Management of Drugs at Health Centre Level

TRAINING MANUAL

WORLD HEALTH ORGANIZATION
Regional Office for Africa
Brazzaville

inside front cover

Management of Drugs at Health Centre Level

■

TRAINING MANUAL

Table of Contents

Management of Drugs at Health Centre Level

Foreword

During the Alma-Ata conference sponsored by United Nations Children's Fund (UNICEF) and World Health Organization (WHO) in September 1978, the availability and accessibility of essential drugs were reaffirmed as basic components of primary health care. The conference recommended that governments formulate and implement national drug policies in order to improve their national pharmaceutical sectors. A year later, the thirty-second World Health Assembly requested the Director-General to establish a special programme on essential drugs that would assist Member States to develop and implement national drug policies. This request led to the creation of the Drug Action Programme now called the Essential Drugs and Medicines Policy.

The Bamako Initiative launched by UNICEF and WHO in 1987 was a further step towards assisting countries in ensuring regular access to health services in general and to essential drugs in particular in a participative manner, especially at the community level. However, available drugs need to be well managed in order to meet public health needs. The drug management cycle (i.e. selection, procurement, distribution, use) with the appropriate management support services (i.e. organization, financing, information, human resources) and within an appropriate policy and legal framework contributes significantly to getting the maximum output of limited resources available for essential drugs.

Despite the availability of numerous tools for the management of drugs, none of these specifically targets the health centre level, particularly the health workers who have had no formal training in drug management. Thus the WHO Regional Office for Africa started to develop this manual in 1996. After several reviews of the original script by outside consultants as well as staff in the Division of Health Systems and Services Development in AFRO, the first draft was ready in July 1999. The manual was field-tested in three Member States: Malawi in October 1999, the Gambia in August 2000 and Lesotho in October 2000.

The WHO Regional Office for Africa is making this manual available to Member States and is ready to provide any assistance when requested in the use of this learning tool for the training of health workers at the country level.

Dr Ebrahim Malick Samba
WHO Regional Director for Africa
Brazzaville

April 2004

Acknowledgements

Gratitude is extended to the following authors of the manual:

> Mr Wynn Charles Chalira (Malawi), Dr Moses Chisale (WHO/AFRO), Dr Philip Emafo (Nigeria), Dr Rose Ngono Mballa (Cameroon), Professor David Ofori-Adjei (Ghana) and Professor Andriamanalina Nirina Razafindrakoto (Madagascar), Mrs Helen Tata (Cameroun).

Governments of the Republic of Malawi, The Gambia and the Kingdom of Lesotho are thanked for allowing field-testing of the manual, providing participants in the training programme and other assistance.

> **Malawi Participants:** Chima Samson, Kamtsitsi Prescort, Kamwendo Hastings, Kamwiyo Anthony, Menasi R.A., Mwanamanga H., Thindwa Milliam, Kwenje Evelyn, Kandapo M.P., Nyirenda Florence, Ng'oma M., Makunganya J.E., Mwakibinga G.L., Liyao Patricia and Chawirima Susan.

> **The Gambia Participants:** Bakary Jargo, Alhagie Sawaneh, Modou L. Camara, Modou Sowe, Samuel Bass, Anthony Mendy, George Bass, Bamba Janneh, Kebba Manneh, Ansumana Drammeh, M'binki Sanneh, Kebba Gibba, Momodou Darboe, Kebba Sonko and Jammeh Sillah.

> **The Kingdom of Lesotho Participants:** Lucia Tabai, Nthabiseng Anna Kopo, Mantho L. Matela, Mateboho G. Ntaote, Qents'o Sekoala, Limakatso Lechesa, Alice Masothoane, Mantahli Idlett Sello, Julia Mamolati Nonyane, Mpho M. Semoise and Berlina Mpolelo Ncamane.

To Mr Godfrey Kadewere (Malawi), Dr Mariatou Tala Jallow (The Gambia), Ms Markieu Janneh-Kaira (The Gambia) and Mrs Masoko Nts'ethe (The Kingdom of Lesotho) assisted with the field-testing exercises and are gratefully acknowledged. The staff of the WHO/AFRO Division of Health Systems and Services Development are thanked for their valuable comments and suggestions, particularly Dr Mahomed Belhocine for various written submissions.

The whole process was facilitated by Dr Moses Chisale, Regional Advisor for Pharmaceuticals in the WHO Regional Office for Africa.

Objectives

Chapter 1: Introduction

Participants should understand the policy basis that has led to the development of the manual: Alma-Ata, Essential Drug Concept, Bamako Initiative.

Chapter 2: Management of drugs

Participants should understand the importance of drug management and the main elements of the drug management cycle.

Chapter 3: Selection of drugs

Participants should understand the drug selection process and the reasons for the referential use of generic essential drugs.

Chapter 4: Drug procurement

Participants should understand the drug procurement process and be able to calculate the quantities to be ordered in a given situation.

Chapter 5: Drug distribution

Participants should understand the important elements of the drug distribution and storage process and to correctly apply the various forms used in a drug store.

Chapter 6: Use of drugs

Participants should be able to correctly read a prescription, package, label and dispense the required medication with the appropriate advice to the patient.

Chapter 7: Drug stock management support tools

Participants should become familiar with and correctly use various management support tools, as well as know and apply security measures for the drug store.

Introduction

At independence, most African countries operated policies of free health care for all. With the economic problems experienced in most African countries in the 1970s, this option was no longer feasible. With the introduction of the essential drug concept in the early 1970s and the publication of the first WHO model list of essential drugs, it became increasingly clear that the scarce financial resources needed to be cautiously used in order to contain the increasing drug costs and ensure sustained availability and accessibility of essential drugs. Such drugs are considered necessary and vital for the health needs of the population; they should be available at all times, in the proper dosage forms and at affordable costs.

