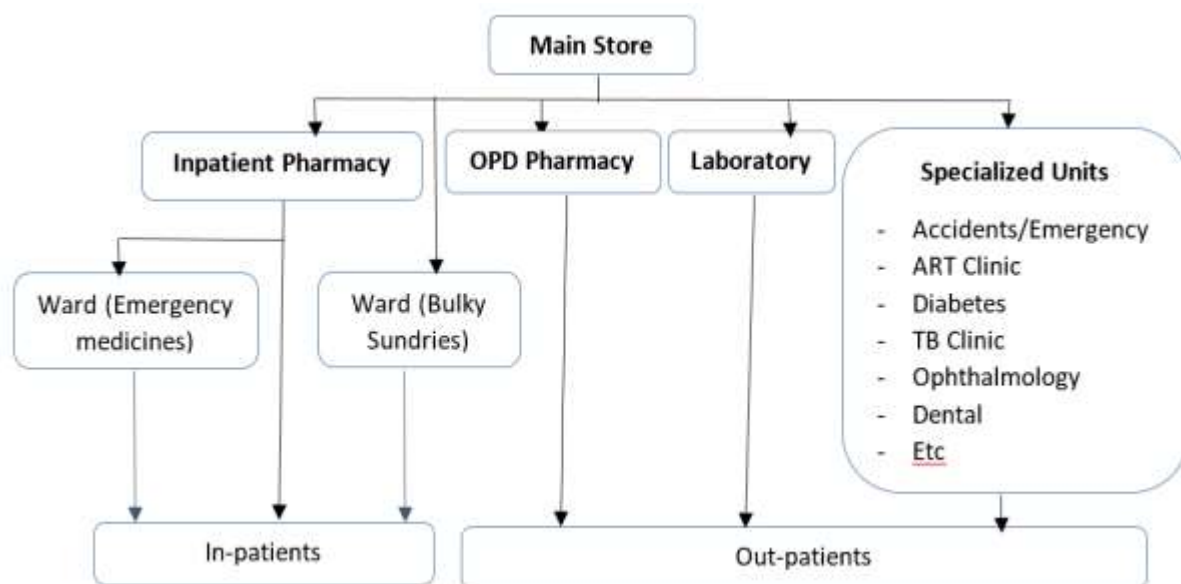
1. Right FORM of the
2. Right MEDICINE is given to the
3. Right PATIENT in the
4. Right DOSAGE AND QUANTITY with the
5. Right INSTRUCTIONS and in the
6. Right PACKAGING by the
7. Right HEALTHCARE PROVIDER

**Good dispensing practices include having;**

- Safe, clean and organized work environment
- Qualified and trained staff
- Safe and clean dispensing
- Safe labelling and instructions
- Ensure patients understanding
- Good record keeping

The following graphs shows the flow of items from store to patients.

*Figure 17: Flow of Health Supplies/Sundries from Main Hospital Stores to the patients*



## 7.1. Dispensing Work Environment

The Dispensing environment must be clean because most medicines are ingested. The work area must be hygienic and uncontaminated. The environment must also be organized so that dispensing can be performed accurately and efficiently. The dispensing environment includes:

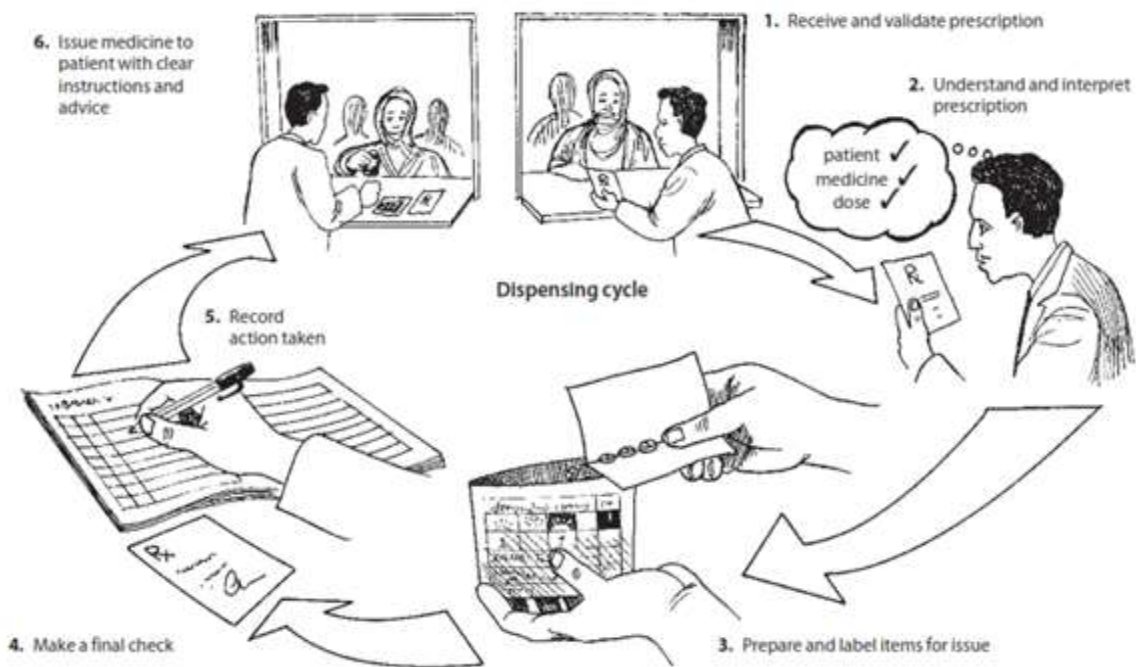
- **Staff:** Must be qualified and should maintain good personal hygiene and wear clean protective clothing. Facilities to wash and dry hands should be available.
- **Physical surrounding:** These must be kept free of dust and dirt so floors and work surfaces should be cleaned daily. The dispensing area should be safe and large enough to allow staff movement.
- **Shelving and storage areas:** Cupboards should only contain medicines and should be kept tidy and clean. Stock containers (especially in In-Patient Pharmacy), and pre-packed medicines must be stored in an organized way.
- **Work surfaces:** Spillage of liquids (e.g. syrups) should be wiped immediately. Food and drinks are not allowed in the dispensing area.
- **Equipment and packing materials:** Dispensing equipment should be used for measuring liquids (measuring cylinder) or counting trays for counting tablets and capsules. Equipment should be cleaned between products, patients and at the end of the day.

### KEY POINT

Very importantly, **ALL** EMHS containers in use must be clearly and accurately labelled with the opening date to minimize error. The repacking of one drug in a container of another drug should be discouraged and if it needs to be done, the name, dosage, batch and expiry date should be clearly indicated.

## 7.2. Dispensing Procedures

Figure 18: Dispensing cycle



### 1. Check that the prescription is appropriate for the patient as follows:

- Review the prescription.
- Find the generic name of the medicine. If you cannot read it or if you have any questions about a prescription, ask the person who wrote it to explain it to you.
- Check that the prescription is appropriate for the age, weight and sex of the patient.
- Where feasible, also check that the medicine prescribed is appropriate in form, strength, and dosage and in line with the standard treatment guidelines for this medicine. If you have any doubt about this, consult with the prescriber.

### 2. Prepare one prescribed item at a time, do not combine them.

- Collect a bottle, strip, tube, or container of the item, and check its expiry date.
- Read the generic name on the label of the container.
- Check that it is the correct medicine.
- Remember that some medicines look the same and can easily be confused.
- Check that it is the correct form, strength and unit size.
- Collect a medicine envelope or container to package the item for the patient.
- Close the medicine container immediately after use and return it to the shelf.

### **3. Label the package to be given to the patient.**

A clearly written label is important. Some packages will have pre-printed labels on them, others may not have labels and you will need to prepare a label. Write clearly on the label. Include the following information:

- Patient's name
- Patient's age (if both mother and child are sick)
- Date generic name of items
- Strength
- Form
- Quantity dispensed
- Expiry date
- Dose (Use pictures or numbers)
- Instructions which tell the patient when, how much, for how long and how the medicine should be taken. Include written instructions also. Patients who cannot read may need pictures for instructions and should be assisted to understand the instructions.

### **4. Quality checks on the medicines**

Open the medicines container and check the quality of its contents

- If medicines have an odd smell, they may have deteriorated. If tablets or capsules are cracked, broken, powdery, or sticky, they are damaged. Refer to the Pharmacopeia to get details about that product to prove that it's damaged or spoiled.
- Never give patients poor quality medicines. Dispose of those medicines properly.

### **5. Count the quantity needed in a clean and safe manner**

- Count tablets or capsules using counting tray with a clean spatula/spoon. Keep the tray clean.
- Do not use your hands to count medicines. You may contaminate both the medicine and your hands.

### **6. Put correct amount of the medicine into the package for the patient to take home.**





- Put the medicine into its own labelled package using the tray and spatula (or measuring device for liquids).
- Do not mix prescriptions or medicines of different patients even if they are from the same family.

7. Close the containers from which the medicines were picked.

8. Dispense one item at a time if the patient has more than one medicine.

9. Tell the patient to repeat the instructions to assess their understanding of the prescriptions.
10. Sometimes patients will feel better before they finish all the prescribed medicines. Tell patients that, even if they feel better, it is important to take all the medicines to stay well. This is especially true of antibiotics or antimalarials because bacteria or parasites may still be present. Also tell patients with chronic conditions, such as those with hypertension or those taking ARVs that they need to return for review or follow up on the stated dates.
11. Record the medicines in the dispensing log (HMIS 016)
12. Caution patients not to share medicines belonging to one patient with others who seemingly have the same signs and symptoms.

Figure 19: Steps to follow during dispensing of medicines

STEPS	What to do	What to pay attention to
STEP 1	<b>Check the prescription</b> 	<ul style="list-style-type: none"> <li>▪ Check that contents of prescribed treatment is correct considering               <ul style="list-style-type: none"> <li>○ Indication and UCG recommended treatment</li> <li>○ Form, strength and dosage of medicine is right for the patient (e.g. child dosage and syrups for children)</li> </ul> </li> </ul>
STEP 2	<b>Prepare the medicine</b> 	<ul style="list-style-type: none"> <li>▪ Make sure you use the right medicine. Check name and strength on the container label</li> <li>▪ Check quality of the medicines. Do not use cracked or broken tablet.</li> <li>▪ Count correct quantity using gloves or counting tray and spatula/spoon. <b><u>DON'T USE BARE HANDS!</u></b></li> </ul>
STEP 3	<b>Double-check information and counting</b> 	<ul style="list-style-type: none"> <li>▪ If more than one staff in dispensary               <ul style="list-style-type: none"> <li>▪ Preferably another person need to double-check STEP 1 (prescription) and STEP 2 (medicine preparation)</li> </ul> </li> <li>▪ If one person in dispensary               <ul style="list-style-type: none"> <li>▪ Check again to ensure that you have picked the right medicines as prescribed</li> <li>▪ Check again to ensure that you have counted correctly</li> </ul> </li> </ul>
STEP 4	<b>Dispense the medicines</b>	<ul style="list-style-type: none"> <li>▪ Use a dispensing envelope or small bottle</li> <li>▪ Label the package clearly with patient's name, facility name, generic name, strength and quantity of medicine, dose and duration</li> </ul>
STEP 5	<b>Provide appropriate information patient</b> 	<ul style="list-style-type: none"> <li>▪ Ensure that the patient has understood;               <ul style="list-style-type: none"> <li>○ Why to take medicine</li> <li>○ How to take i.e. oral or topical</li> <li>○ When to take (morning, midday and/or evening)</li> <li>○ How much of the medicine to take (number of tablets or mls)</li> <li>○ How long to take (until all tablets are used or number of days)</li> </ul> </li> </ul>

	<ul style="list-style-type: none"> <li>○ Information about interaction (patient must know which food or medicine affects the effect of the medicine)</li> <li>○ Information about side effects (patient must understand that side effects can occur and know when to continue or stop treatment and return to the doctor.</li> </ul>
	<ul style="list-style-type: none"> <li>▪ General information i.e. dose should be taken in full and not shared</li> </ul>
<b>STEP 6</b>	<b>Record in the prescription and dispensing log</b> <ul style="list-style-type: none"> <li>▪ Fill in date, patient number/name, diagnose, medicine name, initials of prescriber and dispenser</li> </ul>

Figure 20: HMIS 016: Daily Dispensing Log

Date	OPD/IPD Number	Names and quantity of medicines dispensed												Dispenser initials
	Balance B/F													
	Amount Received													
	Total Dispersed													
	Balance at hand (B/F - Amount Received - Total Dispersed)													

### 7.3. Outpatients Department pharmacy

Medicines shall be issued from store to the outpatient pharmacy where they are dispensed to outpatients based on the prescriptions and recorded into the daily dispensing log (HMIS 016). List of prescribers with their names and signatures shall be availed in the outpatients’ department pharmacy and authenticity of prescription must be verified. Information in the dispensing log will include:

- OPD number.
- Initials of dispenser and prescriber.
- Quantities of medicines dispensed.

The current dispensing log includes information about balance brought forward, quantity received, total dispensed and balance at hand to ensure accountability at dispensing points.



## 7.4. In-Patient Pharmacy

All health facilities that have in-patient services are required to establish and operate an inpatient pharmacy where essential medicines and selected health supplies are dispensed per treatment chart and given to patients or their caretakers for safe custody. This section describes how EMHS are requisitioned from the stores by user departments, documented and dispensed from the in-patient pharmacy/dispensing points.

### Dispensing to the patients

The location and layout of the inpatient pharmacy may vary among the health facilities depending on the infrastructure and space available. It is recommended that it is located in a central place where most wards/units have easy access.

The following should be considered when dispensing:

- All the medicines in the in-patient pharmacies must be accounted for by use of dispensing log.
- All medicines shall be dispensed to the inpatients using a treatment sheet with a valid prescription having the following features:
  - Date
  - IPD number
  - Patient name
  - Dose and duration of medication
  - Name and quantity of medicines dispensed
- The nurse on duty shall be responsible for making sure that medicines prescribed to the patients are collected from the in-patient pharmacy.
- All prescribers shall submit their specimen signatures to the in-patient pharmacy and all other dispensing points.
- All treatment charts received must be reviewed by the Pharmacist/ dispenser to ensure that they meet following criteria:
  - a) Authenticity of treatment chart
  - b) Adherence to UCG
  - c) Suitability of dosing regimen
  - d) No drug interactions
  - e) Appropriate route of administration and frequency

**Any need to change the prescription can only be made with prior consent of the prescriber concerned and recorded into the treatment chart**

- Dispensing of the prescription shall be done by the Pharmacist/dispenser, all medicines supplied must be in suitable containers meant for administration; ideally daily but in any case not exceeding 72 hours (3 days).

#### **Documentation**

- Dispensed medicines shall be documented in the dispensing log clearly indicating:
  - a) Name, strength and quantity of medicine dispensed.
  - b) IPD number.
  - c) Initials of dispenser.
  - d) Initials of prescriber.
- The quantities of EMHS dispensed is indicated in the treatment chart

#### **Handling of medicines in the ward**

- When in the ward, the medicines dispensed from the pharmacy shall be handed over to the patients/caretakers for custody.
- The nurse on duty shall then provide medication counselling to the patients about:
  - How to store their medicines adequately.
  - How to take their oral medications.
  - What happens to the medicine at discharge
- One treatment chart shall be allotted per patient; each will be filled with the medication prescribed with the correct quantity based on the treatment sheet and in accordance with the administration times.
- During administration of medicines to a patient, the nurse on duty shall counter sign in the treatment chart against the injectable unit dose administered.
- If discontinuation of patient medication is inevitable before its complete duration, the prescription in the treatment chart shall be cancelled and countersigned by the doctor and new prescription updated in the treatment sheet.
- The withheld medicines shall be returned to the pharmacy to determine whether it can be reused or destroyed. In both cases, proper documentation should be done.

### **7.5. Emergency Medicines**

Wards/units are recommended to securely keep a limited quantity of lifesaving medicines in the medicines cupboards e.g. adrenaline, oxytocin, dextrose 50, diazepam or as determined by the MTC. Emergency medicines should be dispensed from the emergency cupboard in the

wards/units and maintain a dispensing log (HMIS 016) each time an item is issued from the emergency medicines cupboard. The emergency medicines list and the quantities to be supplied should be customized for each ward as approved by the MTC. The stock should be refilled on a top up basis according to the consumption data reflected in the dispensing log.

Ordering of emergency medicines for the wards shall be done by the nurse on duty or ward in-charge using requisition and issue voucher form (HMIS 017) that should reflect the stock on hand (balances in the cupboard). Upon authorization by the head of department/unit in-charge the HMIS 017 is sent to the inpatient pharmacy for sanctioning by the in-patient pharmacy in-charge/dispenser and medicines or health supplies will be issued.

Ward inspections shall be done to ensure the following:

- Ward stocks comply with the amounts approved.
- FEFO/FIFO is being adhered to.
- Medicines are available and are in good condition.
- Documentation into the dispensing log and treatment sheets are properly done.
- FEFO can be applied in case of withdraw of items which have short expiry dates.

## **7.6. Accident and Emergency Department**

Accident and Emergency (AE) room is a section in the hospital that provides rapid and varied emergency treatment to patients. It's usually the first point for patients who arrive in the hospital at any time even during the night/after working hours. Supplies should be requested from inpatient pharmacy or stores using requisition and issue voucher as described above and recorded in the dispensing log. The supplies should be dispensed as per treatment chart and documented in the dispensing log as well as updating the stock cards. The next refill of the prescription should either be done in the inpatient pharmacy (if the patient is admitted) or outpatient pharmacy (if the patient is not admitted).

## **7.7. Special Units Pharmacy**

These are units offering specialized inpatient and/or outpatient services for the case of regional referral hospitals and lower health facilities (e.g. ART clinic, mental units, theatre...). These patients require special considerations for most of or all their needs. The EMHS should be

requested from stores using requisition and issue voucher, dispensed as per treatment chart and documented in the dispensing log as described in inpatients section above.

### **7.8. Narcotic and psychotropic drugs**

All medicines with a potential of abuse require strict observation and should be dispensed under witness of a second person and where necessary the dispensing recorded in both the dispensing log and Narcotics drugs book. For injectable narcotic drugs, empty vials/ampoules/containers must be returned to the inpatient pharmacy to confirm usage.

### **7.9. Medical supplies**

Supplies that are not patient specific and needed for normal operations of the ward e.g. cotton, gloves, plaster, disinfectants or as determined by MTC will be issued from store to user units using the requisition and issue voucher. The health supplies will be documented into a dispensing log using the smallest issue unit e.g. one roll of gauze, one piece of cannula.

Supplies that are patient specific e.g., cannula, giving sets, catheters or as determined by the MTC may be issued to Inpatient pharmacy from the main store using requisition and issues voucher, dispensed as per chart, and recorded into the IP pharmacy dispensing log.

## CHAPTER | 8 | SHORT-DATED AND EXPIRED STOCK

Medicines and Health supplies do have limited shelf lives. Standard treatment guidelines, laboratory testing protocols and morbidity patterns often change, therefore it can be expected that some medicines may not be used before expiry. Health workers can limit stock expiry by closely monitoring expiry dates and taking the appropriate action to redistribute stock when necessary. This part describes how to handle short dated and expired medicines and health supplies.

### 8.1. What to do with Short-Dated Items

As a general rule, any item expiring in three months' time is short dated. However, some slow-moving items can also be included in that category, for example Praziquantel tablets, or items which are only available in large units. At times, it is obvious even before three months prior to the expiry date that the item will not be used up in time. With the kit supply system, you may receive too many of some items, so be extra careful to go through your supplies often to identify those that need to be redistributed (more than five times the AMC). If, in each kit, you receive more than what you use in two months, you will build up excess supplies that need to be redistributed. The Medicines Management Supervisors (MMS) can help you identify which items those are.

When doing the monthly physical count, you will notice items that are short dated. It is extremely important to take immediate action to avoid any item's expiration on the shelf.

Allowing three months for redistribution is a short time, and the process must begin immediately.

#### AT THE HEALTH FACILITY

Steps to take at the health facility include:

- Making a note of any item expiring within three months (or longer, for slow-moving items)
- Calculating how many units will be issued and used by your facility before the item expires. From that figure you can see how much you need to redistribute

Example with kit

You have 75 units of an item with 12-month shelf life. Your AMC for the item is 7.

Before the next kit supply, which is bimonthly, you will use  $2 \text{ (months)} \times 7 \text{ (AMC)} = 14$ .

Your stock balance therefore is:  $75 - 14 = 61$  units. If you receive more than 14 units in a kit, you will slowly build up excess supplies.

You might want to have 5 months of supplies in stock:  $5 \times 7 = 35$ , so you should still redistribute  $61 - 35 = 26$  units, although they have 12 months left of shelf life, you would have to redistribute them regularly to avoid expiry.

### **Steps to take include the following**

1. Alert the Health sub-district (HSD) or the district about any stock that cannot be used before expiry or that you have too much of.
2. Hand over the items to the district or HSD supervisors for redistribution. Be sure to fill in a requisition and issue voucher to go with the stock and keep a copy for the facility. A member of the health unit management committee should be present during the handover.
3. On the stock card, fill in under the losses and adjustments column the quantity sent to the district store and note the reason.

### **AT THE DHO**

The DHOs should coordinate the redistribution:

- Make an extra effort to redistribute excess stock received by some facilities following kit supply. Although the kit is revised regularly, excess stock will occur and often it will be the same items that are overstocked
- Check with other districts that might make use of the short-dated or excess stock
- The redistribution process within the district should have no monetary implications for the recipient health facility. Items returned to NMS should be included under a pool for donation. Detail of redistribution is found in Chapter 9

## **8.2. What to do with Expired or Damaged Stock**

Occasionally medicines and health supplies will expire before use, sometimes because of poor stock management or because of unsolicited donations. Expired items should not be part of your stock; they should be removed and put in the designated place<sup>7</sup>. It should also be recorded in the stock card as a negative adjustment so that the correct balance on hand is calculated after you have removed the expired items from the shelves:

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<sup>7</sup> *Management Sciences for Health. 2008. Mission for Essential Medical Supplies-Inventory Management Module. MSH and Tanzania MOH*

- Expired medicines may no longer be effective and may be dangerous
- Damaged or expired stock should be placed in a designated salvage area
- A written record of all stock consigned to this area should be maintained.
- Expired or damaged stock must be destroyed in accordance with local regulations

### STEPS FOR THE HEALTH FACILITY TO TAKE

Handle expired and damaged items carefully

1. Separate damaged or expired health commodities from usable commodities, remove them from inventory immediately, and dispose of them according to established procedures.
2. DO NOT use expired medicines!
3. Designate a separate part of the storeroom for damaged and expired goods. This area should clearly be labelled as the storage area for expired items, and where possible, should be physically separated from other commodities.
4. Record all expired items in the register (HMIS 088) along with the price from the most recent invoice.
5. Inform the district authorities or MMSs about the expired items, especially when they come for a supervisory visit. The district will arrange to collect the expired item; fill out and sign a requisition and issue voucher (keep a copy for the facility).
6. At the end of a reporting period (quarterly), calculate the total value of expired stock that has expired and include this in the facility's regular reports.

### Expired or spoiled medicines register

Use this register to track all expired or spoiled medicines and supplies from a health facility. The transactions recorded in the book should be done as exemplified in the table below.

Table 8: Expired or spoiled medicines register

Date	Expired /Spoiled item with description	Exp Date/ Batch No.	Quantity X Unit	Unit Price (UGX)	Total value of expired items	Witnessed/ taken by	Remarks
02/12/17	Paracetamol 500mg tab	FT300	5 x 1000	5,906	29,530	Ruyooka/ MKali	Taken to DHO
4/02/18	Cotrimoxazole 480mg tab	12K09	3 x 1000	23,015	69,046	Ruyooka/ MKali	Taken to DHO
31/03/18	Chloramphenicol 500mg Inj	AE360	100 x 1	4,900	490,000	Ruyooka/ MKali	Taken to DHO

Alternatively, a quarterly Expired drug report can be generated using a computerized logistics management system.

### **STEPS FOR THE DHO TO TAKE**



1. Make an expired stock register similar to the same format as above, but include an extra column to write the facility from which it was received.
2. Record all expired stock in the register.
3. At the end of each month, calculate the total value of expired stock for the district.
4. Arrange to hold a Board of Survey once a year in accordance with regulations for disposal of public assets. The board of survey will prepare a report in triplicate
5. Inform the National Drug Authority if expired stock is to be destroyed locally within the district; NDA is mandated to advise on the suitability of the destruction and supervise the process.
6. The MOH will periodically collect expired medicines for safe disposal or destruction using NMS vehicles or other transporters.

### **KEY POINTS**

- Short-dated items are medicines and supplies expiring within the next three months and slow moving items available in large quantities.
- Checking expiry dates must be part of every physical count.
- Effort must be made to use short-dated or excess stock before it expires, including redistributing it to other health facilities.
- The requisition and issue voucher should be filled in and stock card updated to reflect the redistribution.
- Expired medicines should be removed from the shelves in the store and kept in a separate designated area.
- The removal should be shown on the stock card as an adjustment.
- The expired items register should be filled with the details of the expired items including the cost.
- The DHO will advise on when the expired items will be collected for destruction.
- Before destruction, a Board of Survey will be constituted to write off the items.
- The National Drug Authority must approve the destruction method and oversee the process.



Figure 21: Sample of board of survey report

BOARD OF SURVEY REPORT					
Department of: <i>Health office of the District Health officer</i>					
Proceedings of a Board of survey held at <i>District Health Store, ON 15<sup>th</sup> March 2011</i>					
The following unserviceable items were examined:					
Description of article	Number or quantity	Value		Reason for condemning	Recommendation on how to dispose
<i>Assorted expired medicines and Laboratory reagents</i>	<i>See full list of items and quantities attached</i>	<i>UGX</i>	<i>USD</i>	<i>Expired items</i>	<i>To be destroyed in accordance to NDA guidelines</i>
<p>We the undersigned do hereby certify that we have examined the above mentioned items, and find them unserviceable, except otherwise indicated in the final column. We recommend that the former be disposed of as in that column.</p> <p>Name: _____ Rank: _____</p> <p>1. <i>Joko Asaba</i> _____ <i>Chairman</i></p> <p>2. <i>Milly Ayot</i> _____ <i>Secretary</i></p> <p>3. <i>Phillip Okho</i> _____ <i>Member</i></p> <p>Date: <i>16th March 2011</i> Members of Board of survey</p>					
<p>APPROVED: I hereby certify that the items above have been disposed off as authorized:</p> <p> _____</p> <p> _____</p> <p>Date: .....<i>16<sup>th</sup> May 2011</i>..... Date: .....<i>16<sup>th</sup> May 2011</i>.....</p> <p>Note: The recommendations of the board should not be carried out until approval thereof has been conveyed</p>					
<b>Instructions for use</b>					
<p>Instructions for Board of survey Boards of survey will:</p> <ol style="list-style-type: none"> <li>Find equipment submitted serviceable or not serviceable as the case maybe</li> <li>Recommend as to the items condemned whether they should be a) sold, b) sent to a center for parts to be utilized c) order that they should be destroyed (burned or broken up)</li> <li>The proceedings of the board should be in triplicate. One copy will, if approved, be sent for retention by the officer-in-charge of, and responsible for the equipment, one will be attached to the voucher for replacement or to the revenue return in case of sales, and the original be retained at the district office</li> </ol>			<p>Instructions for officer in-charge of movable assets</p> <ol style="list-style-type: none"> <li>A certificate of destruction should be given by NDA showing how the items will be destroyed.</li> <li>In case of sale, the cash should be properly brought to account, supported by the proceedings of the board.</li> <li>In case of transfer, a report when dispatched and where to should be availed.</li> </ol> <p>It is suggested that lists of losses should be submitted to each Board of survey with such explanation as may be possible, and that successive lists be forwarded as part of the proceedings of the board with such comments.</p>		

## CHAPTER | 9 | REDISTRIBUTION AND REVERSE LOGISTICS

Redistribution is a practice that involves movement of usable medicines and or health commodities from one health facility to another triggered by one or more of the following:

- a) Absolute need of the item that is stocked out or threatening to stock out (below min. stock, i.e. **<2 months of stock**)
- b) Epidemic or rapid enrolment of clients into a particular treatment, than earlier planned
- c) Supply not expected before the current stock runs out or communicated delays in delivery by the supplier
- d) Facility which missed out supply during delivery
- e) Threatening to expire (**short dated items**: less than four months) if not redistributed
- f) Overstocked items (**Stock on hand – Maximum stock**)
  - a. Maximum stock = AMC x 4
  - b. Minimum stock = AMC x 2
- g) New health facilities which are not supplied by the warehouses routinely

Whatever you cannot use before the expiry date should be redistributed at least four months before their expiry date. If drugs expire in spite of your best efforts, clearly mark them as “expired”, and return them to your district or store separately. For more information see MOH guidelines for handling of short dated and expired stocks described in Chapter 8.

### Caution!

Note that the facility receiving EMHS during redistribution **MUST** confirm that it can use the commodities before they expire.

With reference to the Ministry of Health redistributions guidelines (2018), redistributions of health commodities could either be within the district or across regions/districts<sup>8</sup>. Depending on the item and as guided by the MoH redistributions guidelines, redistribution can also occur between government and PNFP facilities (for specific EMHS). Redistribution increases efficient

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<sup>8</sup> Uganda Ministry of Health, 2018. *Uganda National Redistribution Strategy for Prevention of Expiry and Handling of Expired Medicines and Health Supplies*

utilization of the scarce resources by moving usable stock to where it is most needed thereby preventing loss through expiries of these costly and lifesaving items.