Based on methodology used by the WHO, Member States have developed their own national essential drug lists which are supposed to be reviewed regularly in order to improve drug supply. In 1987 the Bamako Initiative was launched to involve communities in financing and managing their health care needs; the essential drug component became a core and prominent issue of this initiative. The drugs, delivery system and service delivery must be efficiently managed, supervised and monitored.

Despite the availability of numerous tools on the management of drugs, none of these specifically targets the health centre level, particularly the health workers employed at this level who have no formal training in drug management. This prompted the WHO Regional Office for Africa to start developing this manual in 1996.

A consultant prepared the preliminary draft and was later joined by five other consultants to complete and re-write certain sections of the manual. The first complete draft was then reviewed by the WHO/AFRO Division of Health Services and Systems Development. Following this review, the manual was field-tested for a period of one week in each of the following Member States: Malawi in October 1999, The Gambia in August 2000 and Lesotho in October 2000. The consultants who prepared the manual also acted as trainers in this exercise. Some members of local pharmaceutical departments in these countries also helped with the training.

The main purpose of the field-testing was to ascertain the suitability of the material for teaching drug management to health workers who are given the responsibility of managing drugs, particularly at the health centre or other similar level. Most of these health workers have had no formal training in drug management.

The field-testing involved conventional classroom teaching methodology. A group of health care personnel (15), mainly nurses and medical assistants working at the health centre, were the trainees at each site. The exercise lasted 5 days.

From the field-testing in the three countries, it was accepted that the manual is suitable for use in the training of people handling drugs at the health centre or equivalent (e.g. clinics, lower cadre attached to pharmacy depots and stores). The teaching should, however, be adapted to the background of the students and should last for 8–10 days. The teaching should also be relevant to the drug supply system operating in the individual country. If possible, local trainers should be used after an initial orientation period. A minimum of two and a maximum of three trainers per training session of 20 trainees are recommended.

The training should start by the administration of a pre-test and end with the administration of a post-test and a training session evaluation. An outline based on the various chapters of the manual should be prepared prior to the training. The training should include a one-day field visit to a health centre and any other higher-level health facility. Trainers and any additional local facilitators should have a pre-training meeting aimed at sharing the various chapters among themselves and discussing how to specifically handle the technical issues in the various chapters.

Annexes to this present manual include proposed pre-test and post-test questions, a training outline, evaluation form and a field visit checklist. These were used during the field-testing of the manual as well as during the first training sessions in Malawi and Lesotho in 2001, and in Gambia in 2002. These can be used in any training session, but appropriate changes need to be made for any specific local training needs. Comparative pre-test and post-test results from the field-testing exercises in Malawi, Gambia and Lesotho are also attached.

It should be noted, however, that while the pre-test and post-test include attitude questions, it is the opinion of the authors that the content of the manual is factual and the design of the training does not adequately cater for influencing or modifying the attitude of health workers towards patients in the exercise of health-care duties. While attempts should be made to emphasize the importance of a correct attitude towards the patient, it is felt that this should be dealt with during the supervision process, without excluding the possibility of organizing special training or briefing sessions on attitude.

Management of drugs

2.1   What is a drug?

A drug can be given three possible operational definitions:

- a chemical substance that affects the processes of the body or mind;
- any chemical compound used on or administered to humans or animals as an aid in the diagnosis, treatment or prevention of disease, or other abnormal condition, for the relief of pain or suffering, or to control or improve any physiologic or pathologic state;
- a substance used recreationally for its effects on the central nervous system.

Since the advent of the essential drug concept, essential drugs have been defined by WHO as those that are indispensable and necessary to satisfy the health care needs of the majority of the population. They should therefore be available and accessible at all times, in the appropriate dosage forms and at prices affordable to all. This definition does not in any way diminish the usefulness of any drug that may not be on any given essential drug list. It is a conscious attempt to utilize available resources on the most important drugs of benefit to the majority of the population while recognizing the competition in the public sector.

2.2   What is management?

Management is the act or art of being responsible or in charge and conducting or supervising something (e.g. a health centre pharmacy, business, public undertaking) with a degree of skill and address. It is the judicious use of means to accomplish an end (i.e. public health). Management can also refer to the collective body of those who are responsible for an entity (e.g. a health centre) or who exercise executive, administrative supervisory and regulatory control (e.g. board of governors, village health committee).

2.3   Why manage drugs?

Three reasons can be given to explain why drugs need to be managed properly. Firstly, drugs are part of the link between the patient and health services. Consequently, their availability or absence will contribute to the positive or negative impact on health. Secondly, poor drug management, particularly in the public sector of developing countries, is a critical issue, but major improvements are possible that can save money and improve access. Finally, drugs are no longer the responsibility of health workers only. Political, economic, financial and traditional considerations have become so crucial in health care that it has become imperative to look at drugs and health care from these perspectives.

All of these factors contribute to appropriate financial expenditure, avoid wastage, increase access and ensure that drugs are properly used. As is inherent within the Bamako Initiative, proper drug management may also be a source of revenue, which can be used to cater for other health care needs and in particular for disadvantaged populations.