## **9.1. The Redistribution Process**

With reference to the MoH redistributions guidelines (MoH, 2018), the redistribution process is a three-step process.

### **Step I: Detection and Reporting of Stock for Redistribution**

- i. The stores personnel/supervisor should complete monthly physical inventory checks and notify the health facility in-charge of items that need to be redistributed or those that need to be sourced from other facilities due to their low stock levels.
- ii. Using a Redistribution of EMHS Notifications Form (See table 10 - HMIS logistics tools), the health facility in-charge should then communicate to DHO the stocks available for redistribution. The in-charge of the facility in need will also communicate to DHO about the needed items (threatening to/stocked out).

### **Step II: Identification of Recipient Health Facility/source facility**

- i. The DHO should first consult other health facilities about the existing stock/needs, including the District Hospital, including PNFP, and the Regional Referral Hospital for that district.
- ii. If facilities in a district are well-supplied and do not need the overstocked item, the DHO may communicate with the neighbouring districts in the same region and offer them items. In this case the CAO should also sign the Redistribution of EMHS notification form. If no other district in the region is willing to take the excess stock, the DHO should inform the warehouses about the excess stocks (ensuring that the source of the commodities is the one notified for this excess stock).
- iii. Warehouses may inform other regions within the country about availability of redistributable stock (if the quantities and values are worth the effort).
- iv. If there is no need in the country, the warehouses can inform the East African partners.





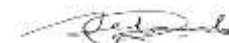

**REVERSE LOGISTICS** describes the process by which a resource goes back at least one step in the supply chain (from facility to district or warehouse).

### Step III: Authorization and Stock Adjustments

The redistribution is initiated when either the overstocked facility fills in the Redistribution of EMHS notification form (in triplicates). Once a recipient is identified, the transfer process is implemented using the Requisition and Issue Voucher (HMIS 017).

- The in-charge of the donor facility fills the requisition and issue voucher on behalf of the recipient facility. The in-charge of donor facility, the Health Unit Management Committee and the DHO will sign the voucher
- Items will be issued with a copy of the Requisition and Issue voucher while a duplicate copy will remain at the donor facility
- The recipient facility, with assistance from DHO and (if needed) implementing partners will organize the transport and receive the items with a copy of the Requisition and Issue Voucher.
- Both donor and recipient facility update their stock cards as negative and positive adjustment respectively, indicating also recipient/donor facility name.

### Redistribution of EMHS Notifications Form

<b>Facility Name and Level</b> Kiwagi HC II		<b>Date</b> 10th October 2011			
<b>Health Sub District</b> Masaka Municipality		<b>Name and Signature of In charge</b> Bileti John 			
<b>District</b> Masaka		<b>Name and Signature of health facility Store Keeper</b> Jane Kasumba 			
This is to notify the District Health Officer that the following items are in excess of stocks that can be used in the facility before it expires.					
Item Code No	Overstocked items	Expiry date	Pack size	Number of packs to be redistributed	Reason for Overstock
220 162	Diclofenac Tabs 50mg	05/2012	Pack of 100 tabs	20	Donation from NGO
202 054	Tetra eye Oint 1%	03/2012	Tube	50	Part of Kit and slow moving
220 255	Ferrous + Folic acid Tabs (150 /0.5) mg	04/2012	Jar of 1000 tabs	20	Donation from NGO
220 145	Chlorpheniramine Maleate tabs 4mg	03/2012	Jar of 1000	10	Slow moving - part of the Kit
<b>Name- Signature- Date (HUMC Member)</b> Ssalongo Bukya Eliphaz  10/10/11			<b>Name Signature date (HSD in-charge)</b> Dr Kayongo Joshua  12/10/11		
<b>Name- Signature- Date (DHO)</b> Dr. Sebuliba Mutumba  13/10/ 11			<b>Name Signature date ( CAO)</b> Mr. Alphonse Zaake  13/10/11		

### **Tools necessary for redistribution exercise**

- a) Redistribution of EMHS Notification Form
- b) HMIS FORM 017: Requisition and Issue Voucher
- c) Stock Card (HMIS 015) and stock book

### **Key stakeholders in the redistribution exercise**

- a) Health Facility in charge
- b) Health Facility stores personnel
- c) Health Unit Management Committee
- d) District health Officer
- e) CAO (Inter district redistributions)
- f) Implementing partners
- g) Transport facilitator

## **9.2. Borrowing/Lending Items**

If a stocked out item is urgently required, try to requisition from another facility. Only requisition the amount needed for that emergency. To requisition medicines from another facility, fill in the requisition and issue voucher (HMIS 017) and fill in the borrow/lend record. Do not enter this estimate in the commitment register because it is not a new order. Enter the transaction in the stock card and record the quantities borrowed in the losses and adjustment column. If you issue items to another facility, follow the same procedure.

All facilities should keep a **borrow/lend record** to help keep track of what is borrowed and lent and to ensure that the facility gets items back and returns items that were borrowed. A borrow/lend record has two parts—one records what the facility has borrowed and the other what the facility has lent to others. The borrow/lend record should be clearly marked with “borrowed” or “lend” so as not to make mistakes. There is not a pre-printed record available so you will have to make your own record using a notebook or similar.

Figure 22: Borrow/Lend Record

<b>BORROW/LEND RECORD</b>							
<i>Date</i>	<i>Code No</i>	<i>Item</i>	<i>Unit</i>	<i>Quantity</i>		<i>To/From</i>	<i>Returned date</i>
				<i>Borrowed</i>	<i>Lent</i>		
23/6/11	220 185	<i>Cotrimoxazole 400-80 mg tablets</i>	<i>1000 tabs</i>	5		<i>Kayunga Hospital</i>	8/8/11
1/10/11	220 460	<i>Paracetamol 500mg tablets</i>	<i>1000 tabs</i>		3	<i>Wabwoko HC III</i>	2/12/11
7/11/11	24/1930	<i>Crepe bandage 2 "</i>	<i>piece</i>	10		<i>Kojja HC IV</i>	
1/1/12	220 155	<i>Chlorpromazine HCL 100 mg</i>	<i>100 pack</i>	10		<i>Baale HC IV</i>	

## **CHAPTER | 10 | HANDLING OF EMHS DONATIONS IN UGANDA**

World over, countries require donations from each other, United Nation agencies and Non-Governmental Organizations (NGOs) in order to support their efforts to respond to emergencies and circumstances that may require more resources than can be mobilized locally. Uganda has had a fair share of natural disasters and insurgencies within and in the surrounding countries usually resulting into internally displaced persons or influx of refugees respectively<sup>9</sup>. These require resources that usually overwhelm the country's ability to respond to such emergencies. In such circumstances, donations of medicines and health supplies come in handy to support the country's efforts to offer health services to the affected populations. Whereas donations are necessary, there is need for guidelines to manage the processes of donations of medicines and health supplies into the country. The purpose of the guidelines is to ensure timely access to quality medicine donations in international development assistance and emergency aid situations.

### **10.1. International Donations**

#### **Core Principles of donations**

Guidelines for medicine donations are based on four (4) core principles:

1. Donations of medicines should benefit the recipient to the maximum extent possible. All donations should be based on an expressed need. Unsolicited medicine donations are to be discouraged.
2. Donations should be given with due respect for the wishes and authority of the recipient and in conformity with the government policies and administrative arrangements of the recipient country.
3. There should be effective coordination and collaboration between the donor and the recipient with all donations made according to a plan formulated by both parties.
4. The donations should be of good quality. If the quality of an item is unacceptable in the donor country, it is also unacceptable as a donation.

#### **Benefits of Donations**

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<sup>9</sup> UNHCR 2015; *Forced Displacement and Mixed Migration in the Horn of Africa*



- Save lives and ease suffering when well-coordinated and managed.
- Support rebuilding of health systems by ensuring access to health supplies by the population.
- Provide savings in development support budgets thereby enabling these resources to be used for other purposes.

#### **Potential shortcomings of donations**

1. Donated medicines and health supplies may not be relevant to the emergency situation, to the disease pattern or to the level of care that was targeted.
2. Donated medicines and health supplies have arrived unsorted and labelled in a language not locally understood.
3. Sometimes medicines and health supplies have been donated without the required documentation.
4. Sometimes medicines and health supplies returned to pharmacies by patients, or free samples derived from health professionals, have been collected and donated.
5. Medicines and health supplies have been donated in the wrong quantities, leading to situations where the large stocks could not possibly be used within their remaining shelf-life.
6. Donor agencies and their local partners have sometimes ignored local administrative procedures for receiving and distributing medicines and health supplies.

Figure 23: Donations can be a Problem



Source: MSH and WHO. 1997. *Managing Drug Supply*. 2<sup>nd</sup> ed. Hartford, CT, USA; Kumarian Press.

### Conditions for Importation of EMHS Donations

- The items identified for donation shall be directly related to the disease pattern of Uganda.
- EMHS should not be sent without prior consent of the Government of Uganda. The Director General of Health Services and/or Permanent Secretary, Ministry of Health shall be informed of all EMHS donations that are being considered to be imported for donation and use in Uganda.
- All donated EMHS or their generic equivalents shall appear on the National List of Essential Medicines and Health Supplies List of Uganda/World Health Organization - Essential Medicine List or otherwise shall be approved for use in Uganda by National Drug Authority.
- The National Drug Authority shall be accordingly informed to procedurally grant market authorization (approval for importation).
- Presentation, strength, and formulation of donated medicines and health supplies shall as much as possible be similar to those commonly used in Uganda.

## Approval procedures for donated EMHS

1. NDA grants permission for importation of EMHS donations from WHO, SRA (EU, SA) or any other NDA certified sources irrespective of their current registration status in Uganda<sup>10</sup>.
2. Where it is requested, the importing entity shall share the list of certified manufacturers that meet these requirements with the NDA.
3. In view of NDA's guidance that registered products require endorsement of proforma invoices by Local Technical Representatives (LTRs), exemption should be extended to donations for humanitarian or relief aid to reduce delay times as these are not meant for commercial purposes.
4. For all donations, the NDA fees regulations on importation of donated EMHS shall apply accordingly (NDA fees regulations 2014).
5. Humanitarian donations shall be exempted from the 12% verification fees normally levied on selected items on the NDA list of drugs as indicated in the NDA fees amendment regulations 2017.
6. For donations to the government of Uganda earmarked for use in the public health sector, the importing agencies will access the MoH NDAMIS account to apply for import clearance. This will reduce delays in clearing these donations.

## Quality Assurance and Shelf-life

- EMHS for donation **MUST** be obtained from a reliable source approved by the National Drug Authority, World Health Organization or Stringent Regulatory Agencies.
- The donated EMHS shall be delivered in the original primary and secondary containers or packages and appropriately labelled in English as guided by the MOH donations guidelines 2018.
- Donations for EMHS should have at least one year from the date of entry into the country.
- Importations should be accompanied with Certificate of Analysis (CoA) per batch per shipment, Certificates of origin per shipment, donation/free gift certificate.

## Use and Accountability

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<sup>10</sup> National Drug Policy and Authority, 2014. *Importation and Exportation of Drugs Regulations*.

- Donated items to government of Uganda shall be received by National Medical Stores (Public Facilities), JMS, UHMG and MAUL (PNFP Facilities) or other approved warehouses and distributed to health facilities following the normal procedures put in place by Ministry of Health.
- Documentation and accountability for the items received at health facilities/service delivery points shall be made according to the normal HMIS requirements and accountability procedures
- Disposal of the expired items shall be done by the health facilities/service delivery points together with the Central Warehouses that delivered the EMHS.
- Private Organizations shall follow the established procedures made by National Drug Authority

## **10.2. In-Country Donations**

Facilities may receive donations directly in loco, from private organizations, usually not for profit. Similar rules apply as for international donations:

- The items donated should be relevant for the receiving facility, that is consistent with the disease pattern, the need and the level of care, and should be included in the Uganda National List of Essential Medicine and Health Supplies
- Donated items should be of good quality, adequately packaged and in English language, and with an expiry date which will allow use before expiry
- Donations should be sanctioned by the facility MTC and/or the store in-charge and facility manager. No donation can be accepted at a facility without proper approval.
- Facilities have the right and duty to refuse donations if deemed inappropriate or unacceptable.

## CHAPTER | 11 | MANAGING LABORATORY COMMODITIES

Laboratory services play a significant role in a country's health system and in the delivery of quality health services by providing diagnostic results. When diseases are diagnosed incorrectly, not only does the patient suffer, but valuable medicines are wasted treating a disease for which they are not meant for nor effective. Correct diagnoses based on correct lab tests prevent incorrect treatment, and the money saved may be used to procure medicines and treat patients effectively.

### 11.1. Characteristics of Laboratory Commodities

The characteristics of laboratory commodities affect the design and management of their logistics system: for example a commodity physical presentation affects storage and distribution, quantification, and how data are collected and reported. Examples of laboratory commodities unique characteristics are as follows:

***Large numbers of commodities are needed.*** Each test performed in a laboratory requires several different commodities. For example, a simple malaria test can require five reagents and four consumables. Although one test may require some of the same commodities as another test, typically laboratories will need to manage several hundred or, in some cases, thousands of individual commodities. The sheer number of commodities has serious implications for the design of the logistics information and inventory control systems.

***Laboratory commodities come in a variety of preparations including dry powders, liquids, and kits.*** Laboratory commodities, particularly reagents, come in a variety of preparations. The physical presentation of a commodity has implications for its storage and distribution and may present challenges in quantifying the commodity.

***Dry Powers:*** Many reagents come as dry powders that are measured and reconstituted with distilled water for use in tests. Dry powders are measured using a balance or scale; the liquid used for reconstitution is measured using a graduated beaker. The solution is held and stored in a reagent bottle. Dry powders generally have a longer shelf life than liquid reagents; the shelf life is significantly shorter for the reconstituted reagent.

**Liquid:** Reagents that come in liquid form are often packaged in glass bottles. Amber glass is used to protect the reagent from light. Reagents packaged in glass bottles are heavier than dry powders, and the bottles break more easily during distribution.

**Kits:** Several tests come as kits that contain all or most of the commodities required to perform many of that particular test. The number of tests per kit can vary and should be specified during the procurement process. The kit always contains the reagents for the test, but it may also include consumables used for collecting and processing the sample. In some cases, those consumables need to be obtained separately. Care must be taken when ordering for kits—the contents of the kits must be known as well as how many tests a kit can perform. For example, the SD Bioline HIV rapid test kit is packaged with 25 test devices that contain the buffer and 25 disposable pipettes. To perform the test, however, the technician needs a timer and blood collection devices, which are not included in the kit package. Additional reagents, equipment, and consumables not in the kit should be ordered for separately.

**Dry laboratory chemicals and consumable liquids are often packaged in bulk.** Some laboratory commodities, such as disinfectant, isopropyl alcohol, and distilled water, are procured and distributed in bulk and some dry powder reagents are also distributed in bulk. Commodities distributed in bulk generally are ordered less frequently and require more storage space and for a long period of time.

**Some laboratory commodities have short shelf lives and require special storage conditions.** Most laboratory reagents have a shelf life of approximately 24 months however shelf life can vary from less than 1 month up to 36 months. The length of the shelf life is therefore an important consideration when ordering laboratory supplies. Most laboratory commodities can be stored following general storage procedures for health commodities discussed in Chapter 5. However, some require special storage which must be taken into consideration when managing laboratory supplies, these include:

- Flammables and corrosives, which should be stored separately from other commodities and should be placed on group level
- Reagents that require cool or cold storage (Refer table 9.)
- Commodities that deteriorate rapidly when exposed to light or moisture
- Specimens (fragment of tissue) that require freezing.

## 11.2. Classification of Laboratory Commodities

For the purpose of logistics management there are various ways to classify laboratory commodities:

### **A. Reagents, consumables, durables and equipment**

**Reagents** are chemicals and biological agents that are used in laboratory testing for detecting or measuring an analyte (the substance being measured or determined). The reagents vary widely in cost, stability, cold or cool chain requirements, availability, and the hazards associated with each variant. Reagents can be further subcategorized into liquid and solid reagents. Examples include sulphuric acid, ZN reagent.

**Consumables** are items that are used once while performing a test and are not reused. Consumables can include such test-specific items as microscope slides and cover slips. Other consumables, such as bleach, alcohol, and gloves, cut across all testing services and are classified as general laboratory consumables.

Generally, reagents and consumables are commodities that are routinely reordered and managed.

**Durables** are items that can be reused for multiple tests. They include items such as glassware that can be washed, sterilized, and reused where applicable. This classification also includes equipment and instruments used for testing. Durables are ordered on an as-needed basis and do not require the same level of logistics management.

**Equipment** are machines and instruments used in testing. These include complex automated equipment, such as chemistry machines that require regular preventative maintenance and servicing, to basic equipment such as microscopes, water baths and others. The Service agreement for each equipment must be maintained on file in the lab & facility in charge's office clearly spelling out the service provider for maintenance and repairs. In addition, an inventory of all health facility equipment must be maintained by the health facility in charge and update annually.

### **B. Rate of Consumption and Shelf life**

**Slow-moving and fast-moving commodities:** Commodities may be classified as slow or fast moving. Slow-moving commodities are those that will take several months to be consumed once

issued to the bench and fast-moving are those that are consumed very fast once issued to the bench, such as HIV test kits. This is dependent on the level of care for example bottle of basic fuchsin used for staining may take several months to finish at a lower-level facility, and therefore would be considered slow-moving. In contrast, the same bottle may be used up in a matter of weeks at a regional-level health facility and therefore would be considered fast-moving.

**Long and Short Shelf Lives:** Lab commodities can also be classified according to the length of their shelf life. For example, the commodities required to run an automated haematology test include haematology controls that have a shelf life of up to three months, haematology reagents that have a shelf life ranging from one to three years, and consumables, such as Vacutainer containers, that have a shelf life of three years or more. When planning to order reagents for haematology tests, for example, shelf life should be considered to avoid wastage. Such controls are always ordered on quarterly basis with supplier direct delivery to the facility to avoid delays.

**Note:** These classifications should be used in combination to help determine how commodities are to be managed. For example, a slow-moving product with a long shelf life should be managed differently than a slow-moving product with a short shelf life.

### **11.3. Management of Laboratory Commodities**

#### **Selection**

The National laboratory Logistic and equipment technical working group in collaboration with Pharmacy Department, Ministry of Health and National Health Laboratory Services (UNHLS) and other stakeholders developed a test menu per level of care and a list of essential laboratory commodities and reagents that are required to perform a test. The list has become part of the Essential Medicines and Health Supplies List of Uganda (EMHSLU). The lab supplies list was categorized into Vital, Essentials and Necessary (VEN) and further classified by the different levels of care. The list of lab commodities was grouped for purposes of ensuring that chemicals and reagents required for one test are available. Health facilities should therefore put most of their resources into procuring items or kits that are vital for their level of care. The facility lab in-charge *must be* part of the Facility MTC to provide technical assistance as regards the lab commodities.

#### **Storage Management**



Each facility from HC IV to RRH should have a designated lab logistic personnel responsible for managing lab commodities at the health facility with the facility store officer. The designee is to ensure the physical count of lab commodities is made, records are updated, orders are placed, and the consumption of commodities is monitored at facilities using the following HMIS tools:

- a) **Stock cards-** Laboratory commodities are managed as part of the EMHS. Each lab item *must* have a stock card that is updated after every transaction (receiving from warehouse or issuing to user department). Stock cards must be kept in one place together with the lab commodities in the health facility main store. The lab *must* have consumption records to record quantities used for tests.
- b) **Stock book-** The stock book (kept in the store) is a monthly summary of transactions for each item in the store. HC IVs, Hospitals and RRH should have a separate stock book for lab commodities.

*“Lab commodities shall be stored with other EMHS under same conditions in the store.”*

Special care is required, whenever handling chemicals that are corrosive or potentially explosive; these must be kept in a separate area within the stores. For cold chain items such as controls and chemistry reagents, the lab personnel must receive and keep them in the reagent fridge in the lab and ensure required temperature is maintained.

*The lab in-charge or the designee must be available to verify lab commodities delivered prior to receipt for storage in the store.*

**Note:** The lab in-charge or the designee must be available to verify lab commodities delivered prior to receipt for storage in the store.

### **Issue and consumption**

- a) **Requisitioning from Facility Stores:** All lab commodities *shall be* requisitioned for from the facility store using the Issue & Requisition voucher (HMIS 017) using the standard units of measure.
- b) **Consumption Records** serve two primary purposes:
  - To record the usage of tests including quality control tests and tests done in outreaches
  - To assist in determining the AMC and therefore quantities to order

Lab Consumption records include: Daily Consumption Logs and Daily Activity Registers for HC IIs, HC IIIs, HC IVs, Hospitals and RRH

c) **Laboratory test monthly summary:** The HMIS 105 (pg. 9/10) Monthly Health Unit Laboratory Tests Summary shall be completed by the laboratory in-charge. Its purpose is to report the total number of tests done at the health unit by type per month.

d) **Bimonthly report and order calculation form for tests, laboratory reagents, and consumables:** At the end of the bimonthly reporting cycle, the laboratory personnel responsible for managing lab commodities *shall* fill out this form. The purpose of this form is to report:

- Stock-on-hand balance at the facility
- The bimonthly consumption rate of laboratory commodities
- Losses & Adjustments
- Quantities to be resupplied at the facility by the warehouse

**Note:** The consumption rate for reagents and other consumables should be obtained from issue data in the stock cards or from an up-to-date stock book – or from consumption logs in selected cases.

### **Commodities stocked in the laboratory**

For most commodities, the laboratory will request amounts which will be consumed within 1-2 weeks. There are some exceptions to this rule, i.e. commodities that by their nature (e.g. big unit packs, or reagents stocked in laboratory fridge) cannot be issued in small amounts. In this case:

- All commodities should be received, verified and acknowledged in the main.
- Items which are stocked in the lab will be transferred to the Lab store where the stock card is kept by the lab store in-charge.
- The Lab store in-charge will maintain the stock card(s) for the items kept in the lab store
- Stock book shall be in the Facility Main Store but the lab store in-charge and the HF stores in-charge work together to complete the monthly summary of use in the stock book.

### **Ordering**

Health facilities order lab commodities following the same order delivery schedules as for all other EMHS. The number of items and quantity of each item ordered will depend on the facility level, consumption, credit line balance, and shelf life of the commodities:

1. **Level of facility.** As discussed earlier, lab commodities have been VEN categorized by level of care. Facilities should give priority to vital (critical) items within their level for the credit

line items. The Laboratory in charge or designated personnel should use the stock book to develop the requirements list.

2. **Credit line balance.** The current government system of funding for lab commodities is based on a credit line system. The lab in charge should keep track of his budget utilization and balance so as to always prioritize ordering according to the VEN classification.
3. **Shelf life and quantity to order.** The quantity to order is determined by maximum stock minus the stock on hand (obtained from the stock card) at the time of ordering. It is recommended that the order must be made by the laboratory personnel and assisted by the store personnel. Some reagents have a short shelf life and hence the maximum stock level is fixed at a lower level.

#### KEY POINTS

- All lab commodities received from central warehouses should be received, inspected and verified by lab in-charge or designated lab logistic officer, together with the store in charge
- The laboratory should request commodities they are able to consume in 1-2 weeks.
- Any commodity requested from the main store to the lab store that will last more than 1 month because of the nature of the product (e.g. big pack size, reagents needing lab fridge etc.) will be considered as stored in the Laboratory Working Stock Store. The store will have the main stock card with a note that the items has been issued (in part or, as in case of cold chain reagents, in total) to Laboratory Working Stock Store.
- Records of consumptions and stock at hand should be followed up and gotten from the Laboratory Working Stock Store – to ensure accurate AMC and orders
- Stock book shall be in the Facility Main Store but the Lab Logistics Focal Person and the HF Store Personnel shall work together to complete the monthly summary of use in the stock book.
- Every facility from HC IV to RRH should have a designated lab logistic officer that will closely work with the store's officer to fill and update stock cards and stock books and support him/her to conduct physical counts of lab commodities in the lab and main store
- Procurement planning and bimonthly ordering should be done as team

# CHAPTER | 12 | BLOOD DISTRIBUTION AND SUPPLY CHAIN MANAGEMENT

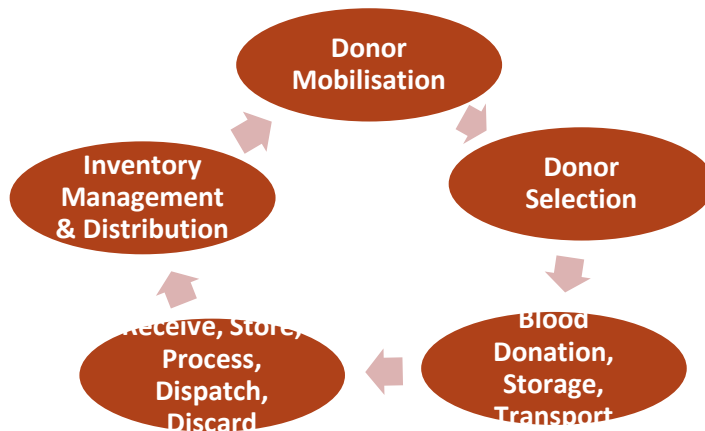
## Introduction

Blood transfusion is an important part of modern health care. Uganda Blood Transfusion Service (UBTS) plays a significant role in the country's health system to provide blood and blood products provided free to patients and other clinical users. All the blood products are donated by voluntary non-remunerated blood donors, tested in UBTS laboratories as per institutional testing algorithm, which meets Level 2 of the African Society of Blood Transfusion Standards. Blood is tested for HCV, HIV1/2, HBV, and Syphilis. UBTS has established quality management systems for continual improvement of product quality, customer satisfaction, and waste reduction; and a documentation system to achieve international accreditation. The final process of production and supply chain ends with blood components stock in health facilities under responsibility of lab technicians, and clinical head.

UBTS focuses on patient-centred blood supply chain management including storage, transportation and inventory management. The optimization of the use of donated blood and blood components without wastage is all health workers responsibility, however, UBTS collaborates with hospitals and blood establishments to streamline the whole chain and discuss ways to assess and improve blood supply management in the country.

It's important to note that blood comes from human beings and that there is no factory that manufactures blood products, therefore all clinical cadres should endeavour to encourage blood donors and handle this life gift with care.

Figure 24: Processes in blood bank establishment



### 12.1. The Blood Supply Chain

The blood supply chain starts with the blood donor and ends with the patient, but ultimately it is the requirement for blood by the patient that drives the chain and hence the number of blood donations required. Various factors affect the blood supply chain: the number of donors who are willing to donate regularly, seasonal factors affecting donation e.g. school holidays, the blood services ability to adequately set annual targets or increase in the number of units of blood required throughout the year, and the clinician’s awareness of appropriate blood use, ordering, and the hospital laboratories ability to ensure sufficient blood stock management. It is essential that all staff working in each area of the blood supply chain are aware of their responsibilities to ensure minimal wastage of this freely given resource. Therefore resources, education, training and data collection are important elements of the blood supply chain.

### 12.2. HMIS Tools for Blood Supply Chain Management

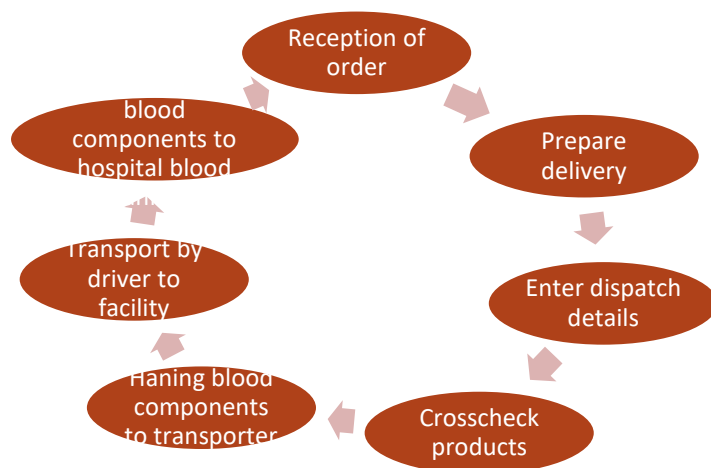
HMIS OPD/IPD Blood Transfusion Request Form, and HMIS facility Blood Component Order Forms, HMIS Blood Receipt Register, HMIS Blood Transfusion Issue Register and Monthly Report Forms should be used by all transfusing facilities. These tools shall be available at NMS on request or HMIS tools supply cycle. All columns must be filled to ensure accurate data capture. Non-compliant facilities shall be deferred from receiving blood.

### 12.3. Ordering Blood Supplies by Health Facility Laboratory

Blood ordering has to be done routinely to ensure sufficient stock of supply in the health facility. Order quantities should be based on stock at hand and current demand or trend analysis with respect to clinical use in the respective facility. Blood types ordered should be clearly indicated (e.g. Group A, B, AB, O and rhesus), type of product (e.g., whole blood, plasma, platelets and red cells concentrates). Special orders and emergency supplies should be ordered separately. Quantities required and previous usage should be included. Minimal stock levels should be established for each facility, with respect to average consumption. Emergency blood supplies have to be incorporated in the order calculations; and liaise with the blood bank medical directors in dire emergency situations. The quantity to order and type of product ordered will depend on the facility level of care, stocking capacity and shelf life of the product.

**Note:** The consumption data for blood and blood components should be obtained from Blood Reception Register, issue registers, ward blood requests data, discards, blood bank returns and in the IPD book or from copies of blood requests filed in lab.

Figure 25: Processing customer order for blood or blood components



### 12.4. Transporting Blood from Regional Blood Banks to Health Facility

Blood has to be transported in cold chain using approved blood transport containers to prevent damage or deterioration of the blood products. The transport containers should meet the capacity of blood ordered, must be clean. 2-10°C is ideal temperature for most blood products

during transportation, except platelets which are stored at 20°C +/- 2 within 8 hours. Long distance shipments should be done as per shipment guidelines of blood products (obtained from blood bank). Packaging for transport should be guided by blood bank staff issuing. Do NOT accept expired or non-blood bank labelled blood products.

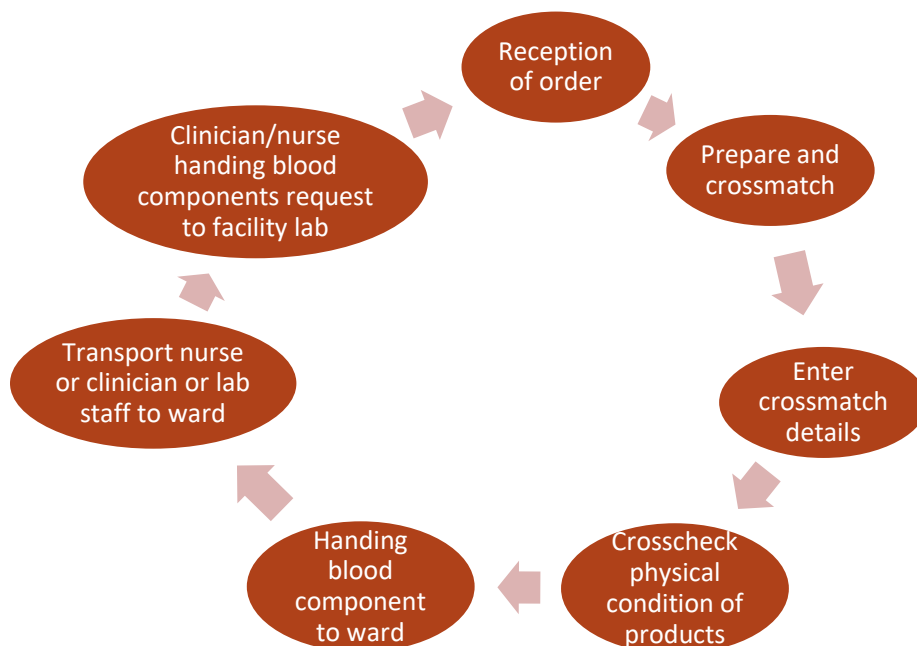
Start → Stock of blood ready to use in UBTS → Transport blood in cold chain → Stock of ready to use blood components in hospital blood bank → transport to Ward in safe containers → stock in department of hospital e.g. Obs/Gyn, acute causality → return unused blood units to Facility → discard non-conforming blood products → report on outcomes → stop.

↑ *Flow process for Transport of blood from UBTS to patients*

### 12.5. Ordering blood from facility Laboratory

Health facility clinicians can order for blood products from their lab. The clinician's requests should be driven by patient needs for transfusion. Platelets have a short shelf life of five days and hence should be requested on demand. Blood alternatives and blood substitute options should be explored before placing blood requests for transfusion.

*Figure 26: Intra-facility activity of blood supply*



## **12.6. Equipment, Storage and Consumables in Blood Supply Chain**

**Storage;** Ideally blood products should be stored in a designated refrigerator, with an auto frost cycle, special insulation, min and max external thermometer and a functional alarm system. Blood should not be frozen except FFP, FP and cryoprecipitate. An alternative power supply should be on standby in case of power failure. Special conditions are required, whenever handling blood in the ward. Blood must be kept in a separate area within the ward. For cold chain items such as controls and blood group reagents, the lab personnel must receive and keep them in the reagent refrigerator in the lab and ensure required temperature is maintained. The lab in-charge or the designee must be available to verify blood supplies delivered prior to receipt for storage in the facility blood bank refrigerator.

**Equipment** for provision of blood should be maintained, and replaced when necessary. List of major equipment for blood collection are in Appendix 1, including vehicles to transport blood and staff. List of major equipment for facility blood provision are in Appendix 2.

**Consumables** may not always be enough but critical equipment should be purchased to ensure blood availability and safety. Each facility should budget for equipment and consumables for blood management.

## **12.7. Blood Products, Indication, Storage, ABO Compatibility and Shelf Life**

The Blood Bank can produce four types of products, namely: whole blood, red cell concentrates, platelets and cryoprecipitate. The facility lab in-charge *must be* part of the facility medicines and therapeutics committees to provide technical assistance as regards the blood transfusion.



Figure 27: Products, alternatives, substitutes available for supply in Uganda

Component	Common Indication	Storage	ABO Compatibility	Expected Shelf Life
WB	Acute blood loss	1-5°C	YES	35 days
RCC	Anaemia	1-5°C	YES	36 days
FP	Burns, haemorrhage	-25°C or lower	YES	1 yr
FPP	Severe blood loss	-25°C or lower	YES	1 yr
PLTS	Massive haemorrhage, Coagulation disorders	RT 20°C +/- 2°C	When possible	5 days
CYRO	Haemophilia A, VwD	-65°C	When possible	1 yr
Alternatives	Anaemia prevention, Autologous BT, cell salvage			
Blood Substitutes	Crystalloids and colloids e.g. Dextran, albumin, saline			
Recommended	Transfuse if benefit outweighs risk of transfusing Distribute saline in facilities Promote healthy Living			

Ideally blood products should be stored in designated fridge, auto cycle, special insulation, in and max ext. temperature recording and functional alarm system. The storage temp in house should be 1-5°C and 2-10°C during transportation. Blood should not be frozen except FFP, FP and cryoprecipitate. An alternative power supply should be on standby in case of power failure.

## 12.8. Blood Stock Management

Each facility from HC IV to national referral or private facility should have a designated logistics personnel responsible for managing blood supplies. The designee is to ensure the physical count of blood units is made at receipt, records are updated, orders are placed, and monitoring of the storage conditions and expiry of blood units at facilities is done.

- a) **Blood Receipt Register:** Blood products are managed as part of the EMHS. Each blood group MUST have a stock page that is updated after every transaction. Stock register must be kept in one place together with other record books in the health facility lab. The lab *must* have records of blood received for audits.

- b) **HMIS Facility Component Order Forms** (kept in the lab): Are a routine tool for ordering blood products. Transfusing health facilities should have a defined schedule for collecting blood from regional blood banks and a vehicle designated by the health facility.
- c) **HMIS OPD, IPD Blood Transfusion Request Forms**: All transfusion requests *shall be* made by clinicians or nurse in charge and sent to the facility lab after full completion of all relevant fields in the form. Incomplete forms shall not be accepted by lab staff.
- d) **HMIS Facility Blood Transfusion Issue Register**: Record the usage of blood and patient details of cross match in this register. Utilisation records assist in determining the AMC and therefore quantities to order. Sections below are important and as such should always be completed.
- Patient category helps in determining product quantity;
  - discard records help determine waste and expiry rates;
  - total requested helps to quantify blood need in country; and
  - indication helps in guiding the blood service to supply right product types
- e) **HMIS Monthly Summary Report Form** (kept in regional blood banks): Reports total units collected, received, tested, distributed and ordered. This form shall be completed by the UBTS laboratory in- charge. Its purpose is to report collections, tested and utilization per month.
- f) **Daily Report and Order Calculation for Blood and Components**: At the end of the day or reporting cycle, the laboratory personnel responsible for managing blood *shall* fill out HMIS Order form. The purpose of this is to report:
- Know the blood stock-on-hand balance at the facility
  - The consumption rate of blood supply
  - Losses & Adjustments
  - Quantities to be resupplied to the facility by the Blood bank
- g) **Heamovigilance Reports**: the HMIS Bedside Transfusion heamovigilance form reports all transfusion adverse events as they occur. The report summary is then sent to the blood bank when picking the next stock. For emergency investigations, call the blood bank.

**Data management** is the responsibility of blood bank and facility designees. Access to patient transfusion data shall be confidential, but retrievable on authorized request.

Figure 28: Blood data records

CENTRAL LEVEL	Health Facility Level
BSIS system is used to capture data	
<b>Inputs</b>	
<b>Sessions available</b>	
Total units collected	Capture data using HMIS tools
Total units processed	Blood received in facility
Total units tested	Blood cross matched
<b>Output</b>	Blood issued to the wards
Quantity issued	Blood discarded
Quantity discarded by category	Balance at hand in facility laboratory
Quantity requested	
Stock on hand	

## 12.9. Reporting Structure for Blood Supply Chain Management

The facility reporting structure may vary depending on level of care. Below is the guidance reporting structure for transfusing facilities.

Figure 29: Facility guidance reporting structure for blood supply data



## 12.10. Blood Supply Indicators

Regional blood banks and transfusing health facilities shall take responsibility to report all transfusion data to MOH through the line managers in the stated reporting cycle from HMIS and blood bank guidelines. Data verification and DQA should be done by responsible officers before submission to DHIS2.

Figure 30: Indicator report format for blood supplier and users

Code	Category	Blood units	Code	Category	Blood units
1	Total requested		1	Total Transfused	
2	Opening stock of blood		2	Number of units cross matched	
3	Total of transfusable units		3	No. of patients transfused	
4	Total discarded -Poor storage/ expiry -poor transportation -Others		4	Number of request received from the ward	
5	Total delivered for use in wards				
6	Balance at hand				

### 12.11. Blood Quality Assurance

Quality assurance (QA) is part of the mission of BTS to provide safe blood products as required for therapy. QA applies not only to products but also to services rendered to blood donors, recipients and physicians. The role of hospital QA and BTS QA is to identify errors and prevent reoccurrence. SOPs detailing BTS activities should be followed in the supply chain. Training should be addressed at facility level through BTC and each staff should be trained before handling blood. Blood Audits shall be done by BTS quarterly as a monitoring process of compliance to AFSBT standards.

QA is responsible to train staff, perform competence testing, data management, internal audit. Technical assistance should be sought to support safe blood transfusion at all levels. Annual planning on blood needs and accountability for blood products is a joint venture for all stakeholders. For moral and ethical reasons blood gifts remain anonymous, and medical secrecy should be observed at all levels of blood supply chain.

#### KEY POINTS

- Blood products should be stored in the facility main lab with each group having a stock page.
- All blood utilized should be captured (including type, discard & expiry).
- Facilities should give priority to ordering emergency online, followed by hard copy, while using emergency order forms.

- Wastage of blood products should be minimized by ensuring proper storage, diagnosis, use of alternative, substitutes and by timely returns to blood bank before expiry.
- Rare blood types such as O neg, AB neg, should only be stocked according to need.
- Ensure cold chain equipment are in place before blood collection.
- Report all transfusion adverse events to Hospital lab and blood bank as they occur.
- Obtain patient consent using bedside monitoring form.
- Incinerate discarded blood products.

Figure 31: Uganda blood transfusion coverage

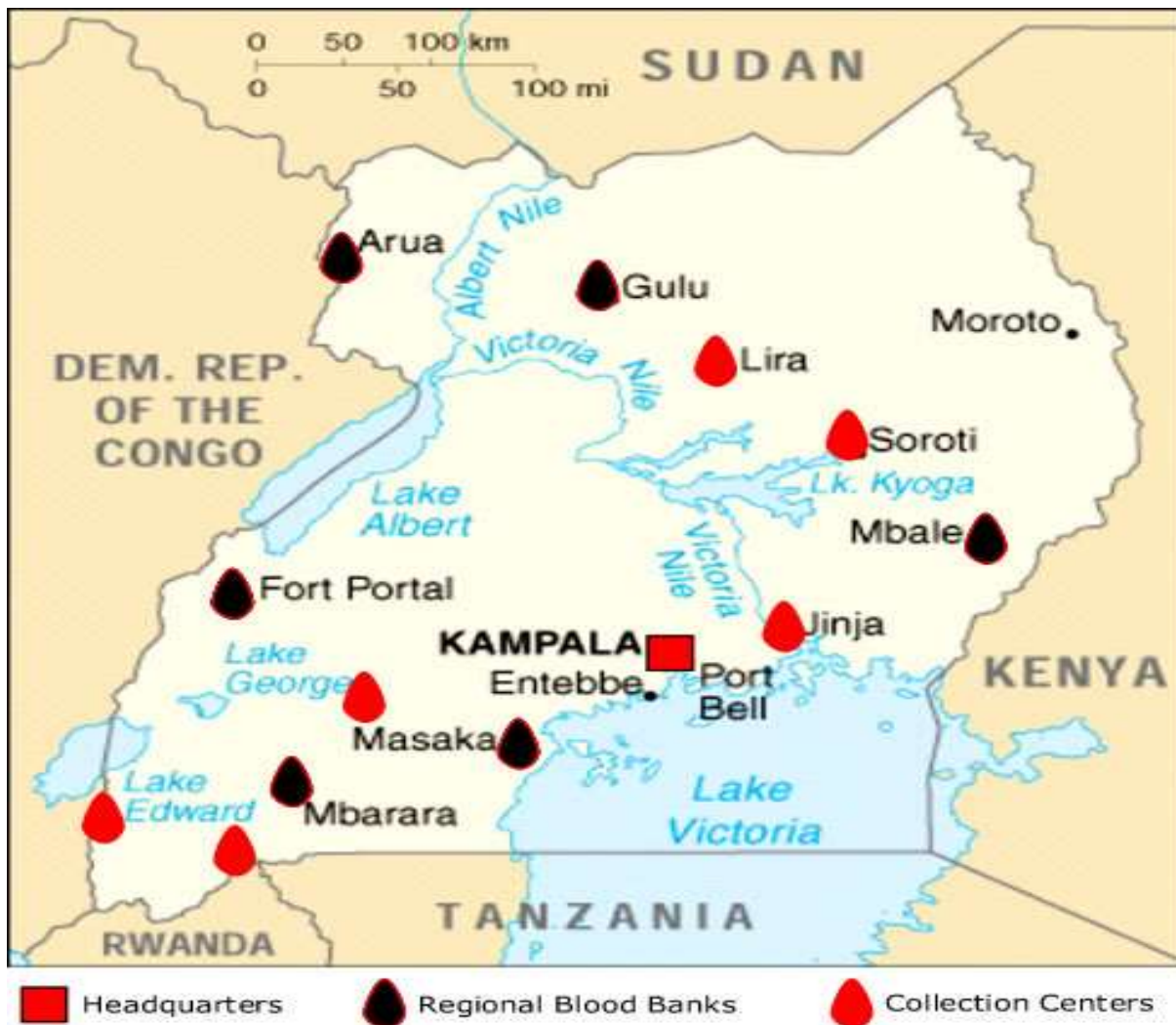


Table 9: List of blood collection and transfusing facility equipment

<b>BLOOD COLLECTION</b>	<b>TRANSFUSING HEALTH FACILITY</b>
Stop watches/ wrist watch[timers]	Deep freezer
Personal protective equipment	Min /max Thermometer or data loggers
Portable Blood tube sealers	Ice packs
Insulated	
Cool boxes 20L,40L,70L,100L	Water bath
Portable haemoglobin meters and cuvettes	sample Rack
Spring balances	Stop watches/clocks [timers]
Weighing balances of donors (bathroom scales)	Personal protective equipment
BP machines	HB meter
Stethoscopes	Blood Bank fridge
tourniquets	
Scissors	Hand Tube sealer
Pilot Tube strippers	Scissors
BB blood shakers and balances	Test Tubes
Station Donor Beds	Cool Box 20L,40L,60L
Portable donor beds	Weighing balance( Digital)
Plastic Forceps [blue]	Platelet Shaker
Test tube sample Rack	Centrifuge bench Top
Drums, kidney dishes, bowls, trays	Giving set
Portable field furniture, chairs, tables & others	Blood Warmer
Blood donation counselling screens	Power Back up system
Field Staff and blood transportation vehicles	Blood transportation vehicle
Aprons	Lab coats
First Aid box	Staff chairs and tables
Stress balls	
Spill kits	
Bed sheets	
Portable tents	
Cheatles and forceps jar	
Waste bins and sharps boxes	
Donor satisfaction surveys boxes	
Donor chairs and Tables	
Universal bottles	
Ice packs	
Lap tops	

# CHAPTER | 13 | VACCINES SUPPLY CHAIN MANAGEMENT

## Introduction

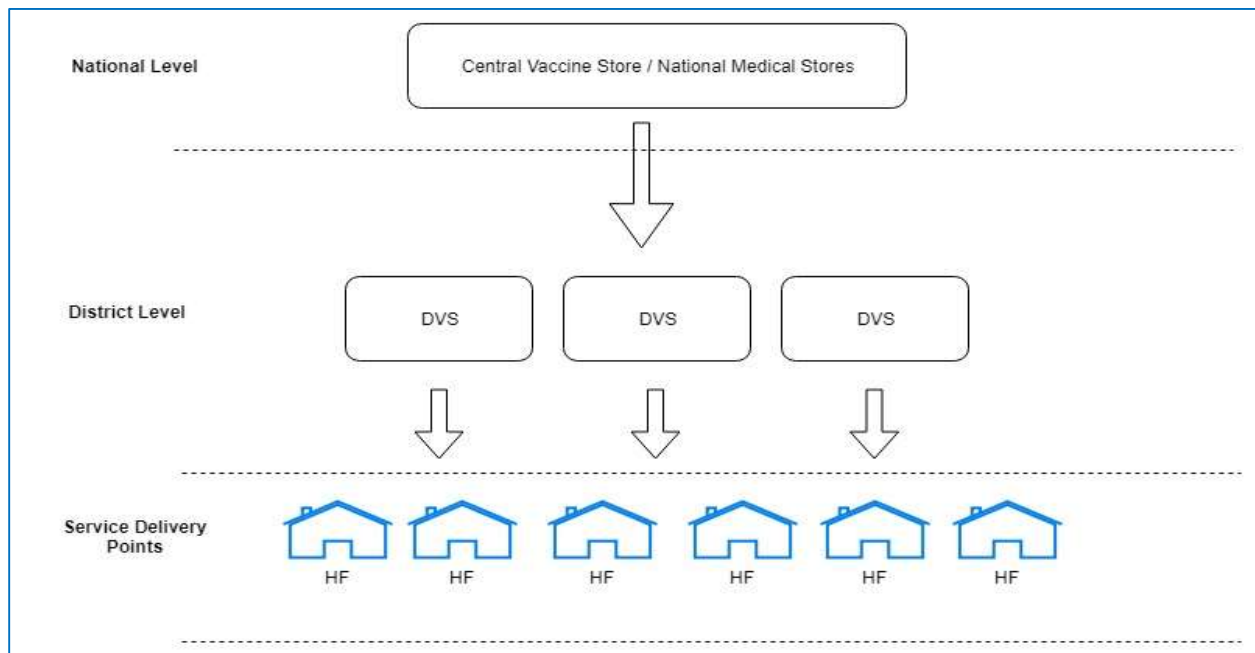
Immunization service delivery is dependent on the vaccines supply chain, which works to ensure that the right vaccines, plus safe injection materials, are available in the right quantities, in the right condition, in the right place, time and cost. These six rights underlie and guide effective vaccines supply chain management in Uganda. An effective and robust vaccines supply chain improves immunization coverage and equity, hence reducing child mortality.

This chapter outlines best practices with regard to supply chain management of vaccine and safe-injection equipment at all levels of the health system.

### 13.1. The Vaccines Supply Chain

In Uganda, the vaccines supply chain consists of all the people, processes, and tools/technologies necessary to ensure that vaccines are distributed safely to the end user (children, women, 10 year old girls, etc.). The supply chain is divided into 3 tiers, namely: national/central vaccine store, district vaccine stores, and service delivery points i.e. health facilities and outreach posts. Figure 40 below depicts this visually.

Figure 32: Flow of vaccines in Uganda



## 13.2. Forecasting and Quantification for Vaccine Supplies

### Right quantities

The availability of an adequate supply of vaccines, diluents and safe-injection materials of assured quality is critical to every immunization service. Effective management and storage of supplies can help save on program costs, prevent high wastage rates and stock-outs, and improve the safety of immunizations.

This section outlines three methods that are commonly used to estimate vaccine and safe-injection equipment needs at all levels of the supply chain.

- a) Estimating vaccine and injection equipment needs based on the target population.
- b) Estimating vaccine and injection equipment needs based on previous consumption.
- c) Estimating vaccine and injection equipment needs based on number of children immunized during the previous immunization sessions.

#### A. Estimating vaccine and injection equipment needs based on the target population

In Uganda both at national and district levels, forecasting is based on the target population to obtain annual vaccine and logistics requirements. This method is also used for estimating vaccine requirements for Supplemental Immunization Activities (SIAs) at all levels. The following information is used:

Target population	-	Tp (number)
Targeted coverage	-	Tcov (%)
Number of doses in the schedule	-	Dos (number)
Vaccine wastage rate	-	WR (%)
Wastage factor	-	WF (number)

To calculate the vaccine required for a given target population, you have to set target coverage, doses in the immunization schedule and consider the wastage rate converted into a factor. We use the formula below which includes the mentioned factors.

A		B		C		D		E
Target Population	X	Doses in the Immunization Schedule	X	Targeted Coverage (%) (Annual set target)	X	Wastage factor (number)	=	Total doses/ year



The required information is obtained as follows:

- i. **Target population:** The target population is obtained by multiplying the total population by a given percentage. The target population for routine immunization consists of women of childbearing age (15 –45), 10 year old girls and children aged 0-11 months among others. Different age groups are targeted for SIAs as explained in the table 19 below. The below calculation takes into consideration the annual population growth rate to determine the target population for each planning year.

Table 10: Computation of population size to be immunized based on coverage objectives

Target population	% of total population	Number of people
Live births	4.85%	$4.85/100 \times 500,000 = 24,250$
Children from 0 to 11 months	4.3%	$4.3/100 \times 500,000 = 21,500$
Children from 0 to 59 months (Polio SIAs)	20.5%	$20.5/100 \times 500,000 = 102,500$
Children from 6 months to 59 months (measles SIAs)	18.5%	$18.5/100 \times 500,000 = 92,500$
Girls aged 10 years for HPV vaccination	2.2 %	$2.2/100 \times 500,000 = 11,000$
Pregnant women	5.0%	$5/100 \times 500,000 = 25,000$
Non-pregnant women	18.0%	$18/100 \times 500,000 = 90,000$
Women of child bearing age (15 – 45 years)	23%	$23/100 \times 500,000 = 115,000$

*NOTE: For calculation in Table 18, the total population = 5,000,000*

The above calculation takes into consideration:

- The annual population growth rate to determine the target population for each planning year.
- Doses in the immunization schedule.
- The immunization schedule gives the age limits and the number of doses required for the full immunization of each eligible child and woman for each given antigen.

Refer to the National Immunization schedule.

- ii. **Targeted coverage:** The targeted annual coverage for each antigen depends on the immunization micro-plan at district level. These plans determine the percentage of each group of the target populations to be immunized. The following table is an example of targeted immunization coverage by antigen and applied strategy.

Table 11: Example of targeted immunization coverage by antigen

Vaccine	Target age group	Target population	Immunization coverage (%)	Strategy	No.to be immunized
BCG	0 -1 months	21,350	90	Routine	$90/100 \times 21,350 = 19,350$
Polio	0-11 months	21,350	90	Routine	$90/100 \times 21,350 = 19,350$
Polio	0 -59 months	102,500	100	SIAs	$100/100 \times 102,500 = 102,500$
DPT - HepB - Hib	0 -11 months	21,350	80	Routine	$80/100 \times 21,350 = 17,200$
Measles	0-11 months	21,350	80	Routine	$80/100 \times 21,350 = 17,200$
Measles	6-59 months	92,250	100	SIAs	$100/100 \times 92,250 = 92,500$
TT (WCBA)	15-44 years	115,000	25	Routine/ campaigns	$25/100 \times 115,000 = 28,750$

- iii. **Vaccine wastage rate and wastage factor:** When immunizations are carried out, the number of vaccine doses used is generally higher than the number of children and women immunized. The number of doses in excess constitutes “lost doses” or vaccines wasted. Vaccine wastage should be taken into account in the estimation of vaccine needs. Knowing the wastage rates helps to determine the wastage factor, which is one of the parameters used to estimate vaccine needs.

Each level can calculate its wastage rates for each antigen based on the following parameters.

	Parameters	Source of data
A	Initial stock	Vaccines and Injection Materials Control Book
B	Received stock	Vaccines and Injection Materials Control Book
C	Issued out to other facilities	Vaccines and Injection Materials Control Book
D	End of period	Vaccines and Injection Materials Control Book

E	Children vaccinated	HMIS 105
---	---------------------	----------

$$\text{Vaccine wastage rate} = \frac{\{(A + B) - (C + D)\} - E \times 100}{(A + B) - (C + D)}$$

$$\text{Wastage factor:} = \frac{100}{(100 - \text{wastage rate})}$$

Example:

$$\text{Wastage rate} = 30\%$$

$$\text{Wastage factor} = 100 / (100 - 30) = 100 / 70 = 1.43$$

Wastage factor corresponding to the wastage rates

Wastage rate	5%	10%	15%	20%	25%	30%	35%	40%	45%	50%
Wastage factor	1.05	1.11	1.18	1.25	1.33	1.43	1.54	1.67	1.83	2.00

Example for calculating the annual needs of OPV vaccines for a given target population

Children (0-11 months)		Doses in Schedule		Targeted coverage		Wastage factor		Vaccine needs
10,000	x	4	x	90%	x	1.43	=	51,480

## B. Estimate vaccines using previous vaccine consumption

This method is used at the district, HSD and health facility levels when ordering for vaccines for the next supply period. You should know the quantities of each vaccine used in the last month and the current physical stock, the target population to be served in the period of time the vaccines will be used. The amount needed is calculated and filled on the requisition form. To be able to order vaccines required for the unit, the following should be used:

- Get previous stock = A
- Count the present physical stock = B
- Subtract present stock from previous stock (A-B) = (Total doses used) = C
- 50% of the usage (C x 0.5) = D reserve

- Usage plus reserve (C + D) = E (maximum vaccine stock requirement)
- Subtraction of present stock from the maximum requirement will give you the required amount of vaccines to order for the next supply period (E – B) = F (Amount of vaccine to order)

The above can be summarized as follows:

$$\begin{aligned} \text{Amount of vaccines to order} &= \text{Total doses used} + \text{reserve stock} - \text{physical stock} \\ &= \{(A-B) + D\} - B \end{aligned}$$

In Uganda the districts and health units are expected to keep a stock of six weeks including a reserve of 50%.

### **Remember**

Always avoid stocking vaccine for periods longer than six weeks at the health unit level. In the event of having excess vaccines after 6 weeks, use this first before using new stock depending on First in First out (FIFO) or First Expiry First Out (FEFO) or Vaccine Vial Monitor (VVM) status. It is better to have more vaccines than required at a session than not having enough. This calls for monitoring the session size so as to have adequate stock for 6 weeks

### **C. Estimate vaccines for an immunization session**

Use the number of children immunized during the previous immunization sessions to estimate vaccines for an immunization session both static and outreach.

### **D. Estimate injection safety materials**

All EPI vaccines with the exception of OPV and Rotavirus are administered by injection. Of these vaccines, BCG and measles have to be reconstituted before being administered. The Ministry of Health, WHO and UNICEF recommend that all vaccine orders be bundled with auto-disable syringes (for mixing and administration) and safety boxes for waste disposal.

The term bundling refers to a set of vaccines, auto-disable syringes (for mixing and administration) and safety boxes supplied together in corresponding quantities. Bundling does not necessarily mean that the items are actually packaged together in the same container. However, managers at all levels should ensure that health workers get the adequate quantities of vaccines, injection materials and safety boxes. It is particularly important to ensure that one has adequate space for storing AD syringes, safety boxes, vaccine carriers, ice packs and other supplies.

At all levels, the estimation of injection safety materials is made based on the following:

- The number of children < 1 year of age and the number of women of child-bearing age.
- The anticipated coverage (the number of children and women) targeted for vaccination.
- The number of doses of each vaccine according to the immunization schedule per child/woman (e.g., 1 dose of BCG, 3 doses of DPT-HepB-Hib, 3 doses of PCV, 3 doses of HepB, 1 dose of IPV, 1 dose of Measles, 2 doses of HPV, and 2 doses of TT).
- The total number of vials of each freeze dried vaccine (Reconstitution syringes: one per vial of vaccine + 10% wastage rate)
- Safety boxes (1 box for 100 used syringes and needles)

To calculate the required injection materials for a given target population, the same method which was applied for estimation of vaccines is used.

### Calculate auto-disable (AD) syringes and safety boxes

A		B		C		D		E
Target population	X	Doses in the immunization schedule	X	Wastage factor	X	Coverage rate (%)	=	Total AD syringes for administration
Total doses for each vaccine	/	Doses in a vaccine vial	X	Wastage factor			=	Total AD syringes for reconstitution
Total AD syringes	+	Total mixing syringes			/	100	=	Safety boxes

Example of calculating the annual needs of AD syringes for a given target population to receive injectable vaccines e.g. Measles vaccine.