Drug Management Cycle
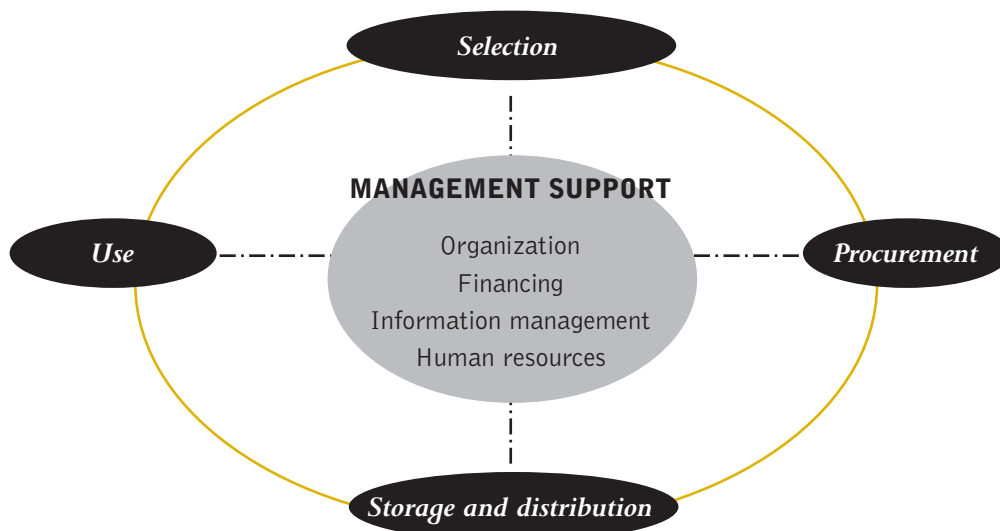
```
                      ╭─────────────╮
                      │  Selection  │
                      ╰─────────────╯
                            ┊
          ╭──────────╮  ┌─────────────────┐   ╭─────────────╮
          │   Use    │ ┄│ MANAGEMENT      │┄ │ Procurement │
          ╰──────────╯  │ SUPPORT         │   ╰─────────────╯
                        │                 │
                        │ Organization    │
                        │ Financing       │
                        │ Information      │
                        │ management      │
                        │ Human resources │
                        └─────────────────┘
                            ┊
                ╭───────────────────────╮
                │ Storage and distribution │
                ╰───────────────────────╯
```

Policy and Legal Framework

The *selection* of drugs for use at health centres is usually determined at the national level by the Ministry of Health and is based on a number of factors. After determination of the quantities required, based on price, delivery conditions and quality, the selected drugs go through a *procurement* process. After *storage* and *distribution*, the *use* of the drugs requires prescribing, packaging, dispensing and counselling. These tasks require qualified health workers or other relevant personnel with appropriate skills and attitudes. Management support tools are important for the acquisition of relevant skills in drug management.

2.4   *Drug management cycle*

Drug management functions are undertaken in four principal phases, which are interlinked and are reinforced by appropriate management support systems (i.e. tools). The following diagram (Diagram 1) illustrates the drug management cycle. From drug selection to drug use, passing through procurement, storage and distribution, a whole range of management capacities are required and necessitate using the appropriate tools within a given legal and policy framework.

Selection of drugs

Ministries of health normally determine the types of drugs and dosage forms that are selected for use in a country. Such selections ensure that available financial resources are used wisely provide a limited list of drugs and dosage forms that are appropriate to the health problems of a country or community. All levels of health care institutions are, thus, catered to:

- Primary,
- Secondary
- Tertiary.

3.1   Criteria for selection of drugs

Some criteria used in selecting drugs and their dosage forms, include the following:

- Keeping costs of drugs and dosage forms affordable and cost-effective so as to optimize the use of financial resources;
- Having drugs available for the treatment of most prevalent diseases, ailments, sicknesses and so forth at the levels of care provided;
- Availability of safe, effective and good-quality drugs.

3.2   Basis for drug selection

Drugs are selected using the WHO Essential Drugs List as a model. Choice is based on:

National health policy
- Free health care
- Subsidized health care
- Managed health care

National drug policy
- Free drug policy
- Subsidized cost of drugs or cost recovery
- Cost sharing

Patterns and prevalence of diseases
Quality and type of care provided
- Primary
- Secondary
- Tertiary

Available human resources
- ■ Medical care (general and specialist care)
- ■ Nursing care (nursing, midwifery, psychiatry)
- ■ Pharmaceutical care (pharmacists, pharmacy technicians, clinical nurses)
- ■ Financial resources.

International nonproprietary names (INNs), also known as generic names, are normally used in identifying selected drugs. However, the choice of drugs by generic names requires the existence of an effective Drug Regulatory Authority to ensure the availability of good-quality, safe, effective and affordable drugs.

Health centres usually have between ten and thirty drugs from the national essential drugs list. This small number of drugs makes procurement, storage and distribution easy. It also means that training prescribers and dispensers can be focused on a small number of drugs. This gives them experience with a smaller number of drugs and better recognition of adverse drug reactions. Patients' knowledge can be focused on the smaller number of drugs. This can improve adherence to instructions and reduce confusion.

3.3   Generic names

The drugs on the essential drugs list are referred to by their INN or generic names. The generic name is used in writing prescriptions as well as in purchasing drugs. The use of the generic name for these purposes has certain advantages:

- ■ There is easy recognition of the type of drug, especially where many selected drugs exist in that class (e.g. all benzodiazepines have INNs ending with "-zepam");
- ■ Drugs can be purchased from multiple sources, thus giving the advantage of buying at a competitive price;
- ■ Product substitution is easy where bio-availability presents a clinical problem;
- ■ The confusion associated with the use of brand names can be avoided.

Some people argue (without evidence) that generic drugs may be of poor quality. The quality of drugs and dosage forms available in a country is dependent on the regulatory measures implemented by the responsible authority. It is important to realize that quality control and naming of drugs are separate issues. Indeed, some manufacturers sell their brand-name products under a generic name at a lower price.

Examples of generic and brand names

Generic (INN)	Brand Names
Acetyl salicylic acid	Asprin®, Aspro®
Albendazole	Zentel®
Ampicillin	Penbritin®
Benzl benzoate	Ascabiol®
Benzylpenicillin	Megacillin®, Specillin®
Cimetidine	Tagamet®
Clotrimazole	Canesten®
Cloxacillin	Orbenin®
Cotrimoxazole (sulphametoxazole + trimethoprim)	Bactrim®, Septrim®
Dexamethasone	Dectancyl®, Dexone®
Diazepam	Valium®
Doxycycline	Doxigram®, Monocline®
Griseofulvin	Fulcine®
Ibuprofen	Brufen®
Promethazine	Phenergan®
Penytoin	Di-Hydan®, Dilantin®
Phenobarbital	Gardenal®
Propranolol	Inderal®Paracetamol
Panadol®Salbutamol	Ventolin®
Sulfadoxine + pyrimethamine	Fansidar®

Drug procurement

Procurement of drugs is based on selected drugs and dosage forms and available financial resources. Procedures adopted in procuring drugs include:

- Estimating quantity of each drug product required for a given period,
- Finding out the prices of the different drug dosage forms required,
- Allocating funds for each drug dosage form depending on:
  - Priority nature of the drug and dosage form,
  - Available finances.

Requisition for drug and dosage form is made after due consultation with prescribers.

4.1   Estimation of drug requirements

The estimate of the drug and dosage forms required for a given period is undertaken:
To avoid shortages (out of stock) and ensure credible health care service,
To prevent excess stock and avoid waste (loss or mismanagement of financial resources).

4.2   Determining drug types and quantities required

Factors that influence choice and quantity of drugs include:

- Population which the health institution serves,
- Disease pattern,
- Seasonal variation in disease pattern,
- Monthly (rate of) drug consumption,
- Knowledge of quantity of each dosage form that is regularly consumed,
- Delivery (lead) time,
- Time lag between placing orders and receiving the orders,
- Request indicator (re-order level):
- Quantity of drug product that serves as a signal for re-ordering.

The maximum quantity of drugs held in stock is determined by:

- Distance from the central health services area or regional medical store,
- Size of the health centre store,
- Number of clients (patients) visiting the health centre.

In this section, three factors—delivery (lead) time, monthly consumption and request indicator—are considered as the basis for calculating the appropriate quantity of a particular drug to be ordered.

4.3   Delivery (lead) time

It is important to establish how long it takes to have a drug delivered and receipted in the store so that the drug does not become out of stock. This period is called the *delivery* or *lead time*. Delivery time may be days, weeks or even months. Delivery time may be longer than two months because of the following reasons:

- Poor road conditions, particularly in the rainy season,
- Poor condition of delivery vehicles,
- Increased work load at the issuing store,
- Nonavailability of adequate resources at the central store,
- Consumption rate of drugs.

4.4   Monthly consumption

Monthly consumption may be collated with data obtained from:

- Bin (stock) cards,
- Daily use record, daily cash record,
- Drug register.

Normally, monthly consumption is obtained by:

- Calculating the average consumption over a period of time (e.g. six months)
- Or dividing the total consumption over the period by the number of months the drug dosage form was consumed.

Example 1:   Monthly consumption

The first method of calculating monthly consumption is to add the quantity of drugs in stock at the beginning of a period (e.g., six months) to the quantity of drugs received during that same period and then subtract the quantity of drugs remaining at the end of the period.

April 2000, quantity of paracetamol 1,000 x 500-mg tablet containers in stock = 14
June 2000, quantity of paracetamol 1,000 x 500-mg tablet containers received = 8
September 2000, quantity of paracetamol 1,000 x 500-mg tablet containers, remaining stock = 6
Therefore, total quantity of paracetamol 1,000 x 500-mg tablet containers consumed over a six-month period = 14 + 8 − 6 = 16.

Average monthly consumption $= 16/6$

Average monthly consumption to the nearest container $= 2\ 2/3$

Example 2: Monthly consumption

A second method of calculating the average monthly consumption is to obtain data on consumption from the bin card on a monthly basis and then find an average over a period of time.

April 2000	2 x 1,000 tablets
May 2000	4 x 1,000 tablets
June 2000	2 x 1,000 tablets
July 2000	2 x 1,000 tablets
August 2000	3 x 1,000 tablets
September 2000	3 x 1,000 tablets
	16 x 1,000 tablets

Average monthly consumption is $\dfrac{16 \times 1{,}000 \text{ tablets}}{6} = 2\ 2/3$ containers

Average monthly consumption of container to the nearest container $= 3$

Example 3: Monthly consumption

A third method of calculating average monthly consumption is to obtain data on actual consumption from the daily use record or daily use/cash record.

Data of monthly consumption of paracetamol 500-mg tablets over a six-month period.

April 2000	2,000 tablets
May 2000	3,100 tablets
June 2000	2,300 tablets
July 2000	2,100 tablets
August 2000	3,100 tablets
September 2000	3,200 tablets
Total six months	15,800 tablets
Average monthly consumption of tablet is	$\dfrac{15{,}800}{6} = 2633.3$ tablets

Each container has 1,000 tablets. Therefore the average monthly consumption of 1,000-tablet tin $= \dfrac{2633.3}{1000} = 2.6$ tins

Average monthly consumption of paracetamol 500-mg tablets to the nearest container $= 3$

4.5   Request indicator (re-order)

The request indicator (RI) is the level of drugs in stock; it indicates when fresh orders should be made. It is the quantity that is calculated to last between the period of placing the order and the delivery of the new consignment.

The RI is marked with pencil in the space "RI" on the top right-hand corner of the stock card. It should be updated at least twice a year because consumption may vary due to seasonal changes or epidemics.

This will ensure that no shortage of stock occurs before the next consignment is expected. The stock should not be allowed to fall below this level before a new order is placed. Each stock card must have an RI that is updated from time to time as consumption varies.
The stock should never reach "zero level" before a request is made, as there will be a shortage of stock for some time. It is easy to calculate the RI once the monthly consumption is obtained.

If the delivery time is three months and the monthly total consumption is 2633.3

RI is: 2633.3 tablets x 3 months $= 7,900$ tablets

Since the unit of issue is tins of 1,000 tablets, the above figure must be brought to the nearest tin, which is $\dfrac{7,900}{1000} = 7.90 =$ approximately 8 tins

This means that when the stock of paracetamol is reduced to 8 tins, a new request must be made.