Children 0 – 11 months		Doses in schedule		Immunization coverage		Wastage factor		Estimated needs
8,000	X	1	X	90%	X	1.11	=	7,992

### 13.3. Ordering Vaccine Supplies

- **Right** Conduct the recommended monthly physical stock count exercise for all viable (i.e. VVM stage 1 & 2, passed the shake test and not expired) vaccines and injection materials at the District Vaccine Store.

- Reconcile records (Vaccines and Injection Materials Control Book) maintained at the District Vaccine Store.
- Indicate the physical stock balances on the District Monthly Vaccine Order Form under the "Viable Stock Balance" column as doses/pieces respectively.
- The district's **quantities**

The **District Vaccines Ordering Tool** is an excel-based electronic tool that projects the need for vaccines and injection materials based on the district population.

#### **How to use the District Vaccines Ordering Tool**

- Order will be automatically generated under the "Order Quantity" Column (this may not be altered).
- If you intend to adjust any order quantity, the desired quantity can be indicated in the "Adjusted Order" column for that respective antigen.
- Adjusted orders should have comments (e.g. slow uptake, increased demand, etc.)
- Submit the order to the respective NMS Customer Care Representative.

### **13.4. Storage of Vaccine Supplies**

#### ***Right condition***

##### ***13.4.1. Preparations for receiving of vaccines and injections materials***

Prior to the arrival/receipt of new stock of vaccines and diluent, CHECK and ensure:

- Functionality of the refrigerator: gas is available, refrigerator is defrosted, and the cooling system is working well and clean (recording temperatures in the standard range).
- Check and remove all un-usable vaccines (expired vaccines, vaccines with no labels, vaccines with VVM at discard point stage 3 or 4, contaminated vaccines - partially used vials of OPV, TT or DPT-HepB-Hib which have been submerged in water or have been stored in compromising conditions. Such vaccines should be recorded in the Vaccines and Injection Materials Control Book as wasted doses, and then discarded according to the guidelines.
- Availability of the temperature monitoring tools i.e. temperature charts, thermometer/ electronic temperature monitoring devices.
- Up to date Vaccines and Injection Materials Control Book
- Arrange old vaccine stock in the fridge to create storage space for the expected new stock.
- Create storage space for the diluent and injection materials.

#### **13.4.2. Receive vaccines, diluent and injection materials at the health facility**

- Check and ensure the types and amounts of vaccines and diluents delivered tally with what was ordered. If there is any difference (if it is more or less) find out why.
- Check the status of the vials for cracking or loss of labels.
- Sample and check the status of the Vaccine Vial Monitor (VVM) on each vial
- Check that the expiry date on each vial has not passed. Do not accept the vaccine if the expiry date has passed.
- Put the vaccines in the refrigerator as quickly as possible, arranging vaccines according to their sensitivity to heat or coldness and the type of refrigerator as indicated below (figures 41 and 42).
- As you pack vaccines in the refrigerator, separate old stock from new stock either by labelling or by use of hard cards.
- Leave the cold box or vaccine carrier open to dry out.
- Enter date, the source, amount, expiry date, vial size, batch number, Manufacturer, and the VVM Status of each vaccine received in the Vaccines and Injection Materials Control Book.

Note that you should not:

- Accept to keep vaccines in excess of 6 weeks.
- Receive the vaccines if delivered at a temperature above +8°C or VVM is at stage
- Mix the old stock of vaccine with the new stock.

#### **13.4.3. Pack or arrange vaccines in the refrigerator**

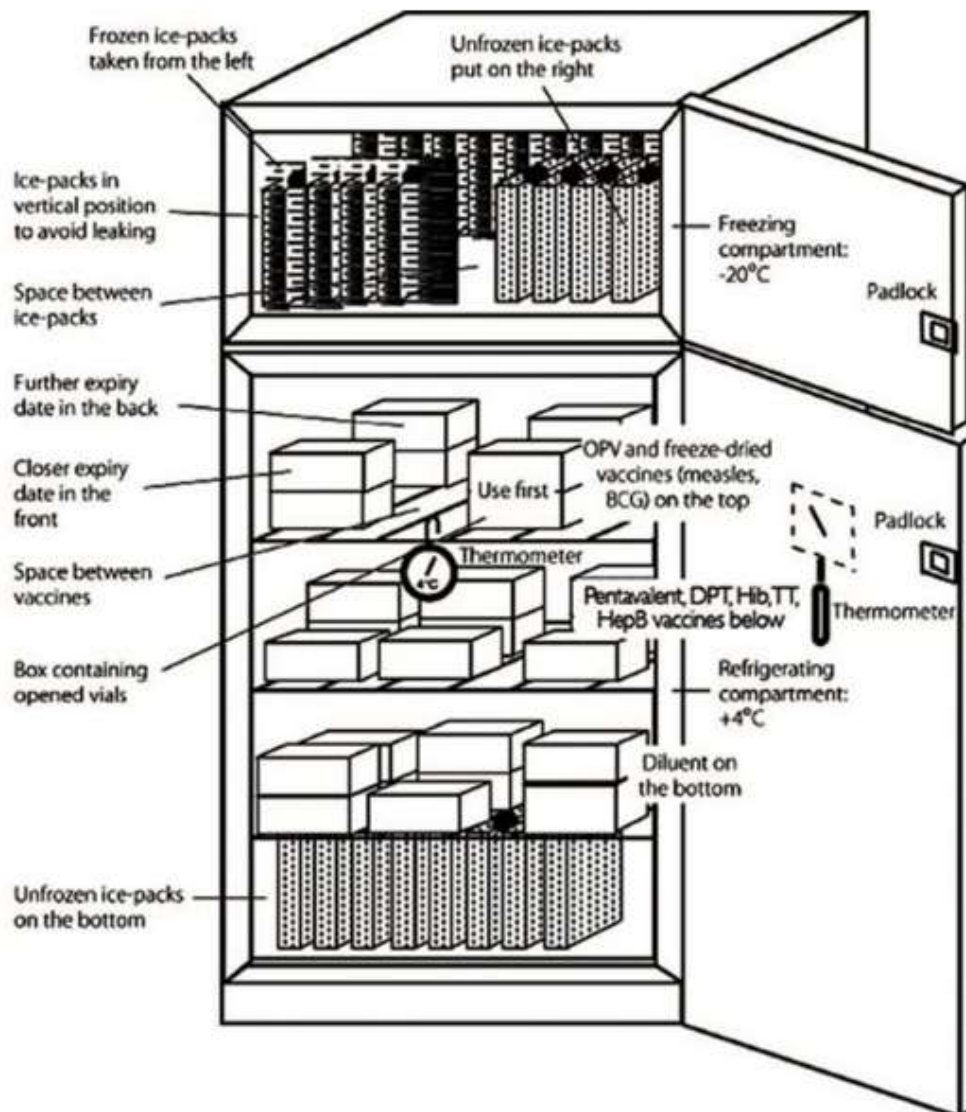
##### **a) Side opening refrigerator (Sibir)**

Vaccines should be kept on shelves or positions in the refrigerator according to their order of sensitivity. Follow the rules below to store vaccines in a side door:

- When you receive new vaccines, arrange them in the refrigerator in order that the old stock is used first.
- Arrange vaccines neatly in rows on refrigerator shelves all the time. Leave space of 2-5 cm between rows of vaccines to allow air circulation.
- Put all vaccines sorted out by types in the refrigerator, according to their dates of expiry and following the rules of FEFO or FIFO. These rules apply to injection materials as well.

- Store polio vaccine on the shelf near the freezer compartment.
- Store measles and BCG vaccines on the shelf next to the one of Polio vaccine if the refrigerator has shelves.
- Store DPT-HepB-Hib, PCV, Rota, IPV, HPV, hepatitis B and TT vaccines on the shelves immediately below the shelf containing measles and BCG vaccine.
- Store diluent next to its corresponding vaccine in the refrigerator, a day before the planned immunization session.
- Keep ice packs filled with water on the bottom shelf. They help keep in maintaining the temperatures in the refrigerator.
- Freeze and store the frozen ice packs in the freezer compartment.

Figure 33: Loading vaccines in a side opening refrigerator



Source: WHO,  
2004



**Note**

The temperature for vaccine storage should be between +2°C to +8°C at all levels.

Keep returned usable vials that have been taken out of the refrigerator in a special box labelled “returned and date of return”. Have another small container with partitions if possible for partially used vials of OPV, DPT-HepB-Hib, HepB and TT Vaccines (stand-alone vials). Use these vials first in the next static session.

Never store DPT-HepB-Hib, PCV, IPV, HPV, HepB, Rotavirus and TT close to the coldest part of the fridge because they will freeze.

**b) Top Opening Refrigerator (RCW42EG)**

Figure 34: Loading vaccines and ice packs in a top opening refrigerator (RCW42EG)



When storing vaccines in a top opening refrigerator (RCW42EG), the same rules as for side door opening apply except:



- Store vaccines neatly in the order of their sensitivity where OPV, measles and BCG are packed next to the freezer compartment. DPT- HepB-Hib, PCV, HepB, Rota, IPV, HPV and TT should be packed far away from the freezing compartment as indicated in the picture above. Leave space of about 5 cm between rows of vaccines to allow air circulation.
- Pack diluent for BCG and measles vaccine next to the respective vaccine when there is adequate space but remember to protect it from freezing. Always remember to pre-cool the diluent a day before the planned immunization session.
- Freeze and store four frozen ice packs in the freezer compartment at a time.

**Note:**

This refrigerator has a freezer compartment that holds four ice packs at a time and they freeze in approximately 48 hours.

**13.4.4. Load vaccines in a top opening refrigerator (Iceliner)**

Figure 35: Good vaccines warehousing practice

Good warehousing practice	Bad warehousing practice
	
✓ In baskets with thermometer - vaccine safe	✗ No baskets, no thermometer - vaccine at risk

**13.4.5. Pack vaccines in a cold box or vaccine carrier**

Vaccines are usually packed in a cold box or vaccine carrier:

- During transportation to the district, HSD, or Health facility.
- For temporary storage of vaccines during Supplemental Immunization Activities (SIAs); where vaccine storage space is not adequate, or when the refrigerator is faulty and the health unit is preparing to transport the vaccines to a place with a functioning refrigerator.
- When refrigerator is undergoing defrosting.
- During immunization sessions (static or outreach).

When preparing to deliver vaccines to a health sub-district, a health unit or an outreach/static immunization session, you should:

- Make sure there are adequate stocks of vaccines, diluents and injection materials.
- Make sure the cold box or vaccine carrier is clean and not cracked, and the rubber seal is in place and the vaccine carrier has a clean sponge. Note: Make sure there are conditioned ice packs
- Put the diluent in the refrigerator a day before delivery to the outreach/static immunization session.
- Estimate vaccines to deliver depending on the supply period for the health sub-district or health unit (usually one month) and estimated session size for outreach.
- When using a vaccine carrier, place 4 conditioned ice packs around the inside walls of the vaccine carrier.
- Use a polythene bag (white or black), pack polio vaccines as you quickly check the label for expiry date, colour of the VVM and place it at the bottom of the vaccine carrier.
- Next pack BCG and measles vaccines and their pre cooled diluent(s) in the same way in the vaccine carrier.
- Place DPT-HepB-Hib, PCV, IPV, HPV, HepB, RotaV and TT vaccines that are already packed in polythene bags and place on top of the BCG and measles vaccines.
- Place a thermometer/electronic temperature monitoring device in the vaccine carrier.
- Place a clean sponge on top of the vaccines in the vaccine carrier.
- Close the lid of the vaccine carrier tightly.

#### ***13.4.6. Transportation of Vaccine Supplies***

- Ensure that cold chain safety procedures are followed during transportation of vaccines.
- Ensure that the cold box/vaccine carrier has an intact rubber seal.
- Make sure that the cold box/vaccine carrier is securely closed.
- Ensure availability of reliable transport to deliver the vaccines.
- The supply, requisition and issue HMIS form should accompany the amount of vaccine to be delivered or issued to the unit.

**Note:**

- Vaccines should be accompanied or transported by a health worker who appreciates the cold chain related issues.
- Do not place cold box or vaccine carrier in direct sunshine to avoid fast raise of temperature in a carrier.

**13.4.7. Managing Diluents**

Freeze dried vaccines are supplied with diluent which vary in composition: and are not sterile water for injection which is a common misconception. Diluents may contain:

- Stabilizers that ensure heat stability of vaccines
- Bactericides to maintain the sterility of the reconstituted vaccine
- Chemicals to assist in dissolving the vaccine into a liquid
- Buffers to ensure the correct pH (acid-alkali balance)

**Note:**

In the past, the practice of supplying, transporting and storing diluents separately from the vaccine has caused confusion and resulted in shortages of the correct diluents in the field.

Tragedies have occurred, related to reconstitution of freeze-dried vaccines with insulin, muscle relaxant, laboratory reagents, ergometrine/oxytocin, ARVs, anti-rabies and other wrong solutions. Poorly labelled and unidentified vaccines and diluents have complicated this, due to lack of adequate training of health workers.

Health workers should ensure that such products are not stored in the vaccine refrigerator or cold boxes or vaccine carriers together with vaccines.

Diluents should be handled in the same way as vaccines, and vaccination staff should be trained to know the proper way to reconstitute each of the vaccines.

**Guidelines for Management of diluents**

- Diluents should be stored and distributed together with the vaccine vials they will be used to reconstitute.
- Diluents must NOT be frozen.

- Diluents must be pre-cooled to between +2°C to +8°C before reconstitution (to prevent vaccine shock due to sudden change in temperature).
- Diluents for other types of vaccine or from other manufacturers must NOT be used because they might contain different components. It is a requirement that vaccines always be accompanied by diluents from the same manufacturer.
- Distilled water for injection should NEVER be used as a substitute for diluent.

#### Note

Use conditioned ice packs when packing, transporting and storing vaccines to avoid freezing of freeze sensitive vaccines

Remember to always put a thermometer/electronic temperature monitoring device in the cold box or vaccine carrier during storage, transportation or during the immunization session

Bundle vaccines with the corresponding diluent and injection materials

Record all vaccine, diluent and injection materials details in the Vaccines and Injection Materials Control Book

### 13.5. HMIS Tools for Vaccines Supply Chain Management

There two tools required to maintain proper record and report on the use of vaccines at service delivery level:

- ***Vaccine and Injection Materials Control Book (HMIS Form 017d)***: All the vaccines and injection materials received at all levels of immunization service delivery should be recorded in the Vaccine and Injection Materials Control Book (VIMCB). It is completed daily whenever immunization is carried out.
- ***Vaccine Utilisation Monitoring Form (HMIS Form 017d)***: Used to summarise data on the utilization of each antigen for reporting to the district health office. It is completed every month.

In the next section, we go into the detail of how to fill these tools.

### **13.5.1 Vaccines and Injection Materials Control Book (VIMCB)**

#### **DESCRIPTION AND INSTRUCTIONS**

Objective:	To improve vaccine and other EPI supplies stock management
Timing:	Daily.
Copies:	One copy per health unit.
Responsibility:	Health facility In-Charge or EPI Focal Person

#### **Guidelines on Filling of the Vaccines and Injection Materials Control Book**

The Vaccines and Injection Materials Control Book is a very important information tool. It keeps all the information on vaccines and injection materials, which are received and issued out at national, District, HSD and peripheral storage centres. In order to ensure effective use of the Vaccines and Injection Materials Control Book, the health worker/storekeeper/records assistant should follow the under listed guidelines:

- The Vaccines and Injection Materials Control Book should have the name of the storage centre.
- Each type of vaccine and injection materials is recorded separately.
- Information on the vaccine received/issued out is entered immediately in columns on each page as described above (refer to figure 44: Vaccines and Injection Materials Control Book sample form)

#### **DESCRIPTION OF COLUMNS**

<b>Label</b>	<b>Instructions</b>
DATE	Record the actual date of receiving OR issuing the vaccines and injection materials.
NAME OF HEALTH FACILITY	Record the name of the facility where vaccines and injection materials are received from OR being issued/delivered to.
STOCK AT HAND	Record the physical count of the vaccines and injection materials found in the refrigerator or store.
DOSES RECEIVED	Count and record the actual doses/pieces of the new stock of vaccines OR injection materials received.
VVM STAGE	(The vaccine vial monitor) The point to focus on is the colour of the inner square relative to the colour of the outer circle.
VIAL SIZE	Write the Vial size which is number of doses per vial.

MANUFACTURER	Write the source of the vaccine.
BATCH NUMBER	Read and record the batch number of every vaccine and injection materials received.
EXPIRY DATE	Read from the vaccine vials/injection materials and record expiry date. If the vaccines/injection materials received expire on different dates, then record them separately.
DOSES/PIECES ISSUED	Record doses/pieces taken out of the refrigerator/store and issued out for static or outreach immunization session or to other health facilities.
VVM STAGE	Follow as column 5 for appropriate action to be taken.
BATCH NUMBER	Read and record the batch number of every vaccine and injection materials taken out of the refrigerator/store for immunization sessions or issued to another health facility.
EXPIRY DATE	Read and record the expiry date of every vaccine and injection materials taken out of the refrigerator/store for immunization sessions or issued to another health facility.
DOSES USED	Using the tally sheet for every immunization session, count the number of children/women immunized and this will give you total number of doses used which should be recorded at the end of the immunization session.
DOSES WASTED	Total doses in opened vials minus total number of the vaccinated children and women equals' doses wasted.
DOSES RETURNED	Total doses of unopened vials returned from an immunization session (static and outreach) plus partial used vials of OPV, TT and DPT-HepB –Hib and HepB at static session.
BALANCE	Enter the total balance of vaccines/pieces of injection materials in stock immediately after issuing to a health facility, receiving new stock/returned vaccines or carrying out physical count at the storage centre/static unit.
REMARKS	In this column, you may write comments on the condition of the vaccines received, issued or discarded e.g. VVM in stage three, lack of diluents, broken vials, vaccine vials without label, and transfer of vaccines due to cold chain failure or missing stock during physical count.

**KEY POINTS**

- Record vaccines and injection materials received as soon as they are put in the refrigerator/store
- At the time of issuing vaccines and diluent for the static or outreach sessions, record the amount issued without waiting for the teams to come back.
- Balance the Vaccines and Injection Materials Control Book every time you receive or issue vaccines and injection materials and on returning from the outreach or static session.
- Remember to record the balance of doses of the open vials of OPV, DPT-HepB-Hib and TT used at the static session using the tally sheet(s).
- Remember to match diluents with the vaccines (BCG & Measles) from the same manufacturers and should be in equal numbers well indicated in the vaccine and injection materials control book.



Figure 36: Vaccines and injection material Control Book (VIMCB)

VACCINE NAME:									MONTH.....			YEAR.....					
Received									Issued								
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
Date	Name of Facility/ Out Reach	Stock at hand	Doses received	VVM stage	Vial size	Manufacturer	Batch number	Expiry date	Doses/pieces issued	VVM stage	Batch number	Expiry date	Doses used	Doses wasted	Doses returned	Total balance	Remarks

### **13.5.2 Vaccine Utilisation Monitoring Form**

#### **DESCRIPTION AND INSTRUCTIONS**

Objective: Improved practices in vaccine management

Timing: Every month.

Copies: One copy remains at the health Facility.

Responsibility: In-Charge or EPI Focal Person

All the data needed to accomplish this task is gotten from the Vaccine and Injection Materials Control Book and it should always be up to date.

- Find the Start balance (Amount of vaccines at the beginning of the month for each antigen) in the vaccine control book. Enter the value for the Beginning Stock Balance (column A).
- Get the doses received by summing up the start balance plus doses received during the month from the vaccine control book for each antigen for the entire month. Enter the value in (column B).
- Find the Balance on hand (Ending stock) in the vaccine control book at or near the end of the month for each antigen. Enter the values for the Ending Stock Balance (column D).
- Enter the doses given to other health facilities in (column C).
- Calculate the Doses Used (accessed) (column G) for each antigen every month by
- [Beginning Stock balance + Doses received during the Month – Ending Stock Balance+ Doses given to other units].
- Calculate the Doses wasted (column H) for each antigen every month by
- [Doses used (accessed) – Number of children immunized].
- Calculate the wastage rate % for each antigen by (column I)
- [100 – Utilizations rate %].
- Column J is for the reasons that led to the wastage of the vaccines.

N.B. Ensure that the Vaccines and Injection Materials Control Book is up to date prior to filling the tool.

Figure 37: Vaccine Utilization Monitoring Form – Health Facility Level (service delivery)

District: \_\_\_\_\_ Health Sub-District: \_\_\_\_\_ Health facility: \_\_\_\_\_ Month/Year: \_\_\_\_\_

Antigen	Start Balance	Doses Received	Doses given to other health units	Balance at end of month (Vaccines and Injection Materials Control Book)	Number of children immunized (HMIS)	Number of Women Immunized (HMIS)	Number of children immunized (HMIS)	Doses Used (Accessed)	Doses wasted	Vaccine wastage rate	Reasons for Vaccine wastage *see footnotes below
	A	B	C	D	E		F	G	H	I	J
					Under 1year	15 – 45 years	Above 1year	(A+B)-(C+D)	(G – E)	H/G X100	
BCG											
Polio											
DPT-HepB											
Hib											
Measles											
TT											
Rota Virus											
Pnuemococcal Vaccine											
HPV											
Hepatitis B Vaccine											

Reasons for wastage in order of highest cost-Temperature exceeding +8 degree Celsius =1, Temperature below 0 degree Celsius=2, Expired vials=3, Vials without labels=4, Vials missing diluent=5, Reconstituted vaccine remaining after g hours=6, Opened vials not used by end of session=7, Opened vials contaminated=8, Vials broken=9, others (specify) =10

Comment on the commonest causes of vaccine wastage: \_\_\_\_\_

Reporting Officer: \_\_\_\_\_ Title: \_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

## **CHAPTER | 14 | COMMUNITY HEALTH SUPPLY CHAIN SYSTEM**

Community Health Supply Chain is a system of organizations, people, activities, information, and resources involved in moving essential medicines and health supplies from the health facilities to the end users in the community through community health workers. Commodities for use in community health programs are received and recorded into stock cards in the health facility store. The health facility in-charge appoints a focal person responsible for interactions with community health workers. In this manual, we use the term community health worker to include Village Health Team (VHT) member and Community Health Extension Worker (CHEW) and any other lay person(s) that access commodities at the health facility for distribution in the community. The actors are at national, district, health facility and community levels. There are three actors at the interface between the community level and the health facility: the community health worker, the CHEW/Parish Coordinator and health facility focal person.

### **14.1. Standardizing the Supply Chain for Community Health Programs**

The use of standardized community supply chain procedures and tools introduces a demand-based supply system for community health workers. As a result, the quantity to resupply individual community health workers should match the historical patient load and consumption data. This undertaking is only possible if the following conditions/principles are met:

- Community health workers should be re-supplied once every two months
- The date and time for supply should be communicated in advance and the entire resupply process done for the community health workers as a group. The health facility should as much as possible schedule the supply date to occur at a time when there is likely to be stock at the site so that they are in position to fulfil the requirements of the community health workers. For instance, this could be 1-2 weeks after the NMS delivery deadline for the district.
- Community health workers should submit records of clients reached together with the Consumption Log data. The health worker should review whether the clients reached matches the reported consumption for the period. Synchronizing these reports also creates efficiency in the system for both the community health workers that may need to visit the health facility, and for the health facility where 1-2 health workers may take out time from their schedule for the supervision and resupply of community health workers.

- Community Health Workers should ensure appropriate medicines use with regards to; right medicine for the right patient for the right condition in the right doses and the right instructions given to the patient.

## **14.2. The Medicines Management Job Aid for Community Health Workers**

Simple illustrations of the processes a community health worker follows in the management of their medicines and health supplies have been developed and packaged into five cards in the Medicines Management Job Aid. The five cards are;

- **Card 1** – Cycle for Recording and Reporting Use of Medicines and Supplies in the Community (*Figure 38*)
- **Card 2** – How to Properly Store Your Medicines at Home (*Figure 39*)
- **Card 3** – Procedure for Dispensing Medicines and Supplies in the Community (*Figure 40*)
- **Card 4** – Procedure for Dispensing Family Planning Methods in the Community (*Figure 41*)
- **Card 5** – How to Fill the Consumption Log (*Figure 42*)

In the next sections, we describe the procedures to follow in management of medicines and health supplies in community health programs.

## THE MEDICINES MANAGEMENT JOB AID FOR COMMUNITY HEALTH WORKERS

Figure 38: Card 1 – Cycle for Recording and Reporting Use of Medicines and Supplies in the Community

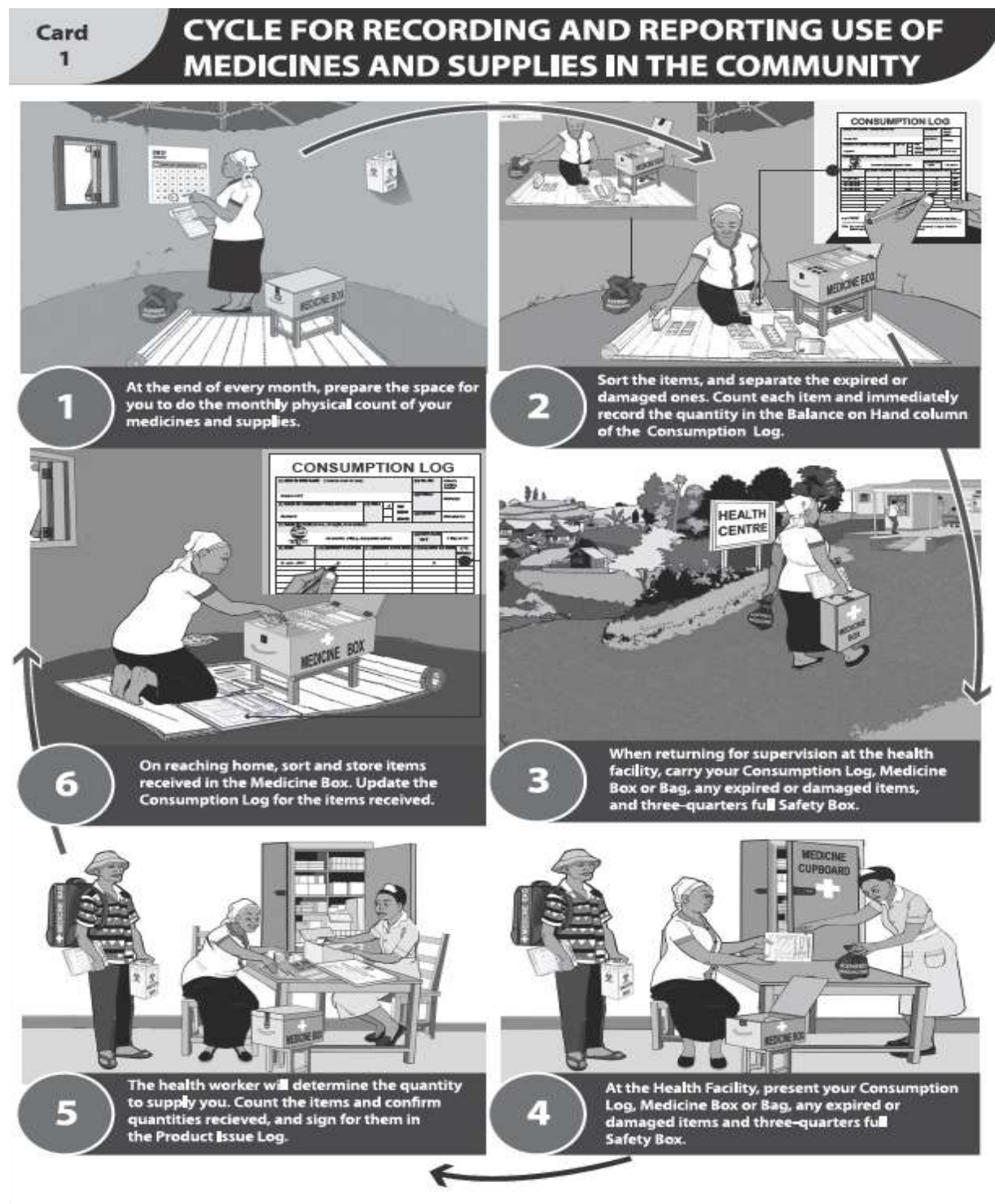


Figure 39: Card 2 – How to Properly Store Your Medicines at Home

Card  
2

## HOW TO PROPERLY STORE YOUR MEDICINES AT HOME

1

Keep the Medicine Box raised off the floor. Keep all medicines and supplies inside the Medicine Box.



2

Keep the Medicine Box in a cool, dry place away from sunlight and wet or leaking areas.



3

Medicine Box should be locked and kept away from children and visitors.



4

Maintain a clean organised Medicine Box. Arrange items in compartments.



5

Conduct a physical count every month. Update the Consumption Log for any expired or damaged products.



6

Place damaged or expired items in a bio-hazard bag and keep it safely out of reach of children and visitors.



7

Keep the Medicine Box free of pests, dust and food items.



8

Do not cook near the Medicine Box.




9

Do not mix medicines and supplies with any other products kept at home.




Figure 40: Card 3 – Procedure for Dispensing Medicines and Supplies in the Community


**Card 3**
**PROCEDURE FOR DISPENSING MEDICINES AND SUPPLIES IN THE COMMUNITY**




**1** Ask the caregiver what the problem is. Assess the patient according to the guidelines.




**2** Counsel caregiver about the problem and determine the medicine required according to the guidelines.




**3** Wash hands, pick the required medicines according to the guidelines and check that it is not expired.



**4** Count the required quantity, put it in the appropriate envelope and label it.



**5** Caregiver gives the first dose and then you give the caregiver clear instructions on how to give the child the next doses.