4.6   Quantity to be requested

The type and quantity of drug to be ordered will depend on the disease pattern of the area served by the health centre, the quantity for each dosage form previously consumed, when drugs were not out of stock, the period for which the new stock is to serve and the number of patients. In determining the quantity to be requested:

- Consider the lead or delivery time.
- Consider the number of patients to be treated (using national treatment guidelines).
- Collaborate with the head of the health centre (prescriber) when making a new request. The prescriber is better placed to know for which item an extra quantity has to be requested because of epidemics or seasonal changes in disease pattern.
- Look through all the stock cards in a systematic manner and compare the RI with the current stock balances.
- Request only those items where the stock balance approaches the RI, equals the RI or is below the RI.

Examples:

(a.)   RI = 6 tins;   Balance: 8 tins (number of patients = 100)
(b.)   RI = 6 tins;   Balance: 6 tins (number of patients = 100)
(c.)   RI = 6 tins;   Balance: 0 tins (number of patients = 100)

In the above three situations, consider the existing lead time of three months and add one month as RESERVE for unforeseen circumstances such as delay in delivery, breakdown of delivery vehicle, stock rupture at the central store, bad roads, unforeseen epidemic and so on.

Examples:

(a.)   RI = -6 tins; current stock balance = 8 tins
       In this case the RI is above by 2 tins.
       Therefore, make the normal request less by 2 tins
       Request quantity = 2 tins x 3 months + 1 month consumption (2 tins)
       = (2 x 3) + 2 − 2
       = 6 tins
(b.)   RI = 6 tins;   current stock balance = 6 tins
       Average monthly consumption is 6 tins/3 = 2 tins
       The quantity to be ordered is:
       Average monthly consumption x Lead time + 1 month consumption for unforeseen events
       = (2 tins x 3 months) + 2 tins
       = 8 tins

(c.) RI = 6 tins; current stock balance = 0 tins

In this case an extra quantity must be requested to cover the RI.

Request quantity = 2 tins x 3 months + 1 month consumption (2 tins) +
RI (6 tins) quantity

= (2 x 3) + 2 + 6

= 14 tins

In each case above, if previous data show that the number of patients would increase (e.g. malaria cases due to seasonal variations), then the quantities should be increased proportionally.

If the number of patients is expected to double, then the quantity should be multiplied by 2.
If the number of patients is expected to drop by half, then the quantity should be multiplied by $\frac{1}{2}$.

4.7 Price of drugs

The prices of drugs are also determined at the national level. The factors to consider in determining price include:

- Purchase price,
- Shipping cost,
- Clearing and custom charges,
- Transportation charges,
- Markup to cover administrative and other costs.

In determining the price, a factor is also included to take care of inflation so that the revenue generated will not be eroded with time. This is important for the sustainability of the drug fund.

It is also important not to price drugs at the health centre below the national determined price. At the local level, the health committee may add another markup to cover local expenses.

4.8   Requisition, supply and receipt of drugs

4.8.1   Drug request

Drugs that are ordered for use in the health centre must be approved for use in the centre. Drugs in the health centre should be relevant to the pattern of endemic diseases as well as the type of services being provided in the health centre.

It is advisable to request drugs on a regular basis to prevent shortages. If drugs are not always available, patients may lose confidence in the health centre and will be discouraged from visiting it. It is important to make requests on a regular basis, as drugs will only be delivered when requested. The delivery time should be taken into consideration in ensuring that drugs are not in short supply.

Diagram 2

Importance of Requesting Regularly

Why does stock control work in some situations but not in others?

4.8.2   Completing stores requisition/delivery (issue) form

It is advisable to make a request on a standard stores requisition/delivery (issue) form (see Diagram 3). The stores requisition/delivery (issue) form should be produced in four copies. The original and two other copies of the form will be sent to the central store when completed. The fourth copy is kept in the dispensary to remind the health worker in charge of drugs or items requested.

Ensure that the following items are filled in correctly:

- Name of drug and dosage form;
- Unit of issue and quantity requested;
- The requisition number (it is preferable to begin with a new number each year, e.g. 1/00);
- The name of the dispensary and the date the requisition was made;
- The name and signature of the health worker making the requisition;
- Where the stores requisition/delivery (issue) form is designed to contain all the items listed, fill in only the quantities of those items needed;
- Write down the approximate unit price of each requested item and the approximate total cost of each item;
- Name and signature of the health worker making the requisition;
- The head of the health centre and a representative of the health committee should endorse the stores requisition/delivery (issue) form.

Diagram 3

Model Drug Stores Requisition/Delivery (Issue) Form

Request no. _____   Institution: _____

Name of health worker: _____   Date: _____

Delivery note: _____   Total number of packages: _____

Packed by (name): _____   Date _____

Checked by (name): _____   Date _____

Handed over by (name): _____   Date _____

Received by (name): _____   Date _____

For official use only

Item description	Unit of issue	Unit price	Quantity required	Total price	Quantity delivered	Total price	Signature	Remarks
1. Acetylsalicylic acid 500 mg tab	1,000 tab							
2. Magnesium trisilicate	100 tab							
3. Chloroquine 100 mg b	1,000 tab							
4. ORS sachets	50 sachets							
5. Procaine penicillin vial	1 vial							

To be completed in four copies.

■ Period for which supply is required, from _____ to _____

■ The dispenser should comment on excess or short supply in the remarks column.

Name and signature of dispenser at health centre: _____

Name and signature of member of health committee: _____

Name and signature of head of heath centre: _____

World Health Organization Regional Office for Africa

4.9   Supply of drugs from medical stores

4.9.1   Stores requisition/delivery (issue) form

A stores requisition/delivery (issue) form should accompany any supply made from the medical stores. Health centres normally receive their drug supplies from central, regional or health services area medical stores. In very rare cases they may obtain drugs from other sources.

- Supplies are issued on the basis of request made to the medical store by the health centre on an approved stores requisition/delivery (issue) form.
- The request should not be excessive and should preferably ask for quantities that can be used in between delivery times.
- The quantity of drugs requested is made in the appropriate column of the form and is sent to the medical store from which drugs are supplied.
- The request is made on the basis of approved delivery time, time frame or in emergency.
- The quantities of drugs delivered or issued from the medical stores should be entered in the appropriate column of the form.

The records of requisition and receipt of drugs from the medical store are kept in the health centre in an approved manner.

The delivery note from the central medical store should indicate what has been supplied as indicated in the stores requisition/delivery (issue) form.

4.9.2   Receipt of drugs at dispensary

- The consignment must come with two copies of the stores requisition/delivery (issue) form.
- Check that the quantity issued actually corresponds to the quantity indicated on the stores requisition/delivery (issue) form.
- Check off each drug after checking.
- Take note of the unit price of each drug and compare it to the previous unit price.
- Check that all original boxes, tins or bottles are unopened and are in good condition.
- Check the labels and ensure that there are no expired drugs being received.
- Any drugs already expired or soon to expire that cannot be consumed before expiration or drugs not in good condition should be returned for destruction or redistribution to other centres.
- Sign two copies of the stores requisition/delivery (issue) forms if the above procedure have been completed.

- Return one copy of the signed stores requisition/delivery (issue) form to the medical stores, and place another copy in the "drug order" file.
- Place drugs with shorter expiration dates in front of the shelf so that they can be reached and used first.
- Remember to record the new stock on the respective stock (bin) cards and appropriate forms.

4.9.3   Discrepancies when receiving drugs

Where there is a difference in the quantities of drugs issued and the quantities actually received, request the delivery team to give an immediate explanation and make the necessary correction on the stores requisition/delivery (issue) form. If there are broken bottles or leaking packages, hand these over to the delivery team along with an internal drug return (IDR) form.

Discrepancies should always be recorded in the Remarks column on the stores requisition/delivery (issue) form (Diagram 3).

4.9.4   Transfer voucher or internal drug return (IDR) form

The transfer voucher effects the movement of the following items to the medical store:

- Expiring drugs,
- Damaged or spoiled drugs,
- Drugs soon to expire,
- Excess stock resulting from wrong RI or low consumption.

The following rules should be kept in mind:

- It is important that drugs are not allowed to expire in the health centre because of changes in disease pattern or for any other reasons.
- Items that can be used elsewhere should be transferred immediately using an IDR form to the medical stores for subsequent redistribution (Diagram 4).
- Expired or spoiled items should be transferred immediately using the IDR form to the medical stores for destruction.
- Excess stock should normally be transferred at least 3 months before expiration to the medical store using the IDR form.
- An internal transfer directly from one dispensary to another without involving the central store is not permitted for accounting purposes.
- The IDR form should be filled in triplicate. The triplicate copy is retained in the health centre while the original and duplicate copies accompany the returned drugs.

Diagram 4

Example of Transfer Voucher or Internal Drug Return Form

Item description issue	Unit of issue	Expiry date	Quantity	Unit price	Amount	Remarks
Normal saline 500 ml	500 ml	9/04	10	800	8,000	*Leaking*
Aspirin 500 mg	1,000 tab	7/04	2,000	10	20,000	*Soon to expire*
Bipenicillin 1 MU	1 vial	4/04	2	180	360	*Broken*
Mebendazole 100 mg	1,000 tab	6/04	610	30	18,300	*Expired*
Chloroquine 100 mg	1,000 tab	1/04	3,000	10	30,000	*Over quanity*
ANC card	Piece	—	5	150	750	*Misprint*
Povidone iodine	100 ml	12/04	2	1,000	2,000	*Not supplied*
				TOTAL	**79,410**	

Delivered by: _____   Received by: _____

For medical stores use only
Voucher no. _____   2 copies returned to central store _____

This is the procedure for the transfer to the medical store of any of the following:

■ Expired items,
■ Damaged or spoiled items,
■ Drugs soon to expire,
■ Surplus quantities resulting from the wrong RI.

An internal transfer directly from one dispensary to another without including the central store should not be effected because this will create confusion in accounting. Diagram 5 illustrates an IDR flow.

Diagram 5

Return of Excess Stock

Central Medical Store

Store 1 — Expected IDR quantity

Store 2 — Drug can be used here before expiration
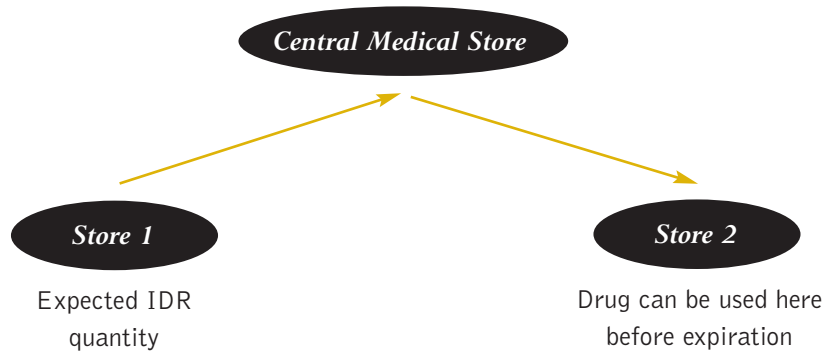
4.9.5 Procedure for supplying drugs to health centre store

Some health centres have lying in-wards and outpatient clinics to which drugs are supplied. The health centre store will supply the drugs in accordance with the following:

- A request is made from the ward/clinic in an approved manner.
- Supplies are made on the basis of the request, and quantities of drugs supplied are recorded in an approved manner.
- Entries of quantities of drugs supplied are made on bin cards as well as the drug register maintained (in the store) for drugs received and supplied.

Normally, drugs are supplied from the health centre (dispensary) store to the dispensing area. Entries of such entries are also made on bin cards or the drug register maintained in the store bin an approved manner.

4.9.6 Drug donations

Donated drugs should be screened and separated into expired or poor-quality drugs, those approved for use at the health centre and those not approved. Those approved for use at the health centre should be retained and entered into the stock. The rest must be sent to the central store with an IDR form.