**6** Thank the caregiver and immediately record quantity dispensed in the Consumption Log.



Figure 41: Card 4 – Procedure for Dispensing Family Planning Methods in the Community

**Card**  
**4**
**PROCEDURE FOR DISPENSING FAMILY  
PLANNING MEDICINES**



**1** Receive the client and counsel her on the different family planning methods available.



**2** Assess the client based on the checklist and inform her if the method she has chosen is appropriate for her. Demonstrate the method the client has chosen.



**3** If you have the chosen family planning method, wash hands, pick the item and then check that it is not expired.



**4** Give the client the appropriate method. If she is going away with the product, advise her how to correctly use it.



**5** Wash hands after giving the method, and refer to the guidelines to give clear instructions on when to return for the next dose.




**6** Immediately record quantity dispensed in the Consumption Log.

Figure 42: Card 5 - How to complete a Consumption Log

Card 5

## HOW TO FILL THE CONSUMPTION LOG


**Step 1** The Health Worker will guide you to record: (1) the Health Unit Name; (2) Name of Community Health Worker; (3) Title; (4) Village; (5) Parish and (6) District.



### CONSUMPTION LOG


(1) HEALTH UNIT NAME (Indicate level of care) Kibale HC2		(4) VILLAGE Kibale Trading Center	
(2) NAME OF COMMUNITY HEALTH WORKER Rachel N		(3) TITLE VHT	(5) PARISH Nabuvigi
		✓	(6) DISTRICT Namulamba
		CHEW	
		OTHER	
(7) NAME OF ITEM (Name, strength, formulation)		(8) DISPENSING UNIT	
(9) DATE	(10) QUANTITY RECEIVED	(11) QUANTITY DISPENSED	(12) BALANCE ON HAND
			(13) INITIALS

**Step 2** You will fill in: (7) Name of Item, strength and formulation; and (8) Dispensing Unit. Refer to the Guide for Dispensing Units at the back page of the Consumption Log.



(1) HEALTH UNIT NAME (Indicate level of care) Kibale HC2		(4) VILLAGE Kibale Trading Center	
(2) NAME OF COMMUNITY HEALTH WORKER Rachel N		(3) TITLE VHT	(5) PARISH Nabuvigi
		✓	(6) DISTRICT Namulamba
		CHEW	
		OTHER	
(7) NAME OF ITEM (Name, strength, formulation) Amoxicillin, 250mg, dispersible tablets		(8) DISPENSING UNIT 1 Strip of 10	
(9) DATE	(10) QUANTITY RECEIVED	(11) QUANTITY DISPENSED	(12) BALANCE ON HAND
			(13) INITIALS

**Step 3** When RECEIVING medicines, record: (9) Date; (10) Quantity Received; (12) Balance on Hand and (13) Initials. Update the Balance on Hand column before dispensing any medicines. Each line is used for only one type of activity e.g. receiving, dispensing, physical count, recording expired or damaged items.



(2) NAME OF COMMUNITY HEALTH WORKER Rachel N		(3) TITLE VHT	(5) PARISH Nabuvigi
		✓	(6) DISTRICT Namulamba
		CHEW	
		OTHER	
(7) NAME OF ITEM (Name, strength, formulation) Amoxicillin, 250mg, dispersible tablets		(8) DISPENSING UNIT 1 Strip of 10	
(9) DATE 5-Jan-2017	(10) QUANTITY RECEIVED 0	(11) QUANTITY DISPENSED -	(12) BALANCE ON HAND 0
			(13) INITIALS R/N

Card  
5

# HOW TO FILL THE CONSUMPTION LOG

Step 4

When DISPENSING medicines, record: (9) Date; (11) Quantity Dispensed; and (12) Balance on Hand and (13) Initials. Each line is used for only one type of activity e.g. receiving, dispensing, physical count, recording expired or damaged items.



(2) NAME OF COMMUNITY HEALTH WORKER Rachel N		(3) TITLE CHW	UNIT OTHER	(8) DISTRICT Namutumba
(7) NAME OF ITEM (Name, strength, formulation) Amoxicillin, 250mg, dispersible tablets				
				(6) DISPENSING UNIT 1 Strip of 10
(9) DATE	(10) QUANTITY RECEIVED	(11) QUANTITY DISPENSED	(12) BALANCE ON HAND	(13) INITIALS
5 - Jan - 2017	8	-	8	R.N
14 - Jan - 2017	-	7	7	R.N
21 - Jan - 2017	-	1	6	R.N
31 - Jan - 2017	physical	count	6	R.N
1 - Feb - 2017	-	-	6	R.N
5 - Feb - 2017	-	1	5	R.N
11 - Feb - 2017	-	1	4	R.N
17 - Feb - 2017	-	-	4	R.N
20 - Feb - 2017	expired	2	2	R.N
28 - Feb - 2017	physical	count	1	R.N

Step 5

At the end of every month, conduct a physical count of each item in stock. Check the expiry date and remove expired or damaged items from the Medicine Box. Record physical count and expired or damaged items on the Consumption Log.



5 - Jan - 2017	8	-	8	R.N
14 - Jan - 2017	-	7	7	R.N
21 - Jan - 2017	-	1	6	R.N
31 - Jan - 2017	physical	count	6	R.N
1 - Feb - 2017	-	-	6	R.N
5 - Feb - 2017	-	1	5	R.N
11 - Feb - 2017	-	1	4	R.N
17 - Feb - 2017	-	-	4	R.N
20 - Feb - 2017	expired	2	2	R.N
28 - Feb - 2017	physical	count	1	R.N

(14) COMMENT 2 Strips of 10 of Amoxicillin, 250mg, dispersible tablets expired on 20 - Feb - 2017

**Note:** Count of the stock available at the end of each month. Record in the Consumption Log as "PHYSICAL COUNT" and enter the quantity in the column for Balance on Hand (12)

Step 6

When the page is full, neatly draw two lines across the page, and transfer the Balance on Hand figure to a new page.

(2) NAME OF COMMUNITY HEALTH WORKER Rachel N		(3) TITLE CHW	UNIT OTHER	(8) DISTRICT Namutumba
(7) NAME OF ITEM (Name, strength, formulation) Amoxicillin, 250mg, dispersible tablets				
				(6) DISPENSING UNIT 1 Strip of 10
(9) DATE	(10) QUANTITY RECEIVED	(11) QUANTITY DISPENSED	(12) BALANCE ON HAND	(13) INITIALS
5 - Jan - 2017	8	-	8	R.N
14 - Jan - 2017	-	7	7	R.N
21 - Jan - 2017	-	1	6	R.N
31 - Jan - 2017	physical	count	6	R.N
1 - Feb - 2017	-	-	6	R.N
5 - Feb - 2017	-	1	5	R.N
11 - Feb - 2017	-	1	4	R.N
17 - Feb - 2017	-	-	4	R.N
20 - Feb - 2017	expired	2	2	R.N
28 - Feb - 2017	physical	count	1	R.N

### **14.3. Reporting and Recording Tools used in the Community Health Supply Chain System**

This section provides an overview of the key recording and reporting tools for medicines and supplies information in the community health supply chain (see Figure 26 below).

#### ***The Consumption Log***

This is the primary tool to record all the medicines and supplies available or dispensed to patients in the community. At the end of every month and each reporting period, the community health worker conducts a physical count of the items in stock and reconciles with the Consumption Log. The community health worker presents the Consumption Log to the CHEW/Parish Coordinator at the end of the reporting period.

#### ***Dispensed, Stock Balance & Request Summary***

The CHEW/Parish Coordinator uses this tool to summarize the quantity dispensed over the previous two months and stock balance for each item from individual Consumption Logs of each community health worker. In addition, the CHEW/Parish Coordinator determines the optimal quantity to resupply for each item using the Magic Calculator. Once these are compiled for all the community health workers in the parish, the CHEW/Parish Coordinator submits the Dispensed, Stock Balance & Request Summary to the health facility focal person from the parish. The health facility focal person reviews and approves the Dispensed, Stock Balance & Request Summary.

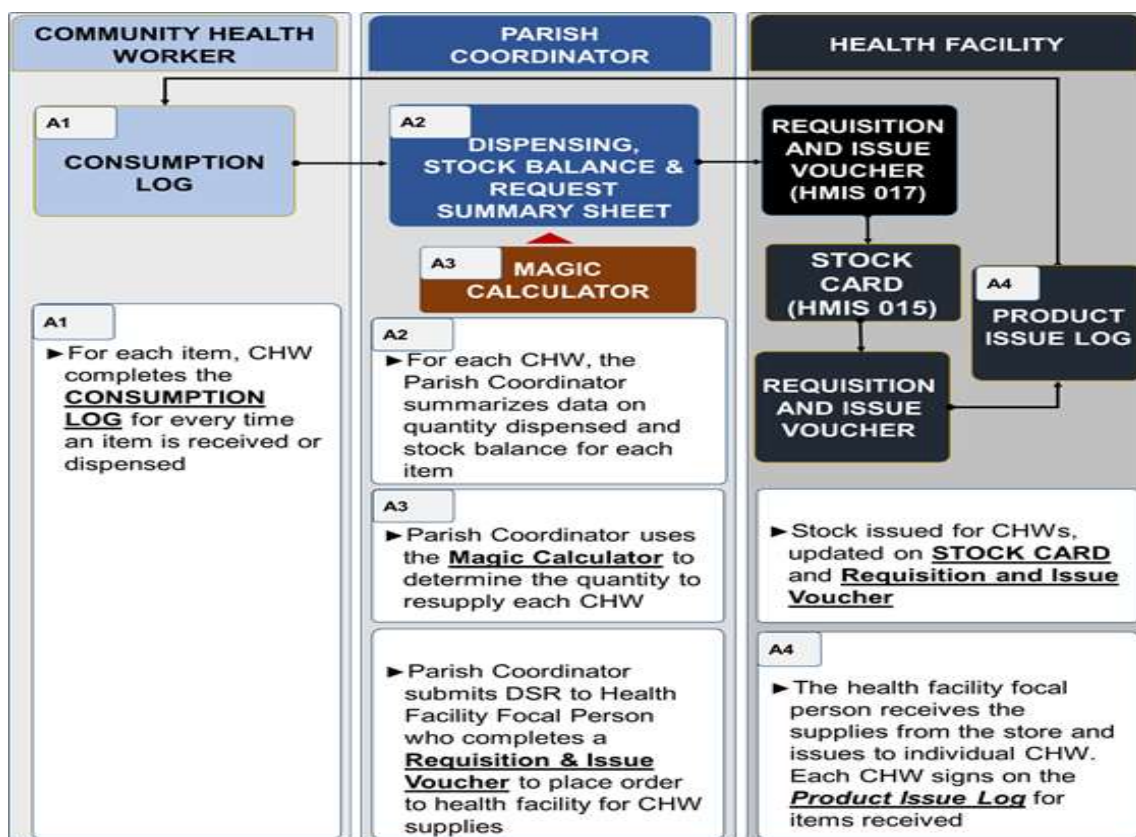
#### ***Requisition and Issue Voucher (HMIS 017)***

This tool is used to generate an order by the health facility focal person. The health facility focal person uses data from the Dispensed, Stock Balance & Request Summary to complete the Requisition and Issue Voucher (HMIS 017). The health facility in-charge reviews the order for correctness and accuracy, submits Requisition and Issue Voucher to the store personnel. Stock is then issued from the store to the health facility focal person and recorded on a stock card.

#### ***Product Issue Log***

Once stock is issued from the store to the health facility focal person, he/she issues the stock to individual community health workers when they come to the health facility. Each community health worker signs on the Product Issue Log for items received.

Figure 43: Flow of EMHS information from community health worker to health facility




### How to Fill the Consumption Log

The Consumption Log is the primary tool for recording all the medicines and supplies available or dispensed to patients in the community. It is filled together with the program’s register. The community health worker must update the Consumption Log whenever one receives or dispenses medicines and health supplies. The Consumption Log is also updated when recording expired/damaged items and physical counts. Refer to Card# 5 - “How to Fill the Consumption Log” of the community health worker’s Medicines Management Job Aid included in the Consumption Log.

**Step 1:** Record (1) Health Unit Name; (2) Name of the Community Health Worker; (3) Title (either VHT, CHEW or health facility staff); (4) Village; (5) Parish; and (6) District to which the community health worker is attached.

**Step 1** The Health Worker will guide you to record: (1) the Health Unit Name; (2) Name of Community Health Worker; (3) Title; (4) Village; (5) Parish and (6) District .




### CONSUMPTION LOG

(1) HEALTH UNIT NAME (include level of care) Kibaale HC2			(4) VILLAGE Kibaale Trading Center
(2) NAME OF COMMUNITY HEALTH WORKER Rachel N			(5) PARISH Nabisoi
(3) TITLE	<input checked="" type="checkbox"/> VHT	<input type="checkbox"/> CHEW	(6) DISTRICT Namutumba
(7) NAME OF ITEM (Name, strength, formulation)			(8) DISPENSING UNIT
(9) DATE	(10) QUANTITY RECEIVED	(11) QUANTITY DISPENSED	(12) BALANCE ON HAND
			(13) INITIALS

**Step 2:** For each item, available in the medicine box, fill in (7) Name of item, its strength and formulation (8) Dispensing Unit. Refer to the back of the Consumption Log for a guide on dispensing units for the medicines and supplies commonly used by community health workers.

**Step 2** You will fill in: (7) Name of Item, strength and formulation; and (8) Dispensing Unit. Refer to the Guide for Dispensing Units at the back page of the Consumption Log.



(1) HEALTH UNIT NAME (include level of care) Kibaale HC2			(4) VILLAGE Kibaale Trading Center
(2) NAME OF COMMUNITY HEALTH WORKER Rachel N			(5) PARISH Nabisoi
(3) TITLE	<input checked="" type="checkbox"/> VHT	<input type="checkbox"/> CHEW	(6) DISTRICT Namutumba
(7) NAME OF ITEM (Name, strength, formulation) Amoxicillin, 250mg, dispersible tablets			(8) DISPENSING UNIT 1 Strip of 10
(9) DATE	(10) QUANTITY RECEIVED	(11) QUANTITY DISPENSED	(12) BALANCE ON HAND
			(13) INITIALS

**Step 3:** When receiving, the community health worker should record (9) The Date; (10) Quantity Received; and (12) the Balance on Hand. Note: Update balance on hand before dispensing to client or patient.

**Step 3**

When RECEIVING medicines, record: (9) Date; (10) Quantity Received; (12) Balance on Hand and (13) Initials. Update the Balance on Hand column before dispensing any medicines. Each line is used for only one type of activity e.g. receiving, dispensing, physical count, recording expired or damaged items.



(2) NAME OF COMMUNITY HEALTH WORKER Rachel N	(3) TITLE VHT	<input checked="" type="checkbox"/>	VHT	(6) DISTRICT Namutumba
			CHEW	
			OTHER	
(7) NAME OF ITEM (Name, strength, formulation) Amoxicillin, 250mg, dispersible tablets				(8) DISPENSING UNIT 1 Strip of 10
(9) DATE 5 - Jan - 2017	(10) QUANTITY RECEIVED 8	(11) QUANTITY DISPENSED -	(12) BALANCE ON HAND 8	(13) INITIALS R.N

**Step 4:** When dispensing, community health worker should record (9) The Date; (11) Quantity Dispensed; and (12) Balance on Hand.

**Step 4**

When DISPENSING medicines, record: (9) Date; (11) Quantity Dispensed; and (12) Balance on Hand and (13) Initials. Each line is used for only one type of activity e.g. receiving, dispensing, physical count, recording expired or damaged items.



(2) NAME OF COMMUNITY HEALTH WORKER Rachel N	(3) TITLE VHT	<input checked="" type="checkbox"/>	VHT	(6) DISTRICT Namutumba
			CHEW	
			OTHER	
(7) NAME OF ITEM (Name, strength, formulation) Amoxicillin, 250mg, dispersible tablets				(8) DISPENSING UNIT 1 Strip of 10
(9) DATE 5 - Jan - 2017	(10) QUANTITY RECEIVED 8	(11) QUANTITY DISPENSED -	(12) BALANCE ON HAND 8	(13) INITIALS R.N
14 - Jan - 2017	-	1	7	R.N

**Step 5:** At the end of every month, conduct a physical count of each item in stock. Check the expiry date and remove expired or damaged items from the medicine box. Record physical count. Record the expired or damaged items under “quantity dispensed” in the Consumption Log.

**Step 5**

At the end of every month, conduct a physical count of each item in stock. Check the expiry date and remove expired or damaged items from the Medicine Box. Record physical count and expired or damaged items on the Consumption Log.



5 - Jan - 2017	8	-	8	R.N
14 - Jan - 2017	-	1	7	R.N
21 - Jan - 2017	-	1	6	R.N
31 - Jan - 2017	physical	count	6	R.N
1 - Feb - 2017	-	-	6	R.N
5 - Feb - 2017	-	1	5	R.N
11 - Feb - 2017	-	1	4	R.N
17 - Feb - 2017	-	-	3	R.N
28 - Feb - 2017	expired	2	1	R.N
28 - Feb - 2017	physical	count	1	R.N

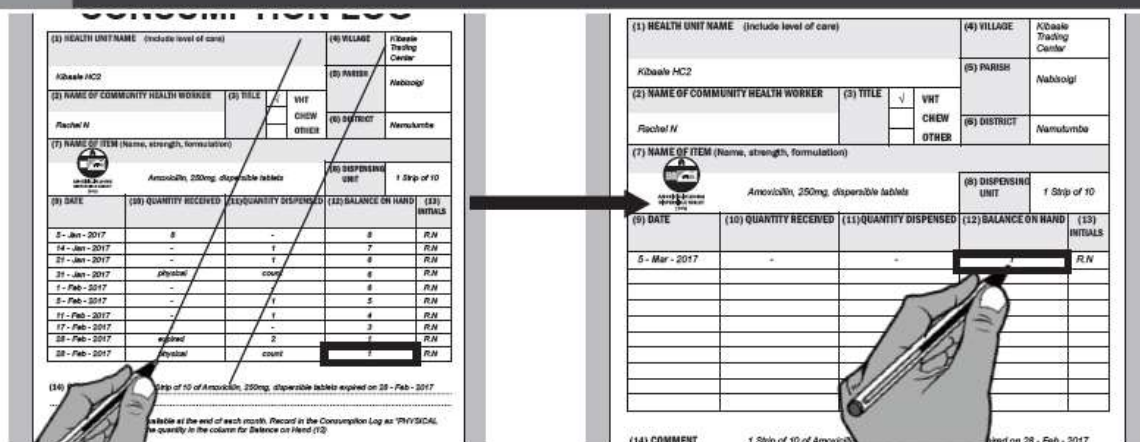
(14) COMMENT 2 Strips of 10 of Amoxicillin, 250mg, dispersible tablets expired on 28 - Feb - 2017

Note: Count all the stock available at the end of each month. Record in the Consumption Log as "PHYSICAL COUNT" and enter the quantity in the column for Balance on Hand (12)

**Step 6:** When the page of the Consumption Log is full, neatly draw two lines cross the page,

and transfer the Balance on Hand figure to a new page. Ensure you fill in all the header information for this new page.

**Step 6** When the page is full, neatly draw two lines across the page, and transfer the Balance on Hand figure to a new page.



Fill out the Consumption Log immediately after dispensing to each client. Fill out a separate Consumption Log for each item that the community health worker handles. If the pack sizes differ, fill out separate Consumption Logs.

### 14.4. Inventory management at the health facility

- All medicines and health supplies for community health workers must first be delivered to the health facility – never directly to community health workers.
- Health facilities should maintain one stock card policy, ensuring that it is possible to retrieve information on what was received for community health workers and what is issued for use in community health programs.
- Stock issued from the health facility for use by community health workers should be captured in the appropriate stock card.
- Proper and complete documentation should be done to enable tracking and accountability for commodities received and used in community health programs. The key stock keeping records are the Dispensed, Stock Balance and Request Summary, Product Issue Log and stock card.
- When consumption of community health programs is reflected in the stock card, it is then possible for the health facility to plan for the needs of community health workers in the routine ordering and annual procurement planning.



## 14.5. Inventory management at community level

The objectives of inventory management at community level is to ensure accurate record of stock movement and to maintain proper storage conditions for medicines and health supplies. The community health worker should be trained to ensure safety and accountability for medicines and health supplies. Storage activities described here ensure that the community health worker maintains the appropriate storage conditions for medicines and health supplies.

## 14.6. Storing medicines and health supplies

Refer to Medicines Management Job Aid: Card #2 – “How to Properly Store your medicines at home”

Figure 44: Storing medicines at home



### a) Keep all medicines and health supplies in the Medicine Box

Health facilities have stores where medicines and health supplies are stored, in the community you will be provided with a Medicine Box, where all medicines and health supplies must be stored at all times.

### Features of a Typical Medicine Box

- Made of wood to maintain temperatures in and around the products

- Has compartments that allow separation of products
- Locks for security

**b) Maintain proper storage conditions for medicines and health supplies**

- Place the Medicine Box on a stool or table. The Medicine Box must not be kept on the floor
- It is important to keep all your medicines and health supplies inside the Medicine Box at all times. This will help you maintain the recommended storage conditions.
- Keep the Medicine Box in a cool, dry place away from direct sunlight
- Avoid high temperatures/heat. Do not cook near the Medicine Box
- Avoid humidity/water vapour

**c) Use best storage practices for medicines kept at home**

- Maintain a clean and organized Medicine Box.
- Use the compartments to separate the different items and keep them well arranged inside the Medicine Box
- Do not keep any other items in the Medicine Box
- The Medicine Box should be locked and kept out of reach of children and visitors
- At the end of each month, conduct a physical count for all items in the Medicine Box and update the Consumption Log
- Check that none of the products are damaged or expired
- Separate damaged/expired items from the viable stock. Place these in a biohazard bag, and carry it with you when you next go the health facility. Remember to always keep the biohazard bag away from the reach of children and visitors.

## **14.7. Supervision and Performance Monitoring**

Overall implementation of the system requires that all stakeholders have the required knowledge of the community health program, supply chain procedures and tools. Support supervision is one way through which we identify implementation challenges and enhance the knowledge and skills of health facility and community health workers to improve and sustain quality of service. The supervision process ensures that there is continuous identification of knowledge and skills and support provided to address implementation gaps. Through this process, we learn from each other and identify best practices that can be scaled particularly for community health workers and health facility and district staff. The supervision process is conducted at national, district, health facility and community level.

Support supervision for community health programs can be provided by health personnel at different levels as shown below: The Support supervision structure:

- ▶ National level to District health office
- ▶ District Health Office to Health facility
- ▶ Facility health workers- to community health workers; during re-supply meetings
- ▶ Peer-to-peer; CHEW/Parish Coordinators can support supervise their fellow community health workers in the community.

Support supervision for community health workers should preferably be conducted through on-job mentorship and at meetings held at the health facility. A set of indicators have been defined for routine monitoring of the performance of the community supply chain such that support supervision can be targeted to address the most predominant areas of weakness. The supply chain indicators will enable the supervisor to obtain information on the following;

- Capacity to complete the community supply chain tools
- Availability of medicines and health supplies
- Availability of record keeping tools and medicines management aids
- Submission of program reports
- Use of community supply chain data in the decision making process to inform quantity to resupply community health workers and for the facility to order commodities from the central warehouse

### ***Frequency of supervision***

It is recommended that support supervision for community health supply chain be integrated into the routine supply chain support supervisory activities. Integrated support supervision is conducted quarterly where service gaps are identified and reported to the technical team for action.

# CHAPTER | 15 | LOGISTICS MANAGEMENT DURING EMERGENCIES AND IN HUMANITARIAN SETTINGS

## 15.1. Emergency Situations

The World Health Organization (WHO) defines an emergency as “a situation impacting the lives and well-being of a large number of people or significant percentage of a population and requiring substantial multi-sectoral assistance”<sup>11</sup>. Emergency situations are also known as hazards or disasters. According to WHO, hazards are classified as natural or human-induced. Hazards regardless of their nature can threaten the health, safety, security, and wellbeing of the community or large group of people. If the coping capacity of the community affected by the hazard is overwhelmed, a humanitarian crisis may arise necessitating an external intervention.

Table 12: Classification of hazards

Generic Groups 1	1. Natural				2. Human-Induced <sup>2,3</sup>		
Groups	1.1 Geological <sup>6</sup>	1.2 Hydro-meteorological		1.3 Biological <sup>6</sup>	1.4 Extraterrestrial <sup>6</sup>	2.1 Technological	2.2 Societal
Subgroups	1.2.1 Hydrological <sup>6</sup>	1.2.2 Meteorological <sup>6</sup>	1.2.3 Climatological <sup>6</sup>				
Main Types - subtypes [sub-subtypes]	Earthquake (G1): - Ground Shaking - Tsunami	Flood (H1): - Riverine flood - Rash flood - Coastal flood - Ice jam flood	Storm (M1): - Extra-tropical Storm - Tropical Storm - Convective Storm	Drought (C1)	Emerging diseases (B1)	Impact (E1): - Airbust	Armed conflicts (S1): <sup>14</sup> - International - Non-international
	Mass movement (G2)	[e.g. storm/surge, tornado, wind, rain, winter storm/blizzard, Derecho, lightning/thunderstorm, hail, sand/dust, storm]	Wild Fire (C2): - Land Fire [e.g. Brush, bush, pasture] - Forest Fire	Epidemics and pandemics (B2)	Space Weather (E2): - Energetic Particles - Geomagnetic Storms - Shockwave	Structural collapse (T2): <sup>8,9</sup> - Building collapse, Dams/bridge failures	Civil unrest (S2)
	Liquefaction (G3)	Extreme temperature (M2): - Heatwave - Cold wave - Severe winter condition [e.g. snow/ice, frost/freeze]	Glacial lake outburst (C3)	Insect infestation (B3): <sup>4</sup> - Grasshopper - Locusts		Transportation (T3): <sup>8,11</sup> - Air, Road, Rail, Water	Terrorism (S3) - Chemical biological, radiological, nuclear, and explosive weapons (CBRNE) (S4) <sup>15,16</sup>
	Volcanic activity (G4): - Ash Fall - Lahar - Pyroclastic Flow - Lava Flow	Wave action (H3): - Rogue wave - Seiche		Foodborne outbreaks (B4) <sup>7</sup>		Explosions/Fire (T4) <sup>8</sup>	Conventional weapons - Unconventional weapons
						Air pollution (T5): <sup>9</sup> - Haze <sup>10</sup>	Financial crisis (S5): - Hyperinflation - Currency crisis
						Power outage (T6) <sup>11</sup>	
						Hazardous materials in air, soil, water (T7): <sup>12,13</sup> - Biological, Chemical, Radionuclear	
						Food contamination (T8) <sup>7</sup>	

Source: The WHO Emergency Response Framework [ERF] 2<sup>nd</sup> Edition Page 66

Hazards have the potential to disrupt delivery of health services and this disruption can arise from cutting off communication to the affected areas thereby preventing access to the health services or the delivery of health supplies to affected areas. Disruption can also arise from concentration of health services on the particular hazard thereby ignoring delivery of the other components of the health care package. For example, during an Ebola outbreak, health workers’ efforts may all be diverted to managing the Ebola patients (and/or suspects) while maternal and child health care,

<sup>11</sup> WHO, 2017. *Emergency Response Framework (ERF) 2<sup>nd</sup> Edition*

malaria and other non-Ebola cases are left unattended. Health services as well as medicines and health supplies should always be available, accessible and adequate even during hazards either as part of the relief/response to the hazard, or to maintain normal delivery of health services during the hazard.

Managing hazards in the country usually requires a combined effort between governmental and non-governmental organizations. Coordination between the responders, national supply chain entities and humanitarian stakeholders will play a critical role in ensuring effective utilization of resources, maintenance of quality and safety of medicines and health supplies.