4.10   Drug storage

4.10.1 Proper drug storage

Drugs are stored in a specially designed secure area or space of a building in order to:

■ Avoid contamination or deterioration,
■ Avoid disfiguration of labels,
■ Maintain integrity of packaging and so guarantee quality and potency of drugs during shelf life,
■ Prevent or reduce pilferage, theft or losses,
■ Prevent infestation of pests and vermin.

4.10.2 Storage Environment

The storage environment should possess the following:

■ Adequate temperature,
■ Sufficient lighting,
■ Clean conditions,
■ Humidity control,
■ Cold storage facilities,
■ Adequate shelving to ensure integrity of the stored drugs.

4.10.3 Arrangement of drugs on shelves

The following guidelines are for arranging drugs.

■ Shelves should be made of steel or treated wood.
■ Shelves should be strong and robust.
■ Drugs are arranged in alphabetical order of generic names.
■ Each dosage form of drug is arranged in separate and distinct areas.
■ Sufficient empty space should demarcate one drug or dosage form from another.

Most recently received drugs are placed behind old stock on the shelf except where new drugs have shorter expiration dates.

It is important to ensure the following rules in the dispensary and the store attached to the dispensary:

- Keep the environment clean.
- Always put lids properly on tins always and at the close of the day.
- Put drugs in a dry place protected from light and heat.
- Store liquids on a pallet on the floor or on the lowest shelf.

The store must be cleaned daily and mopped at least once a week.

4.10.4 The storeroom

A well-arranged store enables easy identification of drugs and saves time when picking a drug from the shelves. The following procedure will facilitate managing the drugs in the store. Put drugs on the shelves in alphabetical order corresponding to the essential drug list. This helps remove drugs quickly and makes for easy inventory control. The rule of FIRST IN FIRST OUT (FIFO) should be applied always. So, drugs that were received first should be used first, except where the new stock has shorter expiration dates than the old stock. In this regard, the principle of FIRST TO EXPIRE FIRST OUT (FEFO) should apply.

To have access to drugs with shorter expiration dates first, put these in front of the shelves. Those with longer expiration dates should be placed behind those with shorter dates.

4.10.5 The dispensary

Good arrangement facilitates dispensing work. Practise the following:

- Retain a daily drug use record in the dispensary.
- Provide a table for dispensing drugs.
- To facilitate work, do not overcrowd the dispensing table.
- Arrange documents in an orderly manner on the table, away from the dispensing area.
- Clean after each use tablet counters and place within easy reach on the table.
- Avoid dispensing wrong drugs by arranging drugs on the table in alphabetical order so that the drug being dispensed is not confused with another.
- Always close drug containers from which drugs are not being dispensed to prevent spillage or dispensing the wrong drug.

Drug distribution

At the health centre level, drug distribution concerns mainly dispensing drugs to patients. This requires an understanding of the patients (who may not speak or understand the language of the dispenser) and practical skills in dispensing and record-keeping. The other aspect of distribution of drugs at the health centre is the return of overstocked and nearly expired drugs to the medical store as discussed in Section 4.3.4.

5.1   Rational prescribing

Prescriptions should be written after a diagnosis or a health problem has been identified. The prescription will present the necessary drugs and measures sufficient to heal or improve the state of the patient. The prescription must then contain all the necessary information clearly written.

Known roman numerals usually written in prescriptions to represent dosage are:

i,   ii,   iii,   representing one, two and three.

It is better to state dosage in terms of strength (e.g. 500 mg) than number of tablets. This is because some drug products are available in different strengths (e.g. diazepam 5 mg and 10 mg).

Avoid the use of decimal points when stating the strength of a drug—500 mg is preferred to .5 gm and 250 micrograms is preferred to .25 mg. This is because if the decimal point does not appear clearly, a wrong strength of drug may be dispensed as 25 mg instead of .25 mg. If a decimal point is not avoidable, then precede it with a 0 such as 0.25.

Too many abbreviations, illegible writing or ambiguous instructions can lead to errors in dispensing. It is therefore recommended that prescriptions should be unambiguous and written legibly.

Example: **Rx**

Paracetamol 500 mg tabs ii tds x 3 days

The prescription is clear as it states:

- The dosage form of the paracetamol—tablets,
- The strength of the paracetamol tablets—500 mg per tablet,
- The number of days for which the paracetamol tablets have been prescribed,
- The number of times the tablets should be taken each day,
- The number of paracetamol tablets to be taken each time.

5.2   Content of a prescription

A prescription is a set of instructions written by a qualified prescriber to a dispenser for supply of drugs after counselling the patient on how to use the drug. It is very important that prescriptions are clearly written.

A prescription should have the following:

- Name of the patient and age (especially if a child),
- Date,
- Instructions about the prescribed drugs, including:
- Generic name and dosage form,
- Dose,
- Frequency of administration,
- Duration of treatment,
- Prescriber's signature and name.

5.3   Abbreviations commonly used in prescriptions

The following abbreviations are commonly used in prescriptions:

amp = ampoule	**od** = once a day
bid = twice daily	**prn** = when necessary
cap = capsule	**qid (qds)** = four times daily
g = gram	**Rx** = treatment
im = intramuscular	**sc** = subcutaneous
iv - intravenous	**stat** = at once
kg = kilogram	**supp** = suppository
mg = milligram	**tab** = tablet
mg/kg = milligram per kilogram	**tbsp** = tablespoonful (=10 ml)
body weight (a way of calculating a dose to be prescribed)	**tid/tds** = thrice daily
	tsp = teaspoonful (= 5 ml)
ml = millilitre	**wt** = weight
mu = million (mega) unit	
nocte = at bed time	

Duration of treatment is usually indicated by denominators: 7 = days, 12 = months and 52 = weeks. For example, 1/7 = one day, 2/12 = two months and 1/52 = one week.

5.4   Dispensing drugs to patients

5.4.1   Correct drug dispensing

Dispensed drugs should be appropriately labelled so that the patient can benefit optimally from the use of the drug. ***Expired drugs should not be dispensed.*** Correct dispensing ensures that:

- The right patient is served,
- A desired dosage form of the correct drug is given,
- The prescribed dosage and quantity are given,
- The right container that maintains the potency of the drugs is used,
- The container is appropriately labelled,
- Clear instructions are delivered verbally to the patient.