## **15.2. Government Policy Framework**

Emergency response within the country should be conducted in line with the existing government policies and guidelines. Currently, hazard/emergency response in Uganda is guided by the following policies and guidelines;

- a) The National Policy for Disaster Preparedness and Management
- b) National Multi-Hazard Preparedness and Response plan
- c) National Medical Countermeasures Supply-Chain Plan
- d) Public Health Emergency Operations Centre Manual Handbook
- e) Public Health Emergency Operations Centre Standard Operating Procedures (SOPs)

### **The National Policy for Disaster Preparedness and Management**

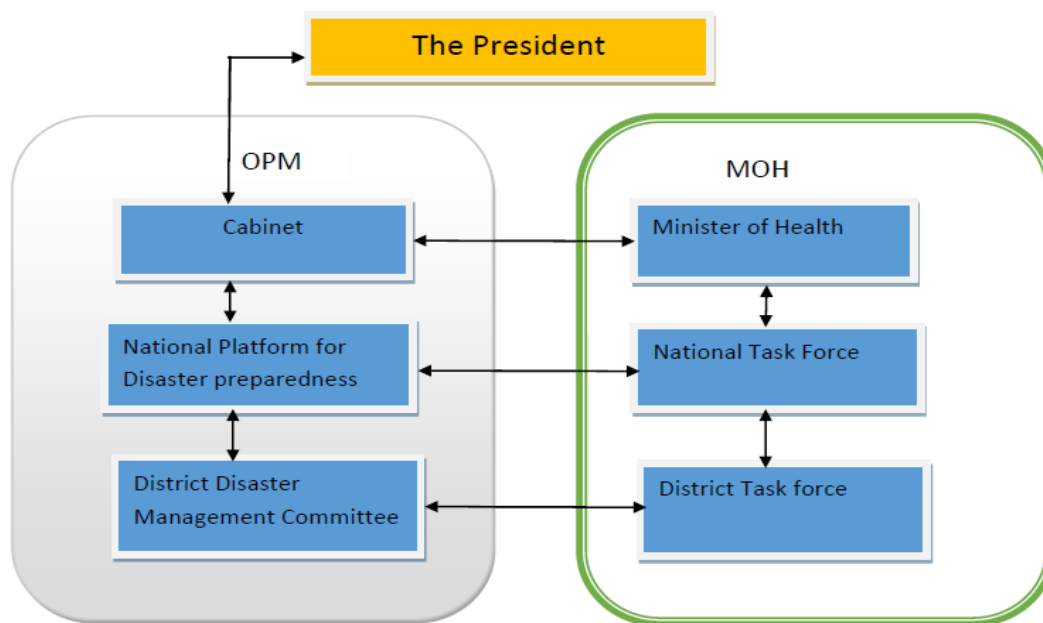
This Policy places the mandate to handle all hazards/emergencies in the country under the Department of Relief, Disaster Preparedness and Management which falls under the Office of the Prime Minister (OPM) of the Republic of Uganda. The department will coordinate the National Emergency Coordination and Operations Centre (NECOC) to respond to emergencies nationally. The policy further places the specific responsibility of responding to public health related emergencies under the Ministry of Health (MOH) which is to be supported by the Ministry of Agriculture, Animal industry and Fisheries (MAIIF) in emergencies resulting from zoonotic diseases.

### **The National Multi-hazard preparedness and Response plan**

Hazard response under MOH is guided by the National Multi-hazard preparedness and Response plan. Under this plan, the Public Health Emergency Operations Centre (PHEOC) supports the NECOC to respond to public health threats. Activities of the PHEOC are implemented by the National Task Force (NTF) at national level and the District Task Force (DTF) at district level. At district level, the District Emergency Preparedness Response Committee (DEPRC) manages response to hazards and in the event of a public health threat, the DEPRC is converted into the District Task Force (DTF). The District DEPRC committee performs its functions through technical subcommittees that are

composed of experts in that particular area of intervention. These sub-committees are responsible for the technical aspects of the control measures in the district.

Figure 45: Structure of emergency preparedness and response in Uganda



Source: National Multi-hazard preparedness and Response<sup>12</sup>

Figure 46: Committees of the National Task Force



Source: SOPs and Guidelines for Responding to Ebola/Marburg Virus Disease Outbreaks in Uganda<sup>13</sup>

<sup>12</sup> Uganda Ministry of Health, 2016. National Multi-hazard preparedness and Response Plan -2016-2020

<sup>13</sup> Uganda Ministry of Health, 2015. *Standard Operating Procedures and Guidelines for Responding to Ebola/Marburg Virus Disease Outbreaks in Uganda; A Guide for National Response.*

### **15.3. The National Medical Countermeasures Supply-Chain Plan**

This plan is an inter-ministerial and interdepartmental effort towards achieving the 5-year Global Health Security Agenda (GHSA) targets for medical countermeasures and personnel deployment action package. It is implemented under the *one health* platform. The purpose of this plan is to provide an operational framework for the Ugandan government to establish and manage a national supply chain system for the procurement storage and distribution of critical medicines and health supplies to combat public health threats. These threats include disease outbreaks that have been experienced in the country like Marburg, Ebola, Yellow Fever, Cholera, Meningitis, Measles, Influenza (H1N1), Typhoid Fever, and other zoonotic diseases including the endemic ones, and potential threats that may be biological, nuclear, chemical, or radiological in nature, including acts of terrorism with these agents. Under this plan, the Ministry of Health is responsible for identifying, declaring and responding to public health emergencies and managing medicines and health supplies aspects in the emergency response.

### **15.4. Considerations to Make During an Emergency**

Government and partners need to consider the following to ensure adequate supply of medicines and health supplies during emergency or humanitarian situations:

1. Management of medicines and health supplies during an emergency
2. Availability and mobilization of resources to support the emergency response
3. Vulnerability of the affected infrastructure

#### **A. Management of Medicines and Health Supplies during an Emergency**

Ministry of Health is responsible for ensuring that safe, effective and quality medicines are available to the population at all times. To exercise this mandate for populations affected by hazards (including public health emergencies), the National Task Force Logistics Committee (NTF-LC) has been instituted as part of the Incident Management Team (IMT) of the National Task Force. This committee's function as stipulated in the National Multi-hazard preparedness and Response plan and the National Medical Countermeasures Supply-Chain Plan is to oversee the provision of medicines and health supplies during hazard response and coordinate logistical support provided by the various partners and stakeholders during hazard response.

#### **B. Availability and mobilization of resources to support the emergency response**

The NTF-LC is responsible for the following key responsibilities:

- Assessing the medical and health resources that are available in-country
- Assessing how the hazard has affected or is likely to affect these available resources
- Analysing existing capacity to transport the supplies.

The NTF-LC should work with the relevant partners, including the National Medical Stores (NMS) and the National Diagnostic and Diseases Epidemiologic Centre (NADDEC) to identify the required medicines and health supplies and build an inventory of existing resources in-country. Currently NMS is mandated to provide essential medicines and health supplies to public health facilities in Uganda, while the NADDEC serves as the storage centre for veterinary medical countermeasures supplies as mandated by the National Medical Countermeasures Supply-Chain Plan. The NTF-LC should work with NMS, NADDEC and other relevant stakeholders to maintain a stockpile of the required commodities to support hazard responses.

In situations where redistribution of resources from within the health system is required, the NTF-LC should coordinate with the District Disaster Management Committee (DDMC) and the relevant partners to implement redistribution in line with the national redistribution guidelines. The NTF-LC should also work with the relevant partners to establish mechanisms for replacement of these resources to the health system. In situations where importation or purchase from local suppliers is required, the NTF-LC should support all the hazard response partners to conduct this in line with the country's procurement and donations guidelines.

Resource mobilization is multisectoral as follows:

- MOH quantifies the medicines and health supplies including Personal Protective Equipment (PPE) necessary to adequately respond to public health emergencies through the NTF committees.
- The OPM is responsible for mobilising resources for emergency response.
- The MoFPED is responsible for mobilising supplementary budgets during emergencies.

### **C. Vulnerability of the affected infrastructure**

It is critical to review how the hazard has affected transportation mechanisms, what secondary effects to the transportation network should be expected as the result of the hazard and what alternatives are available. In the event of an emergency situation, the NTF-LC and other NTF committees should work with the DDMC to provide a detailed technical analysis of the affected transportation infrastructure to provide logistical support during the hazard response, and should also work with the DDMC to ensure proper utilisation of emergency supplies.

At district level, the NTF-LC works with the DTF to identify parts of the healthcare system that may be potentially affected by the public health emergency. Logistical support at district level should therefore be coordinated by the NTF-LC and the DTF. The DTF performs its functions through technical subcommittee that are composed of experts in that particular area of intervention and are therefore responsible for the technical aspect of the control measures.



## 15.5. Role of the Health Worker

1. Work with the DTF to understand the nature of the emergency and the specific requirements of the emergency response.
2. Maintain an up-to-date inventory of medicines and health supplies in the facility.
3. Support redistribution of medicines and health supplies from the facility and other facilities, under the guidance of the NTF and DTF.
4. Undertake or support training of health workers in emergency response related aspects response, including provision of supplies for demonstration/practice purposes if available.
5. Work with the health facility management and district technical team to implement preventive measures to minimise risk of infection to healthcare providers for public health events due to infectious agents.
6. Work with the health facility management and district health team to establish mechanisms to resume or maintain health service provision for the rest of the population without putting their lives at risk.

## 15.6. The Interagency Emergency Health Kit for Crisis Situations

International agencies including the International Federation of Red Cross and Red Crescent Societies (IFRC), UNFPA, the United Nations High Commissioner for Refugees (UNHCR), and the World Health Organization (WHO) designed and continually review the content of the Interagency Health kit to ensure response to primary health care needs of displaced people. To complement the interagency kit, UNFPA, in close consultation with the members of the Inter-Agency Working Group (IAWG) on Reproductive Health, produces and regularly updates a consolidated set of reproductive health kits for use by humanitarian agencies.

The essential drugs, equipment and supplies needed to provide reproductive health care in crises have been assembled into a set of specially designed pre-packaged kits – The Inter-Agency Reproductive Health Kits. The objectives of the kits are in line with those laid out in the Inter-agency Field Manual on Reproductive Health in Humanitarian Settings. Each of the Reproductive Health Kits responds to a particular reproductive health need and contains supplies calculated for a specific number of people for a **three-month period**.

## **Key points**

- The OPM oversees all emergency response activities in the country.
- OPM and MoFPED provide financial support for emergency response.
- MOH is responsible for public health emergencies.
- MAIIF can support MOH for zoonotic disease-related emergencies.
- The NTF-LC is a sub-committee of the NTF that oversees all logistics aspects of emergency response under the MOH.
- The NTF-LC takes the lead in quantifying and securing medicines and health supplies for emergency situations.
- The DTF coordinates emergency response activities at district level.
- The health worker can also play an active role in emergency response, but has to be adequately trained and prepared.
- The United Nations and partner agencies have developed pre-packed Emergency Health Kits to ensure timely humanitarian response to primary health care needs of displaced people and refugees.

# CHAPTER | 16 | LOGISTICS MANAGEMENT INFORMATION SYSTEM

Information is the engine that drives the logistics cycle; without information, the logistics system would not run smoothly. A logistics management information system (LMIS) is a system of records and reports (paper-based or electronic) used to document logistics processes, aggregate, analyse, validate and display data (at all levels of the logistics system) that can be used to make informed logistics decisions and manage the supply chain.

## Objectives of LMIS are:

1. To provide a repository of tools, product and project assessments, and other information to promote a collaborative approach for LMIS solutions;
2. Encourage the reuse of proven components and methods;
3. Encourage the use of international standards in supply chain and health informatics;
4. Encourage seamless interoperability and flow of information between supply chain layers;
5. Create LMIS applications that are integrated with other health information system domains; and
6. Improve critical decision-making in order to address the dynamic health service requirements of low-income communities.

An effective logistics management information system (LMIS) should ensure that adequate quantity and quality of health commodities are always available at the point of service to meet patient demand [2]. An LMIS collects data about commodities, this information is often used for activities, such as filling routine supply orders for health facilities (WHO 2011).

## 16.1. LMIS in Supply Chain Management

LMIS data is captured at all levels of the supply chain management from planning and forecasting, procurement from suppliers, shipment, central warehouse management, ordering, distribution/re-distribution, receipt, facility storage, stock management, requisitions and Issues, dispensing, reporting on logistics processes, other consumption data and disposal. LMIS tools therefore facilitate the capture of the aforementioned data. The Ministry of Health prescribes and defines tools to be used in the health sector<sup>14</sup> including LMIS tools for managing medicines and health supplies. They are listed in Table 10 according to the different supply chain processes that require them and their use is further described in the subsequent sections herein.

Absence or wrong use of Logistics Management Information Systems causes;

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<sup>14</sup> Uganda Ministry of Health, 2018: *Uganda's Health Management Information System*

1. Poor record keeping: incomplete or not updated stock and consumption records
2. Poor reporting: late, incomplete and poor quality reports
3. Data not moving up or down the different level of service delivery: facilities not submitting to districts, districts not sending reports to central, central not providing feedback to districts and facilities
4. EMHS data not used for decision making and procurement planning

Figure 47: The Logistics Cycle

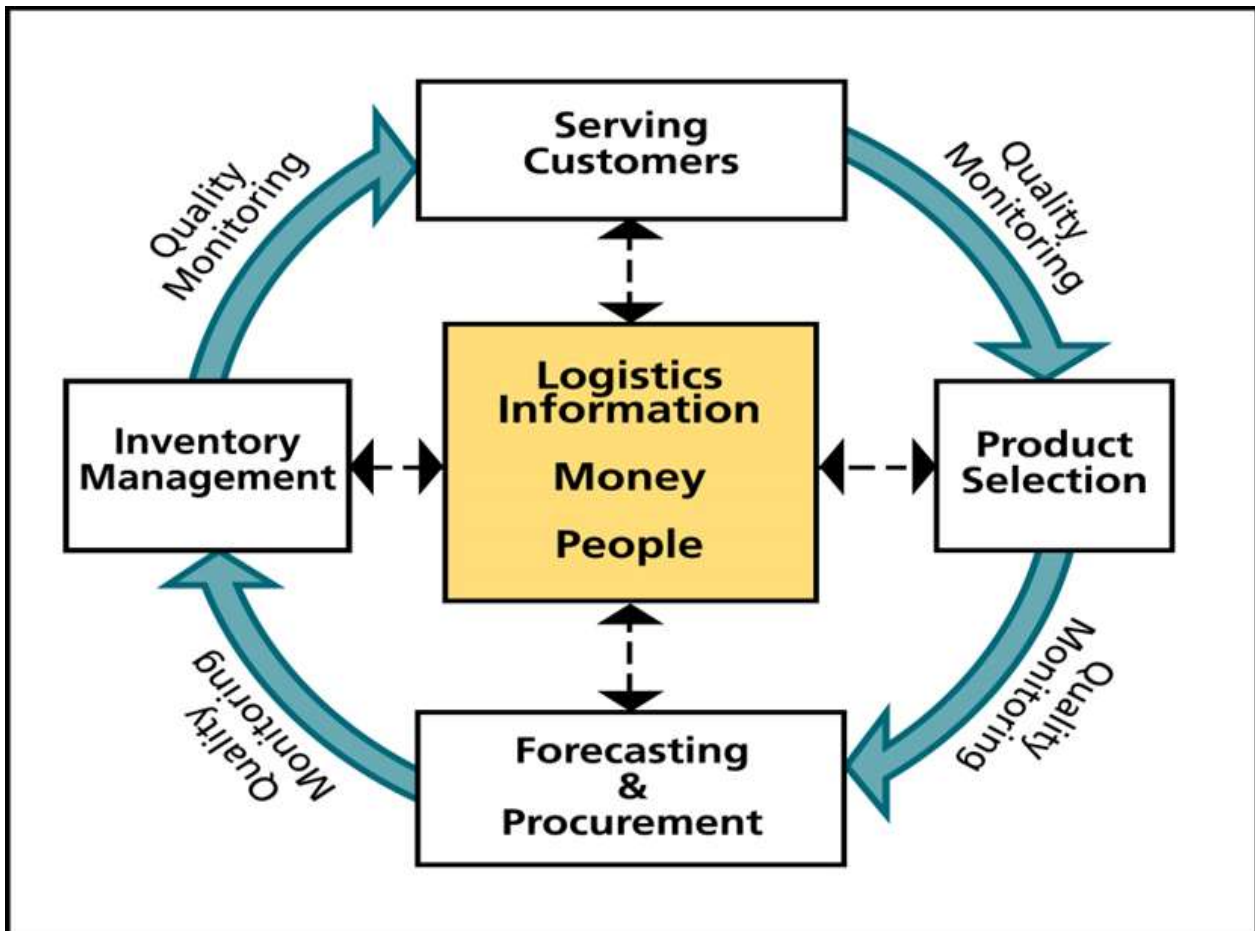


Table 13: LMIS Tools categorized by SCM process

Supply Chain Process	LMIS Tool	Objective
<b>Facility and District Level</b>		
Procurement and Ordering	HMIS FORM 086: HEALTH FACILITY PROCUREMENT PLAN FOR EMHS	To determine the cost and quantities of medicines and health supplies required for a planning period of one year
	HMIS FORM 084: BI-MONTHLY REPORT AND ORDER CALCULATION FORM	<ul style="list-style-type: none"> <li>i. To report stock – on - hand balances of items at the health facility</li> <li>ii. To report the facility’s bimonthly usage of Commodities</li> <li>iii. To determine quantities of commodities to re-supply the facility</li> </ul>
	HMIS FORM 084A: THE BI-MONTHLY REPORT AND ORDER CALCULATION FORM FOR HIV TESTS	Reports the total number of HIV tests used and received at the health unit, Ordering for HIV AIDS Test kits.
	HMIS FORM 084B: ARV MEDICINES ORDER AND PATIENT REPORT FORM	<ul style="list-style-type: none"> <li>i. To report the quantity of medicines received and dispensed in the two months reporting Period</li> <li>ii. To report the number of existing patients at the start of the cycle and new patients enrolled during the cycle</li> <li>iii. To request/order drugs to the maximum level of 4 months for the next cycle</li> </ul>
	HMIS FORM 085: ORDER FORM FOR EMHS	To request supplies from the National Medical Stores
	HMIS FORM 085A: ORDER FORM FOR LABORATORY REAGENTS AND CONSUMABLES	<ul style="list-style-type: none"> <li>i. To Report the total number of reagents &amp; consumables used and received at the health unit.</li> <li>ii. Ordering for Laboratory Reagents &amp; Consumables.</li> </ul>
	HMIS FORM**: FACILITY REQUEST AND REPORT ORDER FORM FOR TB LABORATORY COMMODITIES	<ul style="list-style-type: none"> <li>i. To report the facility’s bimonthly usage of TB commodities</li> <li>ii. To report stock-on-hand balances of TB Commodities at the end of 2 months cycle at the facility</li> <li>iii. To determine order/issue quantities of TB commodities to be supplied to the facility</li> </ul>
	HMIS FORM 017b: QUARTERLY RETURN FORM FOR CLASS A MEDICINES /ORDER FORM BOOK	<ul style="list-style-type: none"> <li>i. To report the utilization of Class A Medicines</li> <li>ii. To order for Class A Medicines</li> </ul>
Receipt of Commodities	HMIS FORM 087: DISCREPANCY REPORT	To outline the steps to be followed by the facility stores personnel when there is a discrepancy in medicines and supplies received
Storage and Stock management	HMIS FORM 015: STOCK CARD	To track the movements and balance of all commodities stored at any place in the health unit for more than a week

Supply Chain Process	LMIS Tool	Objective
	HMIS FORM 083: STOCK BOOK	To summarize the contents of individual stock cards into one book, making the ordering process simpler
	HMIS FORM 017D: VACCINE AND INJECTION MATERIALS CONTROL BOOK (VIMCB)	To improve vaccine and other EPI supplies stock management
Requisition and Issue	HMIS FORM 017: REQUISITION AND ISSUE VOUCHER	To make internal orders within the health unit for and issuing of commodities to be used for redistribution purposes between Health Facilities within and outside the district
	HMIS FORM 017A: PHARMACY CLASS A MEDICINES REQUISITION AND ISSUE VOUCHER	To make internal orders within the health unit and issuing of commodities of class A (narcotics)
Dispensing and compounding	HMIS FORM 016: DAILY DISPENSING LOG	For recording of medicines received from stores and dispensed to patients, to monitor consumptions and use and ensure accountability
	HMIS FORM 016A: HEALTH UNIT ARV AND MEDICINES FOR TREATMENT OF OPPORTUNISTIC INFECTIONS	To record ARVs and OI drugs dispensed and monitor rational use of medicines dispensed to each individual patient
	HMIS FORM 017C: WARD/SERVICE DELIVERY POINT CLASS A MEDICINES REGISTER	For recording of medicines dispensed and monitoring consumption by recording class A (narcotics) medicines dispensed to each individual patient.
	HMIS FORM **: DRUG RECONSTITUTION FORM	To document drugs reconstituted for patients
Consumption reporting	HMIS FORM **: MONTHLY CONSUMPTION SUMMARY	To record monthly consumption of ARVs and OI drugs dispensed to clients
	HMIS FORM **: DAILY SUMMARY FORM OF RECONSTITUTED CHEMOTHERAPY DRUGS	To summarize the total number of units dispensed per IV chemotherapy on a daily basis
	HMIS FORM 017b: QUARTERLY RETURN FORM FOR CLASS A MEDICINES /ORDER FORM BOOK	Used to report the utilization of Class A Medicines
Redistribution	HMIS FORM **: REDISTRIBUTION OF EMHS NOTIFICATIONS FORM	To inform the DHO about the excess or short dated viable EMHS that need redistribution among health facilities, districts and regions where it is most needed
	HMIS FORM **: EMHS REDISTRIBUTION FORM	To redistribute excess or short dated viable EMHS between health facilities, districts and regions where it is most needed

Supply Chain Process	LMIS Tool	Objective
Monitoring & Supervision	HMIS FORM**: TECHNICAL SUPPORT SUPERVISION TOOL FOR HIV COMMODITIES	To document stock status at the facility during support supervision visits.
	TABLE 10: VACCINE UTILISATION MONITORING FORM	To Improve practices in vaccine management
	HMIS FORM**: ADVERSE DRUG REACTIONS AND ADVERSE EVENTS FOLLOWING IMMUNISATION REPORTING FORM	To reporting form for all suspected adverse drug reactions (ADR) and adverse events following immunisation (AEFI)
	HMIS FORM**: NDA MARKET COMPLAINT REPORT FORM	To outline the guiding steps to be taken when filling a market complaint report form
Disposal	HMIS FORM 088: HEALTH UNIT EXPIRED/SPOILED MEDICINES REGISTER	Used to track all expired or spoiled medicines and supplies from a health facility
	HMIS FORM**: ART MEDICINES RETURN FORM	To document data on expired, damaged drugs and commodities that have not been dispensed during HIV community activities under the differentiated Service Delivery model.
<b>Community Level</b>		
Reporting & Requisition	HMIS FORM**: COMMUNITY DISPENSED, STOCK BALANCE & REQUEST SUMMARY	To summarize consumption data, stock on hand and quantities to resupply community health workers within a given reporting period.
Issue	HMIS FORM**: COMMUNITY PRODUCT ISSUE LOG	To track the quantities of the different items that are issued at the health facility to individual community health workers/VHT
	HMIS FORM**: MAGIC CALCULATOR	To quantify the quantity of a particular drug needed to be supplied by health facility to the VHT
Dispensing/ Consumption reporting	HMIS FORM**: COMMUNITY DAILY CONSUMPTION LOG	To track the movements and balance of all commodities stored by the community health worker.
	HMIS FORM 097: VHT/ICCM REGISTER	Record information and help health facility plan for health services needed by the community
	HMIS FORM 097a: QUARTERLY HOUSEHOLD SUMMARY	Record information and help health facility plan for health services needed by the community
	TABLE 15a: HEALTH UNIT QUARTERLY VHT/ICCM SUMMARY	To establish the status of Drug availability
Supervision and Reporting	HMIS FORM 097b: VHT/ICCM QUARTERLY REPORT	Record information and help health facility plan for health services needed by the community
	HMIS 105 Section 6: HEALTH UNIT OUTPATIENT MONTHLY REPORT	EMHS monthly reporting of stock availability, consumption for 41 tracer items, expiries

Supply Chain Process	LMIS Tool	Objective
	HMIS FORM 033b: HEALTH UNIT WEEKLY EPIDEMIOLOGICAL SURVEILLANCE REPORT	Tracer medicines and HIV test kits stock availability weekly reporting.
	TABLE 15b: HEALTH UNIT QUARTERLY VHT/ICCM SUMMARY	To establish the status of Drug availability

Source: Uganda Health Management Information System (MoH, 2018)

\*\* New tools in the Uganda HMIS. Had not been issued with numbers by the time of development of this manual.

## 16.2. Electronic Logistics Management Information System (eLMIS)

One of the identified priority in the National pharmaceutical sector strategic plan II, Uganda's National Development Plan II and the Health Sector Strategic and Investment Plan II is eHealth as a key enabler for supporting the health system in order to deliver good health services to the population<sup>15</sup>. The adoption of eHealth is viewed as a solution to some of the key pressures facing the health sector like weak health information management and inefficiencies of the healthcare system which result in sub-optimal resource utilization. In order to guide the transition from manual to electronic systems, MoH developed the Uganda eHealth Policy<sup>16</sup> and a five-year eHealth strategy ending 2021<sup>17</sup>.

Strategic Objective 5 of the eHealth Pillar 3 entitled eHealth Services, Information Sharing and Data Management is *"To Strengthen the National Electronic Logistics and Supplies Management Information System to ensure adequate quality and quantities of health commodities are always available at the point of service to meet patient demand"*.

For stakeholders and managers to make appropriate supply chain planning and decisions in order to meet end user needs, timely and quality information is required. Technology platforms employing appropriate LMIS systems can assist in the necessary data collection, processing and dissemination<sup>18</sup>.

An effective eLMIS should provide integrated access to:

1. Accurate, timely & routine consumption data
2. Real-time logistics management capabilities covering point of origin to point of consumption
3. Demand forecasting, capacity planning & modelling based on consumption.

The design of any eLMIS platform should be informed by or mirror the MoH approved LMIS tools in order to facilitate existing data requirements, processes and management. Furthermore,

<sup>15</sup> Uganda Ministry of Health, 2015. *Health Sector Strategic and Investment Plan II*

<sup>16</sup> Uganda Ministry of health, 2016. *eHealth Policy*

<sup>17</sup> Uganda Ministry of Health, 2017. *Uganda National eHealth Strategy 2017 – 2021*.

<sup>18</sup> Program for Appropriate Technology in Health. *Requirements for Logistics Management Information Systems. Seattle, WA: Program for Appropriate Technology in Health; 2010*.



standardization and inter-operability is required to enable input into the national HMIS database like DHIS2, mTrac and the logistics electronic systems that includes RxSolution, RAAS among others. eLMIS will enable easy and quick access to information for decision making in the health sector at all levels resulting into improved health outcomes for the population.

*Table 14: Functionality Requirements for Computerized LMIS Tools*

<b>Supply Chain Process</b>	<b>eLMIS Tool Requirements</b>	<b>Objective</b>
Procurement and Ordering	<ul style="list-style-type: none"> <li>● Ability to auto generate electronic copies of procurement and ordering HMIS tools</li> <li>● Ability to incorporate product coding for various suppliers</li> <li>● Ability to track facility budget utilization</li> <li>● Ability to prioritize ordering of supplies by VEN / ABC classification</li> <li>● Ability to generate electronic orders for auto importation into warehouse systems</li> <li>● Keep a record of all orders made</li> </ul>	To computerize the ordering process so as to ease ordering, improve order accuracy and reduce order processing lead time.
Receipt of Commodities	<ul style="list-style-type: none"> <li>● Incorporate functionality to receive items based on orders</li> <li>● Ability to cater for donated items</li> <li>● Track medicines and medical supply details(strength, expire date)</li> <li>● Track receipt price against order price for items</li> <li>● Track undelivered items</li> </ul>	To computerize the process of receiving medicines and health supplies and match items received against orders made
Storage and Stock management	<ul style="list-style-type: none"> <li>● Provide a comprehensive real time electronic stock card</li> <li>● Provide a comprehensive real time electronic stock book</li> <li>● Ability to monitor minimum and maximum stock levels</li> <li>● Ability to monitor expiries</li> </ul>	Computerization of stock management processes for improved record keeping and process efficiency
Requisition and Issue	<ul style="list-style-type: none"> <li>● Support electronic requisitioning of items and by who</li> <li>● Provide functionality to issue out items</li> <li>● Track all issues made and to whom.</li> <li>● Support best practices such as FEFO and FIFO</li> </ul>	Computerization of requisitioning and issuing for improved accountability
Dispensing	<ul style="list-style-type: none"> <li>● Provide prescribing and dispensing functionality</li> <li>● Ability to integrate standard treatment guidelines</li> <li>● Support unique patient registration or ability to link with patient registration systems</li> <li>● Ability to link with electronic medical record systems</li> <li>● Ability to track cost for dispensed items</li> <li>● Ability to incorporate patient regimens</li> <li>● Ability to monitor adherence</li> </ul>	To computerize the dispensing process so as to improve accountability in the last mile of the health supply chain
Consumption reporting	<ul style="list-style-type: none"> <li>● Ability to auto generate detailed consumption reports</li> <li>● Ability to auto generate summary consumption reports for various use categorizations</li> <li>● Ability to transmit logistic summaries to national level and link with other systems.</li> </ul>	To ease the report generation process
Redistribution	<ul style="list-style-type: none"> <li>● Integrate functionality to support the redistribution process i.e. external requisitioning &amp; issuing</li> </ul>	To support existing logistics processes

Supply Chain Process	eLMIS Tool Requirements	Objective
Monitoring & Supervision	<ul style="list-style-type: none"> <li>● Ability to provide electronic templates of supervision tools in standard document formats</li> <li>● Incorporate adverse event monitoring and reporting functionality</li> <li>● Ability to auto compute programmatic and strategic indicators.</li> </ul>	To support existing logistics monitoring & supervision processes
Disposal	<ul style="list-style-type: none"> <li>● Incorporate functionality for formally disposing spoilt, expired or damaged items</li> <li>● Ability to track all disposed items</li> <li>● Integrate reverse logistics functionality</li> </ul>	To support existing logistics processes

### 16.3. HMIS 105 section 6: monthly report

Every month, the health facility records stock-out days, issues and stock balances of 41 tracer medicines using HMIS 105, the health unit outpatient monthly report form (table 6). Analysis of these data at aggregate level can provide an overview of the national situation in terms of availability and stock status.

Information for filling the HMIS 105 comes from the stock cards or the stock book. Quantities issued and days out of stock for the month reported, and stock at hand at the end of the month should be reported.

CAUTION: unit of reporting may be different from unit of ordering/stock card units and in some cases multiple pack sizes need to be aggregated (e.g. all ACT tablets are summed up).

Items not handled at the facility are left blank.

Table 15: HMIS 105 Form Section 6

6. ESSENTIAL MEDICINES AND HEALTH SUPPLIES							
6.1 STOCK STATUS (Out of stock means that there was NONE left in your health unit STORE)							
Note: The primary data sources for this sub-section are the Stock books and Stock Cards							
SN.	NAME OF DRUG ITEM	UNIT	Quantity Consumed (units)	Days out of stock	Stock on hand		
<b>HSSIP INDICATOR ITEMS:</b>							
S1	Artemether/Lumefantrine 120/20 mg.	Tablets					
S2	Depot medroxy progesterone acetate (DMPA)	Injectable					
S3	Amoxicillin 250 mg capsule	Capsule					
S4	Sulfadoxine/ Pyrimethamine tablet	Tablet					
S5	ORS Sachets with zinc tablet	Sachet					
S6	Measles Vaccine	Vial					
S7	Determine HIV 1 & 2 screening test	Tests					
S8	Stat -pack HIV Confirmatory rapid tests, tests	Tests					
S9	SD Bioline test-Tie Breaker	Tests					
S10	CD4 reagent	Tests					
S11	Malaria Rapid Diagnostic tests	Tests					
S12	GeneXpert Cartridges	Cartridges					
S13	Therapeutic milk F75 (75Kcal/100ml)	Packet					
S14	Oral Liquid Morphine 5ml/ml	Bottle of 500 ml					
S15	Ready to use Therapeutic feeds (RUTF)	Sacket					
S16	Tenofovir/Lamivudine/Efavirenz (TDF/3TC/EFV) 300mg/300mg/ 600mg	Pack of 30					
S17	AZT/3TC/NVP 300mg/150mg/200mg	Pack of 60					
S18	Lopinavir 200mg/ritonavir 50mg	Pack of 120					
S19	Tenofovir/Lamivudine (TDF/3TC) 300mg/300mg	Pack of 30					
S20	TDF/3TC/DTG 300mg/300mg/50mg(TLD)	Pack of 30					
S21	Efavirenz (EFV) 600mg	Pack of 30					
S22	Abacavir/Lamivudine (ABC/3TC) 120mg/60mg (Paediatric)	Pack of 30					
S23	Lopinavir40mg/ritonavir 10mg pellets in capsules	Pack of 120					
S24	Cotrimoxazole 960mg tablet	Pack of 1000					
S25	(RHZE) blister strip 150/75/400/275 mg	28 tablets					
S26	Blood 450 ml	Milliliters					
S27	RHZ Blister 75mg/50mg/150mg	28 tablets					
S28	Misoprostol 200mcg Tablet**	Tablet					
S29	Amoxicillin dispersible 250mg tablet.	30tablets					
S30	Ceftriaxone 1g Injection	Vial					
S31	Oxytocin Injection	Ampoule					
S32	Chlorhexidine 20%	Litres					
S33	Mama Kit**	Kit					
S34	Bendrofulazide (Aprinox) 5mg	Tablet					
S35	Artesunate 60mg	Vial					
S36	Nifedipine tablets 20mg tablet	Tablet					
S37	Captopril 25mg tablet	Tablet					
S38	Metformin 500mg	Tablet					
S39	Glibenclamide 5mg tablet	Tablet					
S40	Insulin short-acting	Vial					
S41	Cardiac Aspirin 75/80 mg	Tablet					
<b>ADD THE GENERIC NAME OF DRUGS, VACCINES, CONTRACEPTIVES OR SUPPLIES THAT HAVE EXPIRED DURING THE MONTH:</b>							
<b>NO.</b>	<b>ITEM CODE</b>	<b>NAME OF DRUG ITEM</b>	<b>Quantity</b>	<b>NO.</b>	<b>ITEM CODE</b>	<b>NAME OF DRUG ITEM</b>	<b>Quantity</b>
1				6			
2				7			
3				8			
4				9			
<i>*This refers to the drug recommended in the National policy at the time</i>							

## CHAPTER | 17 | EMHS SUPERVISIONS

### 17.1. Supply chain management supervisors

The Pharmacy Department, Ministry of Health (MOH), continues to build skills in supply chain management at different levels of health care. Through this, a group of supply chain management supervisors has been set up in the entire country. The supply chain management supervisor's team include the Medicines Management Supervisors (MMS'), Laboratory SPARS supervisors (LSS) and the District TB and Leprosy supervisors (DTLS).

EMHS supervisions are conducted at central, regional, district and health facility levels. The Pharmacy Department extends supervisions to the regional tier who include the Regional Pharmacists (RPs) and the regional supply chain logistics advisors (SCM LAs), while the regional level supervisors are tasked with a responsibility of supervising the district supply chain leadership (DMMS, DLFPs and DTLS) who then supervise the MMS, LSS and TLS who conduct the supervisions at health facility level. EMHS supervisions are aimed at improving management of these commodities and in the long run at increasing availability and accessibility to EMHS.

Supply chain management supervisors are trained in most aspects of EMHS that include the stock and storage management system, appropriate medicines use and dispensing practices, accounting and financial management, Supply Chain information systems, laboratory procedures, TB infection control and Case management. The objective of having a trained supply chain management supervisors is to build the capacity among health facility staff so as to ensure improved availability and accessibility of EMHS through;

- 1) Implementing good practices related to supply chain management including stock and stores management
- 2) Ensuring good pharmaceutical financial management
- 3) Improved medicines prescribing and dispensing practices which are in line with the Uganda Clinical Guidelines and Essential Medicines and Health Supplies List of Uganda
- 4) Performing laboratory tests according to approved laboratory testing protocols
- 5) Improved TB case management and monitoring

SPARS is a national strategy for building supply chain management capacity and strengthening appropriate medicines use based on applying a combined interventions comprising educational, managerial, regulatory, performance monitoring and recognition.

Table 16: Supply Chain Management Supervisors Roles

SN	Role	Supply chain management supervisors		
		MMS	DTLS	Lab SS
1	Assessing health facility performance in SCM, ordering and reporting,	✓	✓	✓
2	Building health facility staff capacity through on-the-job training and mentoring	✓	✓	✓
3	Stock and Stores management	✓	✓	✓
4	Reporting on findings, progress, and constraints	✓	✓	✓
5	Coordinating and collaborating on pharmaceutical activities at the district, HSD, and facility levels	✓	✓	✓
6	Support Supply Chain problem solving	✓	✓	✓
7	TB case management support		✓	
8	Pharmaceutical financial management,	✓		
9	Appropriate medicine use	✓	✓	
10	Laboratory procedures and equipment supervisions for quality and functionality			✓

## 17.2. Supply Chain Management Peer Supervisions

The Peer strategy is a supervision structure which utilizes the already existing cascading systems of the Ministry of Health from national to health facility to improve effectiveness and sustainability of EMHS supervisions. The peer strategy also further clarifies roles and responsibilities of stakeholders at all levels whereby Pharmacy department supports regional pharmacists who in turn work with the DHO to support the supply chain management supervisors in the districts. Stakeholders like implementing partners should support and work within the existing health system structures. The strategy uses the existing pharmaceutical human resources to conduct supervision. It ensures that different levels of support focus on specific geographical areas, supervisors have manageable number of supervisees and are accountable (Fig 24).

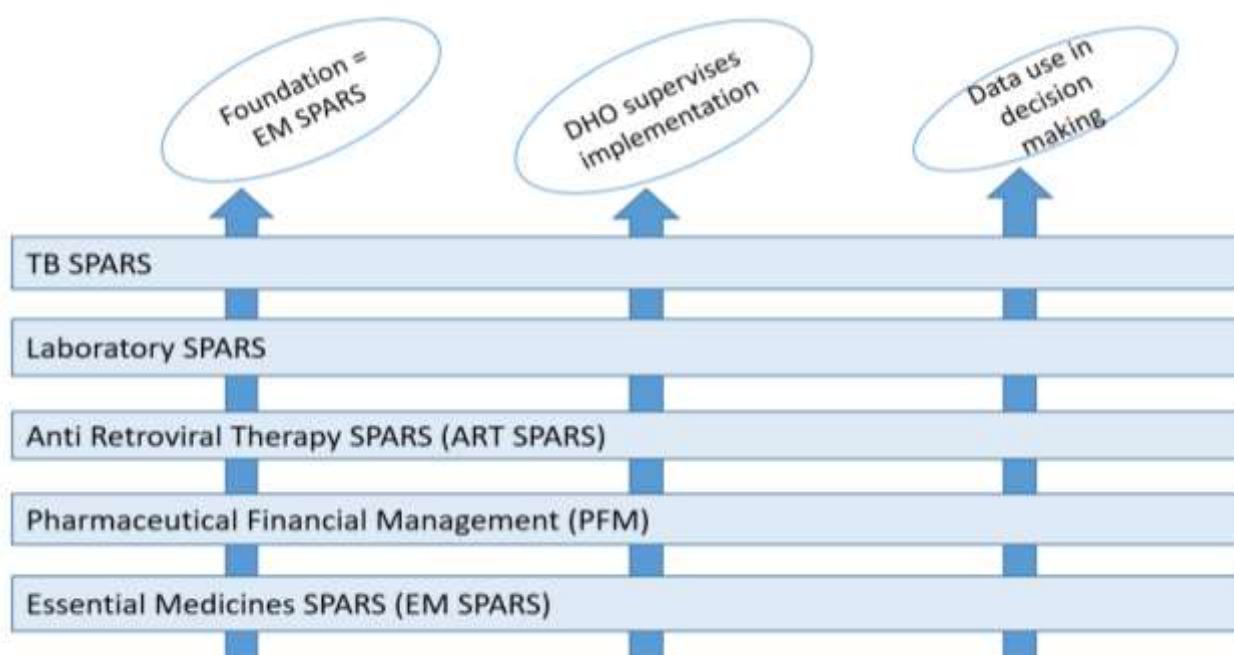
Figure 48: MoH Peer support structure



### 17.3. Supply chain management interventions at health facility level

Five SCM interventions are implemented at health facility level to support health supply chain management with an ultimate goal to increase availability and accessibility to EMHS for the Ugandan community as shown in figure 25 below:

Figure 49: Supply Chain Management interventions at health facility level



#### Note

- i. EMHS SPARS remains as a foundation for other medicines management interventions at health facility level. Successful implementation of EM SPARS will ease implementation of all the other interventions.
- ii. The District Health office has a key role of supervision and monitoring of implementation of these interventions at health facilities.
- iii. Each of these interventions uses a standardized tool with measurable indicators (see table 16; EMHS supervisions dashboards)
- iv. Data from the supervisions should be put to use for decision making across all levels (National, regional, district and health facility level).
- v. Across all these interventions, the nature of supervision should be supportive and collaborative through joint problem finding and solving. It is not an inspection but rather a supportive supervision with a goal of improving supply chain management at health facility level.

Table 17: Medicines management interventions indicators

EM SPARS Performance Indicators	ART SPARS Performance Indicators
<p><b>1.0 Dispensing quality (8)</b></p> <ol style="list-style-type: none"> <li>1. Dispensing time</li> <li>2. Packaging material</li> <li>3. Dispensing equipment</li> <li>4. Availability of reference materials</li> <li>5. Services available at the dispensing area</li> <li>6. Patient care</li> <li>7. Labelling</li> <li>8. Correct filling of dispensing log</li> </ol> <p><b>2.0 Prescribing quality (4)</b></p> <ol style="list-style-type: none"> <li>9. Rational prescribing</li> <li>10. Diarrhea</li> <li>11. Non-pneumonia cough/cold</li> <li>12. Malaria management</li> </ol> <p><b>3.0 Stock Management (5)</b></p> <ol style="list-style-type: none"> <li>13. Stock card availability</li> <li>14. Correct filling of stock card</li> <li>15. Does physical count agree with stock card balance?</li> <li>16. Is stock book correctly used?</li> <li>17. Is the calculated AMC the same as the recorded? <math>\pm 10\%</math></li> </ol> <p><b>4.0 Storage management (6)</b></p> <ol style="list-style-type: none"> <li>18. Cleanliness of the pharmacy &amp; store</li> <li>19. Hygiene of the pharmacy</li> <li>20. System for storage of medicines &amp; health supplies</li> <li>21. Storage conditions</li> <li>22. Storage practices of medicines</li> <li>23. One facility-One store-One stock card</li> </ol> <p><b>5.0 Ordering and reporting quality (4)</b></p> <ol style="list-style-type: none"> <li>24. Timelines of Order and distribution</li> <li>25. Completeness and accuracy of HMIS 105 report</li> <li>26. Filing</li> </ol>	<p><b>1.0 ART Patient Care and Management (5)</b></p> <ol style="list-style-type: none"> <li>1. Availability of current tools and reference materials at the health facility</li> <li>2. Correct filling of ART/EMTCT Dispensing Log</li> <li>3. Correct filling of ART register</li> <li>4. Adherence to ART treatment guidelines – ART initiation</li> <li>5. Pharmacovigilance /Monitoring for adverse drug reactions</li> </ol> <p><b>2.0 Stock Management (6)</b></p> <ol style="list-style-type: none"> <li>6. Stock card availability</li> <li>7. Physical count carried out for last 3months</li> <li>8. Correct filing of stock card</li> <li>9. Updating of stock cards</li> <li>10. Correct use of stock book</li> <li>11. Accuracy of AMC <math>\pm 10\%</math></li> </ol> <p><b>3.0 Traceability of commodities at the facility (4)</b></p> <ol style="list-style-type: none"> <li>12. System of requisitioning of ART items from the store to the dispensary.</li> <li>13. Traceability of commodities from supplier/warehouse to facility store</li> <li>14. Traceability of commodities facility store to ART dispensing unit</li> <li>15. Traceability of commodities issued to patients</li> </ol> <p><b>4.0 ART Ordering and reporting quality (4)</b></p> <ol style="list-style-type: none"> <li>16. Availability of ARV Order/Report and submission method</li> <li>17. Accuracy of ART and E-MTCT Medicines Order</li> <li>18. Accuracy of Patient Report</li> <li>19. Accuracy of HIV test kits order</li> </ol>
Lab SPARS Performance Indicators	TB SPARS Performance Indicators
<p><b>Stock management (9)</b></p> <ol style="list-style-type: none"> <li>1. Availability of reagents for selected tests on day of visit</li> <li>2. Stock card availability</li> <li>3. Correct filling of stock card</li> <li>4. Does physical count agree with stock card balance?</li> <li>5. Is AMC in the stock card correctly calculated</li> <li>6. Is Stock book correctly filled?</li> <li>7. Is AMC in the stock book correctly calculated</li> <li>8. Number of items not overstocked?</li> <li>9. Order fill rate</li> </ol> <p><b>Storage Management(5)</b></p> <ol style="list-style-type: none"> <li>10. Cleanliness of the laboratory including storage facilities</li> <li>11. Hygiene of the Laboratory</li> <li>12. System for storage of laboratory reagents and supplies</li> <li>13. Storage conditions for laboratory supplies/reagents</li> </ol>	<p><b>1.0 Tb Case Management (4)</b></p> <ol style="list-style-type: none"> <li>1. Screening &amp; diagnosis of TB</li> <li>2. Treatment and follow up</li> <li>3. Adherence to STGs</li> <li>4. Management of TB/HIV co-infection</li> </ol> <p><b>2.0 Laboratory Procedure (4)</b></p> <ol style="list-style-type: none"> <li>5. Staffing</li> <li>6. Working environment &amp; safety</li> <li>7. Sample collection &amp; processing</li> <li>8. Quality management systems</li> </ol> <p><b>3.0 Tb Infection Control (2)</b></p> <ol style="list-style-type: none"> <li>9. Infection control practices</li> <li>10. Patient handling</li> </ol> <p><b>4.0 Logistics Management (7)</b></p> <ol style="list-style-type: none"> <li>11. Availability on the day of visit</li> <li>12. Stock card availability</li> <li>13. Stock card filled correctly with name, strength, dosage form, AMC, special storage conditions</li> <li>14. Physical count agrees with stock card balance</li> <li>15. Is stock book correctly used?</li> <li>16. Is calculated AMC the same as the recorded <math>\pm 10\%</math></li> <li>17. Adherence to one facility - one store - one stock card</li> </ol> <p><b>5.0 Reporting And Information Systems (4)</b></p> <ol style="list-style-type: none"> <li>18. Accuracy of order quantities</li> <li>19. Timeliness of ordering</li> <li>20. Completeness of TB tools used</li> <li>21. Accuracy of HMIS 106a form</li> </ol>



<p>14.Storage practices of laboratory reagents  <b>Ordering, Receipt and Recording(3)</b>  15. Reorder level calculations  16.Adherence to ordering and delivery procedures  17. Availability of a laboratory product catalogue  <b>Laboratory Equipment(4)</b>  18. Developing and maintaining facility equipment inventory  19. Equipment management plan to ensure equipment functionality  20. Equipment Functionality  21. Equipment utilization  <b>Laboratory Information systems(6)</b>  22. Availability of laboratory data collection forms  23. Availability of HMIS 105 reports  24. Timeliness of HMIS 105 reports  25. Completeness and accuracy of HMIS 105 report  26. Availability of displayed information on day of visit  27. Filing of reports</p>	<p style="text-align: center;"><b>PFM Performance Indicators</b></p> <p><b>1.0 Ordering process (2)</b>  1. Costed non-vetted requirement list  2. Vetting  <b>2.0 Tracking allocation and expenditure (6)</b>  3. Commitment Register  4. Budget Monitoring sheet  5. Patient Payment Register  6. Actual fee Payment Balance Account  7. Health Expired/Spoiled Item register  8. Requisition and Issue voucher  <b>3.0 Use of pharmaceutical information (4)</b>  9. Budget Utilization rate  10. Order fulfilment  11. Nil lines  12. Adjustments</p>
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#### 17.4. Medicines Management Supervisions at Ward Level

Through training, pharmacy professionals (Pharmacists and Pharmacy Technicians) are capacitated to manage medicines throughout the entire medicines management cycle. Pharmacy professionals remain the custodians of medicines and should continue to play this role at all stages. Medicines management in in-patient wards remains the responsibility of the pharmacist/ pharmacy in-charge and should therefore be managed in accordance with the Guidelines for implementation of inpatient and outpatient pharmacies<sup>19</sup>.

##### Creating ward/unit's emergency medicines list

The pharmacist/pharmacy in-charge should reach an agreement with the ward nurses and Medicine Therapeutic Committee regarding medicine that should form part of ward emergency medicines list. Ward stock levels (daily consumptions) should be calculated by pharmacy staff using a consumption-based method and agreed upon with the ward nursing staff. This should have the names and proposed quantities to last a day or two at most. Following endorsement, a copy of the list should be made available to both the nursing staff and the pharmacy staff who will be responsible for obtaining and supplying medicine stock mainly from the inpatient pharmacy and where required the store. The pharmacist/ pharmacy in-charge should supervise this stock daily to ensure that stock is managed appropriately in all wards/units.

<sup>19</sup> Uganda Ministry of Health, 2017. *Guidelines for implementation of inpatient and outpatients pharmacies.*

### **Standard operating procedures for stock management at ward level**

Written standard operating procedures (SOPs) must be in place and made available to provide guidance on the management of medicines on the ward/unit. They must be established to ensure adequate control of the medicines issued to the wards/units. SOPs must be agreed upon with the MTC, ward nurses and pharmacists/pharmacy in-charge and should include:

- An indication of the nurses' responsibilities for signing approved requisition documents in compliance with the inpatient guidelines
- Dispensing of emergency medicines to the in-patients.
- Documentation of use of medicines in the in-patient wards/units using the dispensing logs.
- Ordering for medicines after physical count is carried out to determine the quantities.
- Procedures for the return of medicines to the pharmacy to prevent misuse.

### **Patient care**

Nurses facilitate the use and administration of ward/unit medicines, as per the authorized prescribers' administration instructions. They should ensure that the right patient receives the right medicine, which is of a good quality, in the right dose and at the right time and provide patient counselling in regards to the storage and use of the medicines. The pharmacist/pharmacy in-charge should ensure that there is adequate medicines information for the nurse with regard to the use and storage of medicine in the ward/unit. This will assist with maintaining medicines potency and appropriate use.

### **Supervisions of medicines management at ward level**

On a daily basis, the pharmacist/ pharmacy in-charge shall supervise the medicines at the ward/unit to include:

- a) Medicines in the ward emergency cupboard.
- b) Medicines issued to the patients but not yet used.
- c) Drug administration audits.

### ***Purpose of the supervision***

The purpose of this supervision (medicines management at ward/unit level) is to address issues that may include:

- a) Inappropriate storage and handling of the medicines (both at emergency and with the in-patients).
- b) Unexplained high turnover of the commodities at the emergency cupboard.
- c) Incomplete entry of data in the medicines management tools (e.g. dispensing log, patient charts) etc. at ward level.
- d) Inadequate professional advice for use of medicines at the wards/units.

- e) Inappropriate drug administration.

### **17.5. Supervision of supply chain at community level**

Support supervision for community health workers should preferably be conducted through on-job mentorship and at meetings held at the health facility by the health workers (or in charges). A standard tool with set of indicators to be used to supervise the community health workers during the routine monitoring of the performance of the community supply chain so that support supervision can be targeted to address the most predominant areas of weakness. The supply chain indicators at community level are below:

- i. Availability of record keeping tools and medicines management aids
- ii. Capacity to complete the community supply chain tools
- iii. Availability of medicines and health supplies
- iv. Submission of program reports
- v. Use of community supply chain data in the decision making process

Supervisions for community supply chain should be integrated in the routine quarterly supervisions and service gaps identified and reported to the technical team for action. Additional information on community supply chain supervision provided in Chapter 14.

## CHAPTER | 18 | MONITORING AND EVALUATION

The Monitoring and evaluation of the implementation of the supply chain management activities under the pharmaceutical sector will provide support in achieving the objectives of the National Pharmaceutical Sector Strategic Plan III, identification of implementation gaps, assessment of impact of the interventions and measurement of the overall status of the NPSSP III performance. All these are guided by the indicator reference sheet as well as the monitoring and evaluation plan whose main objective is:

1. To provide a frame work for the collection, processing, reporting, analysis and use of pharmaceutical sector data in Uganda.
2. To provided standard indicators, targets, formats and frequencies for reporting by all stake holders.
3. To describe the type of data and data sources, and how data will flow from the primary source to all relevant stake holders.
4. To guide the routine and periodic documentation of planned activities and measure the expected outputs, outcomes and impact.
5. To define implementation arrangement with clear responsibilities.

The implementation of the Monitoring and evaluation function under the Ministry of health – Pharmacy department will be led by the PD M&E Unit. The unit will co-ordinate data collection and guide on which data to be collected at different time periods while highlighting the specific data source. Weekly, Bi-monthly, quarterly and annual data analysis of data for periodic indicator performance and routine pharmaceutical sector report compilation for all pharmaceutical interventions conducted. This will also be conducted to inform work plan development, Supply chain performance as well as change in strategy and policy. The unit will guide on the data flow, stipulate roles of stake holders at national, district and health facility level in relationship to health supply chain.

Studies, Baseline, Mid-term and end line evaluation will be conducted to assess improvement in attaining a good standard of health for Uganda’s population through provision of good health care services. This will also assess the attainment of the NPSSPIII objective of increased access and availability of affordable safe good quality and effective essential medicines and Health supplies that are used appropriately. Data used for monitoring and evaluation will be from the Health Management Information System (HMIS) through District Health Information Software version 2 (DHIS2). Other data sources will include the national stake holders data based on Plans, Order and issues for ware houses (NMS,JMS,MAUL), Stake holders Annual report like NDA, National Supervision, Performance Assessment and Recognition strategy for ART, EMHS,TB and Laboratory data reported

through Pharmaceutical Information Portal. The electronic information systems like the Rx solution and RAAS among other will also provide data for conducting monitoring and evaluation.

The pharmacy department will disseminate weekly, Bi-monthly, Quarterly and Annual pharmaceutical performance through the digital screen at MOH, Bi-monthly Facility Stock status reports, quarterly reports, annual report, baseline, midterm and end line report. The unit will also use MPM TWG, CSG, SMEAR, M&E health commodity meetings and HIS/Data management thematic TWG meetings to disseminate information on health supply chain performance. Publications on Supply chain performance and reports will be posted on the PIP and MOH websites.

## CHAPTER | 19 | APPROPRIATE MEDICINES USE

Medicines and Health supplies take up to 40-60% of health care budgets<sup>20</sup>. Medically inappropriate, ineffective and economically inefficient use of pharmaceuticals is commonly observed in health care systems. WHO estimates that more than half of all medicines are prescribed, dispensed or sold inappropriately, and that half of all patients fail to take them correctly<sup>21</sup>. The overuse, underuse or misuse of medicines results in wastage of scarce resources and widespread health hazards.

Promoting appropriate use of medicines (AMU) in the healthcare system is needed not only because of the financial reasons that policy makers and managers are usually most concerned with, but also is an essential element in achieving quality of health and medical care for patients and the community. Actions or intervention programs to promote the appropriate use of medicines should, therefore, be continuously implemented and systematically incorporated as an integral part of the health care system.

This chapter serves as an introduction to AMU in the health facilities and will cover:

- Definition, examples, causes, consequences of inappropriate use
- Core strategies to promote appropriate medicines use
- Essential medicines concept
- Standard treatment guidelines

### 19.1. Appropriate and Inappropriate Medicines Use

#### Defining Appropriate Medicines Use

The terms "appropriate" and "rational" use of medicines are sometimes used interchangeably.

*Appropriate use of medicines requires that patients receive medicines appropriate to their clinical needs, in doses that meet their own individual requirements, for an adequate period of time, and at the lowest cost to them and their community.*

The requirements for appropriate use will be fulfilled if the processes of diagnosing, prescribing, dispensing and administration of the medicine are appropriately followed.

This means that the following criteria must be met:

- **Right diagnosis:** defining a patient's problems correctly is important or else it would set off a cascade of inappropriate use

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<sup>20</sup> Uganda Ministry of Health. Uganda Health Accounts Financial years 2016/2017 and 2017/2018

<sup>21</sup> World Health Organization, 2011. The World Medicines Situation 2011. Rational Medicines Use

- **Right medicine:** prescribing cost-effective, safe and affordable medicines. The issue of costs has to be considered since resources are limited, we need to make sure that we get the maximum benefit for the maximum number of people within available resources.
- **Right patient:** selecting appropriate medicines for age, sex, dosage, administration route and duration, no contraindications, acceptability to the patient.
- **Appropriate patient information:** patients are provided with relevant, accurate, important and clear information regarding their conditions and their prescribed medication(s), including how and when to take, importance of adherence, side effects and possible toxicity.
- **Appropriate evaluation:** the anticipated and unexpected effects of medications are appropriately monitored and interpreted.
- **Right care-provider:** the provider should have the required qualification, competence, proficiency and authorized to provide the care.

### Examples of Inappropriate Use

Inappropriate use occurs when any of the criteria mentioned above are not met. This can occur at any stage of the medicines use process, i.e., during diagnosis, prescribing, dispensing or patient adherence. Some examples of inappropriate use are listed below:

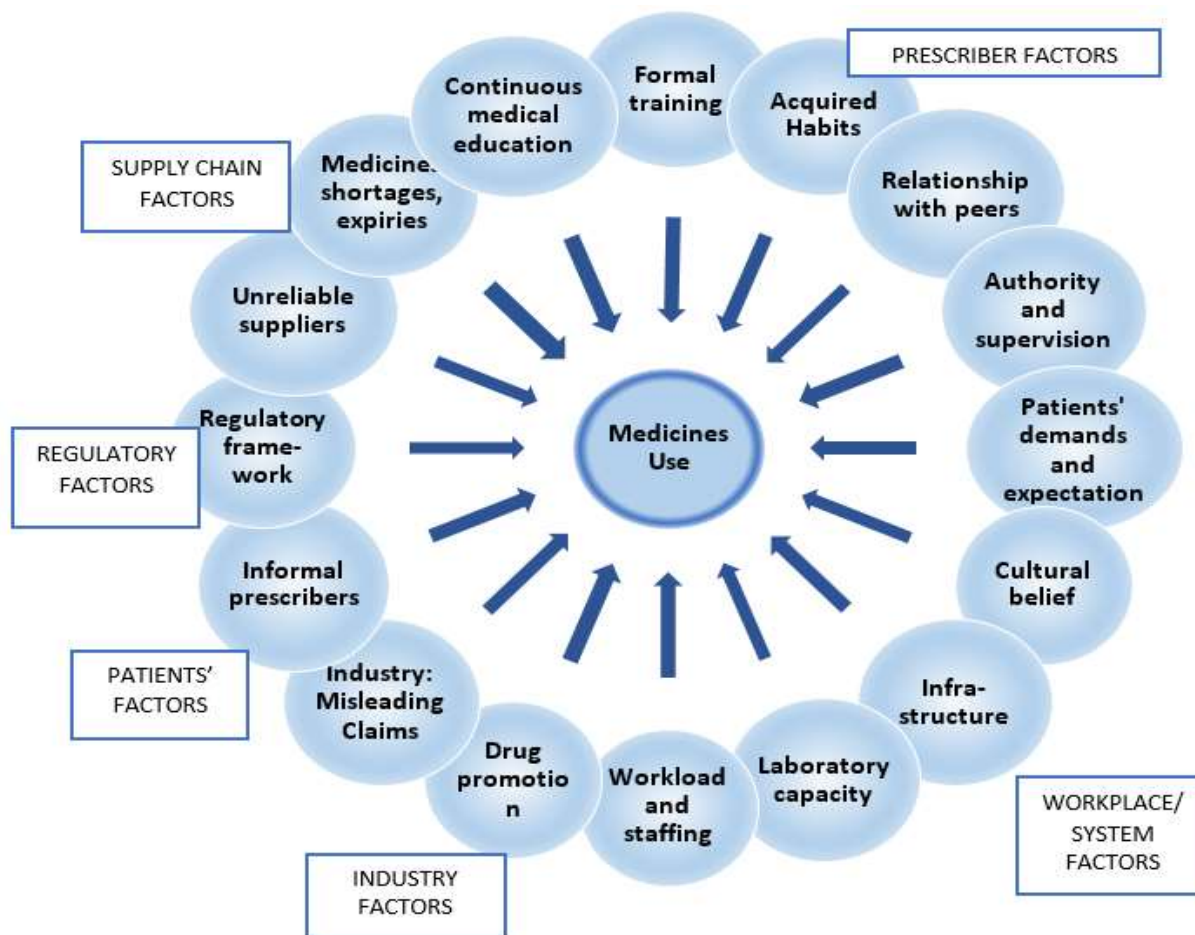
- Self-medication; use of prescription medicine without prescriber's authorization
- The use of medicines when no medicine therapy is required e.g. giving medicine for social problems
- The use of the wrong medicine for a specific condition e.g. treatment of simple diarrhoeas with antibiotics
- The use of medicines with doubtful or unproven efficacy e.g. use of multivitamins without evidence of deficiencies
- The use of medicines of uncertain safety status e.g. unlabelled medicines
- The use of unnecessarily expensive medicines, e.g. the use of a third generation, broad-spectrum antimicrobial when a first-line, narrow spectrum agent is required
- Over-use of injections when oral formulations would be more appropriate
- Multiple or over-prescription per patient (poly pharmacy)
- Dispensing/administration mistakes: incorrect dose, route of administration, duration, wrong label, incomplete instructions to patients
- Inappropriate use at patient's and community level: poor compliance, incorrect route/dose and sharing of medicines.

### Factors That Influence Appropriate Medicines Use

A wide range of factors cause problems in medicine use. Before trying to correct any problem in medicine use, it is helpful to identify which factors are most important in causing the problem at hand. Unless the proposed intervention targets the appropriate causes of the problem, it is unlikely

to be successful. The major factors can be categorized as those derived from patients, prescribers, the workplace, the supply system including industry influences, social and cultural influences, regulation, medicine information and misinformation, and combinations of these factors.

Figure 50: Factors influencing appropriate medicine use



### The Impact of Inappropriate Medicines Use

The impacts of this inappropriate use of medicines can be seen in many ways:

- Reduction in the quality of medicine therapy leading to increased morbidity and mortality.
- Wastage of resources leading to stock outs, reduced availability of other vital medicines and increased costs.
- Increased risk of unwanted effects such as adverse medicine reactions and the emergence of medicine resistance, e.g. malaria or multidrug resistant tuberculosis.
- Psychosocial impacts, such as when patients come to believe that there is “a pill for every ill.” This may cause an increased demand for medicines and more inappropriate use, often by self and unauthorized prescription.
- Irrational use of medicines can also compromise the trust in the health system.



**IMPORTANT TO NOTE:** Medicine use is a critical part of the care process. Ensuring that the correct medicine is given to the correct patient is a high priority for all health professionals. Improving medicine use improves the quality of care and lowers the cost of care.

### Key Strategies to Improving Medicines Use

The World Health Organization advocates 12 key interventions/strategies to promote rational use of medicines. The *Uganda National Medicines Policy 2015-2020* also proposes these strategies to ensure that end-users receive maximum therapeutic benefits from medicines.

#### WHO Core Interventions/strategies for promoting Rational Medicines Use

1. Establishment of a multidisciplinary national body to coordinate policies on medicine use
2. Use of clinical guidelines
3. Development and use of national essential medicines list
4. Establishment of drug and therapeutics committees (also called Medicine and Therapeutics Committees) in districts and hospitals
5. Inclusion of problem-based pharmacotherapy training in undergraduate curricula
6. Continuing in-service medical education as a licensure requirement
7. Supervision, audit and feedback
8. Use of independent information on medicines
9. Public education about medicines
10. Avoidance of perverse financial incentives
11. Use of appropriate and enforced regulation
12. Sufficient government expenditure to ensure availability of medicines and staff

In Uganda, the Pharmacy Department of the Ministry of Health is the institutional body responsible for implementing the appropriate medicine use program.

### 19.2. Standard Treatment Guidelines

Standard treatment guidelines are systematically developed clinical recommendations that assist prescribers in deciding on appropriate treatments for specific clinical problems. These guidelines usually reflect the consensus on the optimal treatment options within a health facility or health system. The information is disease-centred, emphasizing the common conditions, their diagnoses and the various treatment alternatives. They assist and guide doctors, pharmacists, dispensers, and other healthcare staff who prescribe at primary care facilities in providing quality care to patients<sup>22</sup>.

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<sup>22</sup> Gopalakrishnan S, 1999. *Standard Treatment Guidelines. TNMSC Times, 1, 7–8.*

Standard Treatment Guidelines provide the basis for assess appropriateness of medicine use and are therefore at the core of any work in appropriate medicine use.

The Uganda Clinical Guidelines (UCG) help to achieve these standards by presenting updated, practical, and useful information on the diagnosis and management of common conditions in Uganda. The 2016 UCG is the basis for the Essential Medicines and Health Supplies List of Uganda (EMHSLU) 2016<sup>23</sup>. In addition to the Uganda Clinical Guidelines 2016, it is recommended that programs and specialized health unit can develop specialized guidelines for specific conditions for example the 2016 Consolidated Guidelines for Prevention and Treatment of HIV in Uganda and the ICCM Implementation Guidelines.

**Key considerations in developing standard treatment guidelines:**

- Target priority conditions
- Local disease factors (e.g. environment, housing, transportation, healthcare system etc.)
- Consultation with special programs and eminent clinicians (e.g. surgeons, specialized physicians)
- Focus on use of fewer and only necessary drugs listed in the essential drug list (Cost effective treatments)
- Provide dose and duration, contraindications, side effects adverse drug reactions
- Consider patient perspective such as preferred formulations

**Rationale and benefits of treatment guidelines**

STGs promote high quality of care across the health system by:

- Linking scientific evidence to clinical practice
- Promoting appropriate use of resources
- Guiding procurement/supply of pharmaceuticals
- Guide training
- Promoting standards of care

*Table 18: Justification for the use of standard treatment guidelines*

Stakeholders	Challenge addressed
Patients	<ul style="list-style-type: none"> <li>• Consistency amongst prescribers reduces confusion and increases compliance</li> <li>• Focuses on the most effective treatments</li> <li>• Improves drug supply, since fewer options are procured</li> </ul>

<sup>23</sup> WHO, 1977. *The Selection of Essential Drugs. Report of a WHO Expert Committee.*

Stakeholders	Challenge addressed
Providers	<ul style="list-style-type: none"> <li>• Generates expert consensus on most effective, economical treatment for a specific setting</li> <li>• Allows prescribers to focus on diagnosis more than learning treatments</li> <li>• Provides a standard for assessment of quality of care</li> <li>• Provides a simple basis for monitoring and supervision</li> </ul>
Supply management staff	<ul style="list-style-type: none"> <li>• Eases distribution and redistribution of medical supplies</li> <li>• Allows for pre-packaging (Course of therapy dispensing) for common conditions</li> <li>• Improves predictability of medicines demand and so forecasts become more reliable</li> </ul>
Health policy makers	<ul style="list-style-type: none"> <li>• Provides a method to control costs by improving efficiency</li> <li>• Serves as a basis for assessment of quality of care</li> <li>• Allows better integration of special programs</li> </ul>

Table 19: Benefits of standard treatment guidelines for different stakeholders

For health officials/practitioners	For Managers
<ul style="list-style-type: none"> <li>• Evidence based guidance</li> <li>• Improved diagnostic accuracy</li> <li>• Effective and safe therapy</li> <li>• Standardized information for patients</li> <li>• Support evidence/protection/defence against malpractice</li> <li>• Comprehensive guidelines inclusive of special programs</li> </ul>	<ul style="list-style-type: none"> <li>• Tools to measure, monitor and improve performance and quality of care</li> <li>• Standardized basis for quantifying, ordering and procuring supplies</li> <li>• Basis for health workers training</li> <li>• Tool to enhance efficiency/appropriate use of resources</li> </ul>
For supply management staff	For Patients
<ul style="list-style-type: none"> <li>• Identifies which medicines should be available for the most commonly treated problems</li> <li>• Facilitates pre-packaging of course-of-therapy quantities of commonly prescribed items</li> </ul>	<ul style="list-style-type: none"> <li>• Optimal treatment, better outcomes at lower costs</li> <li>• Consistent quality of care across health system which encourages adherence</li> <li>• Better availability of medicines</li> <li>• Prevention of development of resistance for antimicrobials</li> </ul>

## Uganda Clinical Guidelines

Uganda has had five editions of national standard treatment guidelines published in 1993, 2003, 2010, 2012 and 2016 respectively. The Uganda Clinical Guidelines (UCG) is a comprehensive document containing information on features, diagnosis and management of most common conditions in Uganda. It indicates for each condition the level of care at which the necessary expertise and medicines to manage are available, which in turn helps health workers to refer patients to the appropriate level when needed. Getting the diagnosis correct is a very important first step in appropriate patient management, and therefore the UCG 2016 in addition is harmonized with “laboratory test menu” and the EMHSLU 2016 which indicate the tests, medicines and health supplies available at the different levels of care.

## Principles and use of the UCG

The principles on which the UCGs are built include:

- **Health priorities:** conditions are selected based on their prevalence/incidence (how many people are affected) and their severity (the risk of death or disability, the effect on quality of life)
- **Scientific evidence** for effectiveness of the treatment for a given condition (evidence based medicine). The steps of identifying and assessing scientific evidence is generally entrusted with the academic specialists (experts) for each given therapeutic area and the vertical programs of the MOH. In addition, Uganda largely adopts/adapts WHO recommendations for the management of many conditions, which have already undergone the critical appraisal processes.
- **Cost-effectiveness:** alternatives are selected based on the relationship between the cost and the outcome. Options which provide more value (outcome) for money are obviously preferred!
- **Appropriateness/implementability** for our setting and the level of care within the Ugandan health care system: the selected alternative has to be affordable, implementable (the conditions for its implementation have to exist: e.g. in terms of infrastructure, staffing etc.), and acceptable, both to health workers and patients.

## 19.3. Essential Medicines Concept

Essential medicines have been defined as medicines *that satisfy the health care needs of the majority of the population, at a price they and the community can afford*<sup>24</sup>. They therefore must be available at all times, in adequate amounts and in the appropriate dosage forms. The Essential Medicines Concept (EMC) is a public health principle that promotes efficient use of resources by establishing and using a limited list of carefully selected medicines. The concept is based on the observation that:

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<sup>24</sup> WHO, 1977. *The Selection of Essential Drugs. Report of a WHO Expert Committee.*

- Majority of health problems can be treated with a small number of medicines.
- In practice, health professionals routinely use fewer than 200 medicines. Training and clinical experience should focus on the proper use of these few medicines.

#### Benefits of the Essential Medicines Concept

- Better therapy as clinicians become knowledgeable with a manageable number of medicines
- Procurement and distribution is more efficient and cost effective with fewer medicines
- Medicine ordering and storage at the facility is also easier with a limited number of medicines
- Patients can be better informed when fewer medicines are used
- Formal education and in-service training of health professionals and of public education is easier

#### Uganda Essential Medicines List

Uganda has implemented the Essential Medicines Program since 1985. The first EMLU was published in 1991, and subsequently in 1996, 2001, 2007, 2012 and the current edition in 2016. Since 2012, the Essential Medicines List (EML) also contains the **health supplies and laboratory supplies** that are needed at the health facilities. This was to ensure a comprehensive document that can suitably guide procurement by the warehouses and assure availability of all supplies needed to deliver optimal care at health facilities.

Both the 2012 and the 2016 editions of the EMHSLU are harmonized with the clinical guidelines (UCG) to ensure that all the medicines recommended in the UCG are listed in the EMHSLU. In addition, the EMHSLU also contains **specialist medicines** required for diagnosis and treatment of conditions where specialized care or monitoring is required such as cancer, ophthalmology and dialysis. The items in the EMHSLU are therefore classified by “*level of care*”, which indicates the lowest level of health facility at which the medicine will be available, basing on the expected level of expertise and capacity in terms of qualification of staff, diagnostic capability and available infrastructure.

The main inclusion criteria for medicines on the EMHSLU overlap with the principles used to develop the STG such as efficacy, safety, quality, cost-effectiveness and appropriateness.

#### Institutional Medicines List (IML)

The EMHSLU of Uganda is developed at central level, and it contains a wide range of medicines/formulations, (approximately 600 items). Not all these are required at all facilities, and therefore it is expected that each health facility develops its own **institutional medicines list (IML, sometimes called hospital formulary)**, out of the national EMHSLU. This has the benefits of streamlining procurement within a limited budget, eases monitoring of stock, fosters adherence to treatment guidelines and eases training of health workers.

The same criteria used for the national EML may be adopted for selecting items for the institutional medicines list, for example:

- Morbidity patterns of the hospitals patients
- Allocated budget for pharmaceuticals (medicines and sundries)
- Available expertise at the hospital (e.g., is there a dental clinic, eye clinic etc.)
- VEN classification of the items

### **Practical Guidelines for Dispensing**

In order to use medicines appropriately, health care professionals and the public need access to up-to-date, unbiased, accurate and evidence based information about these medicines. Drug promoters from manufacturers and suppliers often and aggressively provide biased information, over-emphasizing the advantages and under-emphasizing the adverse effects of the medicines they are promoting. This can pressurize prescribers into prescribing expensive or unnecessary medicines that are outside of the essential medicines list.

The MOH Pharmacy Department has developed and distributed two medicines information reference books, the “Practical Guidelines for Dispensing (PGD) for lower level (2014) and Practical Guidelines for Dispensing (PGD) for higher level health facilities (2015)”. These provide information and instructions about the medicines in the Uganda essential medicines list, such as indications, dosage, side effects, important interactions, special instructions for patients, use during pregnancy and breastfeeding and special cautions to look out for while using those medicines. The PGD is designed to serve as a quick reference book, with only the most critical information included, aggregated from across several reliable and evidence based sources of information.

# CHAPTER | 20 | MEDICINE AND THERAPEUTIC COMMITTEES

## 20.1. The scope of MTC

The MTC has a direct role in the components of selection, use and accountability, but it also has an advisory and monitoring role on the more “logistical” steps of the medicines management cycle, which are direct responsibility of the store-pharmacy-procurement departments. The medicine management cycle consists of a sequence of steps as represented in the graph (Figure 51: Scope of action for MTC in the medicine management cycleFigure 51) below:

Figure 51: Scope of action for MTC in the medicine management cycle

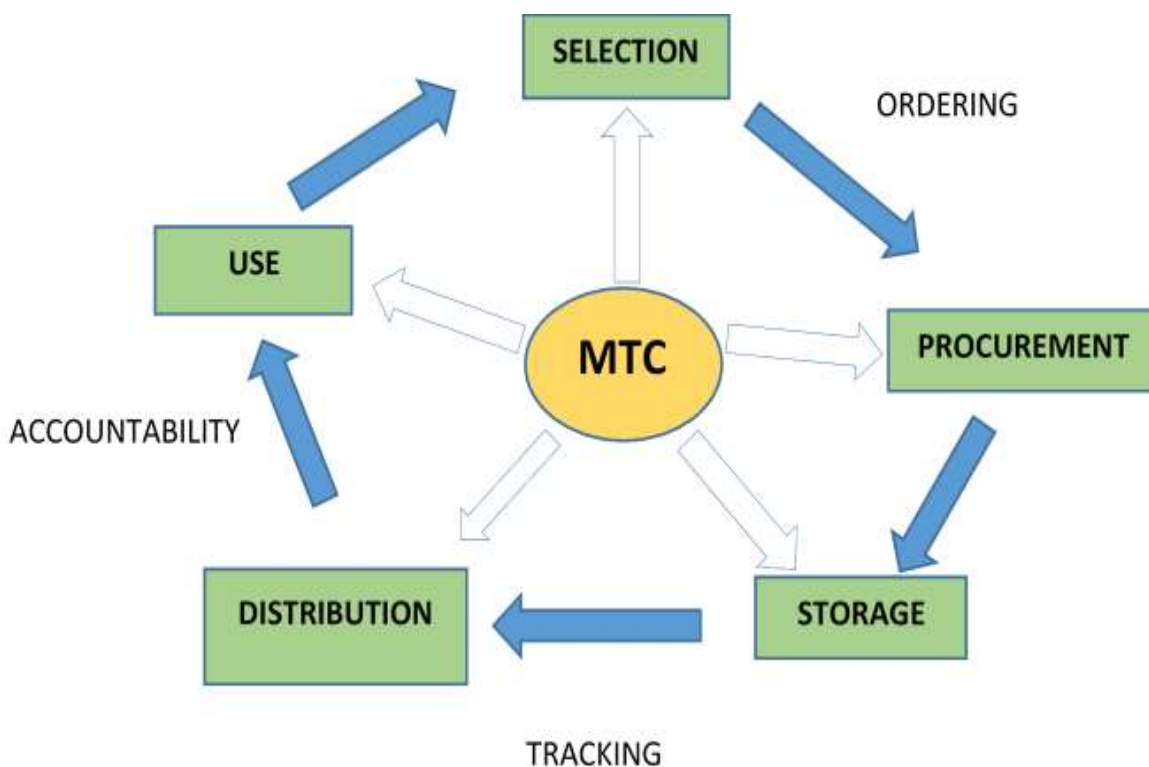


Table 20: Roles and functions of MTC

ROLE	FUNCTION
<b>Evaluating and improving the clinical use of medicines</b>	<ul style="list-style-type: none"> <li>● Formulate, implement and monitor policies and guidelines for appropriate use of medicines and supplies in the health facility</li> <li>● Develop, implement and monitor the use of standard treatment guidelines</li> <li>● Identify medicine use problems (prescriptions, administration, availability, etc.)</li> <li>● Conduct effective interventions to improve medicine use (educational, managerial, regulatory and financial strategies)</li> <li>● Conduct pharmacovigilance activities: medication errors, adverse drug reactions, treatment failures and causes, drug quality issues</li> <li>● Design and implement antimicrobial stewardship activities</li> <li>● Advise medical, pharmacy and administrative staff on appropriate medicine use</li> <li>● Conduct appropriate research on medicine use</li> </ul>
<b>Developing and/or monitoring policies and procedures for management and use of medicines and health supplies</b>	<ul style="list-style-type: none"> <li>● Regulate and monitor availability, tracking and accountability of pharmaceuticals within the health facility</li> <li>● Analyze, monitor and regulate and expenditures on medicines to ensure cost effective use of resources</li> <li>● Develop or adopt/adapt and monitor policies and procedures e.g.:               <ul style="list-style-type: none"> <li>✓ Pharmaceutical promotion</li> <li>✓ Medicine donations</li> <li>✓ Selection, quantification, procurement planning, storage, distribution and re-distribution, accountability systems</li> <li>✓ Prescription, dispensing, administration of medicines e.g. restrictions and permissions for different cadres</li> <li>✓ Expiries and disposal of pharmaceutical products</li> </ul> </li> </ul>
<b>Developing and managing an institutional medicine list</b>	<ul style="list-style-type: none"> <li>● Develop criteria for inclusion and exclusion of essential medicines and health supplies onto the institutional medicines list (IML)</li> <li>● Develop institutional medicines list (IML)</li> <li>● Develop a facility-based antibiogram to guide antibiotic selection</li> </ul>

## 20.2. Benefits of a functional MTC

A functional and active MTC will have several benefits:

- Availability of effective, safe, high-quality, and cost-effective pharmaceuticals
- Reduction of medicine use problems leading to improved medicine use
- Improved prevention, control and management of antimicrobial resistance
- Improved staff knowledge and patient knowledge
- Decreased Adverse Drug Reactions and medication errors
- Improved medicine procurement, inventory management and reduced wastage



These will collectively contribute to better quality of services and more cost effective and efficient use of resources.

### **20.3. Structure and Organization of Medicine and Therapeutics Committee**

For better function of MTC; it should have a multidisciplinary team, transparent approach, technical competence and an official mandate. It is essential to define and document:

- The official mandate – MTCs will not work without senior administrative support
- Roles, responsibilities and functions of the MTC
- The membership of the MTC, including the chairperson and secretary
- Criteria for membership
- How the MTC will operate and report
- The funding sources and incentives
- The relationship of the MTC with other committees (e.g. Infection Control and Quality Improvement committees) for specific areas of work
- A process for self-assessment and evaluation

A blueprint for Terms of reference for a health facility medicine and therapeutics committee can be found in the MTC manual.

### **20.4. Principles in setting up the MTC**

The following principles should be followed when setting up the MTC:

- **Technical competency:** members will need to bring their expertise and skills and contribute in a constructive manner to the work of the committee.
- **Multidisciplinary approach** sensitive to the local situation: the committee should have a wide representation of cadres and departments.
- Transparency and commitment to good service
  - MTC has to be active, and making sound decisions in a transparent way.
  - MTC work has to be documented and widely disseminated.
  - MTC members should not be influenced by external parties especially by drug advertisements, promotional activities, or personal financial influences.

#### **Clear organization of work and division of tasks within the MTC**

- Delegation of activities (e.g., research studies, investigations, data collection and analysis) to subcommittees.
- Meetings with clear agenda, for discussions and decision making.

## 20.5. Composition of the MTC

The MTC is usually made up of professionals from all the areas involved in health care:

- Medical and clinical staff, representatives of the major specialties
- Pharmacist/pharmacy technicians (the secretary to the committee)
- Nursing personnel
- Records officers/statistician
- Laboratory
- Stores
- Administration

This mix of personnel would provide the all-round input from the diverse segments of the health care facility. Each MTC has the liberty to choose whether to include a community person or co-opt them in the committee or in sub-committees as and when needed. The committee should choose the chairperson. Ideally, a well-known and respected senior member will provide leadership to the committee. The store and pharmacy in-charge must be members, with the head of pharmacy as the secretary and the pharmacy department as the secretariat. It is advisable to appoint a deputy chair and deputy secretary within the committee. Chairperson, secretary and their deputies will form an **executive committee** to handle administrative tasks.

While generally guidelines indicate head of departments as the most suitable candidates, this will depend on the local situation: the most important criteria is a technically competent and motivated person with an official mandate. A head of department may select another staff to represent the department. The recommended number of members is 12 to 15; however, this can be adjusted to allow adequate representation and at the same time keep the number manageable. Additional staff can be co-opted in case of specific issues, or included in sub-committees.

MTC members are required to sign a declaration of interest, to make sure they do not have any conflict of interest which could affect MTC work.

### Subcommittees

The MTC often works through subcommittees, which can be:

- Standing committees, meaning permanent. Recommended standing committees are:
  - Executive (chairperson, deputy and secretary)
  - Antimicrobial stewardship committee
  - Pharmacovigilance committee
  - Supply chain sub-committee
- Ad hoc committees, created to address specific issues for a period of time.

## 20.6. MTC position within the facility

MTC should be established at **all health care facilities** with the purpose of promoting the appropriate use of medicine and health supplies as part of the strategy aimed at ensuring that end-users receive maximum therapeutic benefits from medicines through scientifically sound and cost effective use by prescribers, dispensers and users. The MTC is part and parcel of the continuous quality improvement interventions taking place in the facilities, and is considered to be the “Work Improvement Team” for medicines and health supplies. The MTC works in collaboration with the other committees (e.g. infection control committee) to improve quality of health services.

## 20.7. Mode of operation of Medicines and Therapeutics Committees

There are 3 important principles underlying effective MTC work:

### 1. **Leadership:**

- a. Strong leadership to ensure that problems are addressed, and solutions are developed and implemented
- b. Making decisions, completing tasks assigned and following up at the subsequent meetings
- c. Effective management of meetings: appropriate minute taking and reporting, and follow-up on previous decisions, are key action points.

### 2. **Effective organization of work:**

- a. The MTC meeting is the forum scheduled to discuss issues in order to offer solutions
- b. Sub-committees established to allow division of work among members and make it manageable.
  - i. Identify and investigate issues
  - ii. prepare reports
  - iii. and design and implement intervention methods

### 3. **Communication:** Information sharing with health facility staff and management is paramount.

The MTC works in a much wider environment and many stakeholders are involved in the process of medicines management and use, and all of them need to be brought on board. Any action, decision, policy change, and even intervention plan should be shared with the rest of the health facility. The choice of communication modalities rest on the MTC itself: memos, general staff meetings, circulars through administration etc.

## **CHAPTER | 21 | PREVENTING ABUSE, MISUSE AND THEFT OF EMHS**

Medicines and Health Supplies are high value commodities with a continuous threat of theft, abuse, and misuse. The security of medicines must be ensured at all levels to prevent theft, abuse, and misuse.

### **21.1. Abuse**

Many medicines have the potential to become addictive and to be abused. These medicines contain psychoactive substances, defined as any substances which alter perception, behaviour, motor or cognitive functions. They are specified in Schedule 1 of the NDPA and include Opiates, Benzodiazepines and other psychotropic substances. Medicines abuse is an operant behaviour that is reinforced by the positive effects produced by drugs of abuse. Health workers therefore, have a responsibility to protect the population against the addictive properties of medicines.

#### **Storage of Classified Drugs**

The 7th schedule of the NDPA specifies the conditions for storage of classified drugs as including storage:

- Under lock and key.
- In a premise with access restricted to only authorised staff.

In case you interact with a suspect medicines addict: Section 29 of the NDPA requires all practitioners to neither prescribe nor dispense any medicine with risk of abuse to a person whom he or she knows or has reason to believe is addicted to any such drug, unless he or she is authorised in writing to do so by the Minister.

The same section requires that a record of all persons who are addicted to any drug specified in the First or Second Schedule is kept and submitted to the Minister every year.

Dispensing Medicines to a suspected medicines addict:

In these cases, you will have to:

- Counsel the patient and his/her relative
- Validate the prescription and dispense not more than a weekly supply at a time
- Refer the patient to a higher level of care for more specialized management

## 21.2. Misuse of Drugs

Situations under which medicines are misused include the following:

- Patients take medicines for a shorter time than prescribed and then give or sell the balance to others.
- Patients write their own prescriptions by requesting repeat treatment on their outpatient cards.
- Some people use their status within the community to make health facility staff feel obligated to supply them with medicines that they ask for.
- Health facility staff may pilfer medicines.

When medicines are used without supervision, they can be used incorrectly or to treat the wrong condition, which can lead to:

- The patient not being cured and the disease becoming more complicated and more difficult to treat. Improperly treated conditions, such as sexually transmitted infections, may lead to serious health complications (e.g., sterility or severe abdominal infections)
- Drug resistance
- Over or under dosing
- Loss of life

## 21.3. Theft of Drugs

Medicines are costly and hence prone to theft. The storage and dispensing areas should be locked and access limited to authorised personnel. Theft can occur when medicines or items are removed from a ward, dispensary, store room or treatment room without the necessary authority, either by a staff member or an external thief.

### How to Detect Theft

- Through identification of discrepancies found in the monthly physical count.
- Evidence of a forced entry or attempted entry into the storage area.
- Disorganization of the store, arising from a search.

### What to Do If Theft Is Discovered

Immediately a theft is suspected, the personnel in charge of the medicines store should:

Prepare and submit a report to the:

- a) Health facility In-Charge;
- b) Inspector of Drugs of the National Drug Authority; and
- c) Nearest police station;

Specify the product name, the ingredients and quantities of the drug or particulars of the products lost.

Report to the following help lines:

+256417788100 / +256417788124 / +25641788129

It is important to report theft to:

- Replace or recover the goods
- Justify the need for strengthening physical storage facilities
- Quantify the magnitude of the theft in a given period
- Influence decision making and policies regarding theft.

## 21.4. Wastage of Medicines

Avoiding waste results in substantial savings of stock and money. Below are some causes of wastage:

- Storing medicines poorly by exposing them to heat, light, and moisture.
- Letting medicines expire or not redistributing short-dated medicines; avoid this by keeping good stock control and filling in the stock cards.
- Giving too many medicines to one patient on one prescription (poly pharmacy).
- Prescribing without a proper diagnosis.
- Prescribing ineffective medicines for a given condition.
- Failing to advise a patient on proper application/administration of medicines.
- Not following the Uganda Clinical Guidelines.
- Allowing easy access to classified medicines.

### KEY POINTS

- Misuse and abuse of medicines leads not only to wasted resources, but may lead to addiction and negative social consequences such as increased antibiotic resistance.
- Health workers should put measures in place to prevent misuse by strictly following guidelines for storage and dispensing of medicines with high potential for misuse and abuse.
- Medicines are costly and hence prone to theft. The storage and dispensing areas should be locked and access limited to authorised personnel
- Proper tracking and accountability systems should be enforced to prevent and detect theft