5.4.2   Dispensing procedure

- Ensure that the prescription has the name and signature of the prescriber and the stamp of the health centre.
- Ensure that the prescription is dated and has the name of the patient.
- If the prescription has not been written in a known (local) health centre, the prescriber of the centre should endorse it.
- Avoid dispensing without a prescription or from an unauthorized prescriber.
- Check the name of the prescribed drug against that of the container.
- Check the expiration date on the container.
- Calculate the total cost of the drug to be dispensed on the basis of the prescription where applicable.
- Inform the patient about the cost of the drug.
- Issue a receipt for all payments.
- Hand over the dispensed drug as in 5.4.1.

5.4.3   Dispensing prescriptions on part-payment

Where a patient does not have enough money to pay for all the drugs as prescribed, the dispenser is faced with a difficult situation. Consider the following scenario to resolve this situation:

(a.)   Cotrimoxazole 400/80 mg tab 2 bd x 5 days
(b.)   Chloroquine 150 mg tab 4 stat, then 2 tab bd x 2/7

- Either dispense all the 20 tablets of cotrimoxazole or the 10 tablets of chloroquine as prescribed and insist that the patient completes the dose dispensed.
- In case a patient is unable to pay for all the prescribed drugs, go to the prescriber and ask which of the two drugs should be dispensed first.

- Do not dispense a few tablets of cotrimoxazole and a few tablets of chloroquine as the patient will not come back to complete the prescription if he feels better.
- When the temporary relief passes, the cotrimoxazole or chloroquine may not be effective again in that particular condition.

5.4.4   Guiding principles in dispensing on cash basis

- Dispense drugs only on payment.
- Do not give free drugs to any person in the community, no matter what the person's social standing.
- Issue receipts for drugs sold.
- Display a price list of drugs for transparency and accountability, and to help patients cross-check.

5.5   Packaging of drugs for patients

All drugs should be put in suitable and appropriately labelled containers to ensure correct use and maintain potency and quality during the period of use.

5.5.1   Tablets and capsules

- Do not use fingers to count tablets as this can lead to contamination of drugs.
- Use a spoon to put tablets and capsules onto a counting tray.
- Count and put them in a labelled drug container or pack.
- Use a different labelled drug container or pack for each drug.
- Do not mix different drug items in one container.
- Close stock containers (e.g. tins, bottles) tightly after dispensing.
- Keep the spoon clean at all times.

5.5.2   Liquid preparations

- Provide appropriate bottles with caps for repackaging liquid preparations.
- Dispense liquid preparations in suitable containers.
- Do not use patients' own bottles.
- Dispense each drug in a different bottle.

5.5.3   Labeling

- Label all containers in which drugs are dispensed.
- Use pictorial labels when a patient is not literate.
- Where envelopes are used, label them before drugs are packed.
- For liquid preparations, label the container(s) after putting in the liquid preparation.

The label on the container of dispensed drugs should contain the following in order to promote patient compliance:

- Drug name (use generic name),
- Strength (usually in mg),
- Quantity dispensed,
- Clear instructions for use in a familiar language,
- Cautionary label (e.g. "Keep out of reach of children"),
- Name of the patient,
- Name of the health facility,
- Date of dispensing.

Diagram 6

Example of Labels

LABEL A

Label for tablets or capsules

LABEL B

Pictorial label

Label for liquid preparations

Use of drugs

6.1   Rational drug use

The rational use of drugs requires that the drug is prescribed for a particular patient after proper diagnosis of a health problem. Prescriptions should promote the rational use of drugs. Rational use of drugs requires that a particular patient with a specific health problem receives drugs according to the following:

- Appropriate dose,
- Appropriate dosage form,
- Appropriate route of administration,
- Appropriate frequency of administration,
- Appropriate duration of treatment,
- Appropriate information to the patient,
- Adequate follow up

6.2   Information to the patient

The health worker should be able to give the patient additional information to re-enforce the right instructions on the label. This should be in a language that is familiar to the patient. The information in the form of verbal instructions should including the following:

- How often to take the drug,
- When to take the drug (e.g. before or after the meals),
- How long the treatment is to last (e.g. why the entire course of an antibiotic treatment must be taken),
- How to take the drug (e.g. with water, chewing or swallowing),
- How to store the drug (e.g. avoid heat, light and dampness),
- Do not share drugs with other persons,
- Keep drugs out of the reach of children.

Communicating with a Patient at the Dispensary

Source: Managing Drug Supply. MSH/WHO, Kumanian 1997.

Drug stock management support tools

Record-keeping is an important part of drug management. Records are subject to auditing from time to time or when there is information of improper record-keeping or there has been a burglary, fire or flood. Mistakes on records should be neatly crossed out and signed for but not obliterated. Records should be completed in the dispensary on a daily basis, and not later than a week after the event. This will enable easier compilation of drug consumption and cash receipts. The following stock management records should be completed in the order described in the following sections.

7.1   Consumption records to be kept at the store

Maintain a stock (bin) card for each dosage form of drug in the store where drugs are kept. Stock (bin) cards are important for good accountability of stock movements. The cards should be made of stiff cardboard and be placed near the drug products that they refer to on the shelves. If one dosage form is available in two different strengths, open separate stock cards for each strength. Stock, bin or tally cards are very useful tools in the management of stores. Follow these procedures:

- Maintain a stock (bin) card for each drug or dosage form of a drug in the store where drugs are kept.
- Enter quantity of seed stock in the "in" and "balance" columns with date, price and supplier.
- Enter quantity of any new stock in the "in" column with date, price, supplier and delivery number.
- Enter balance of stock brought forward in "balance" column with date.
- Entries of receipt and issue of drugs are made after the event.
- Always have a balance of stock entered in the "balance" column with date.
- Always issue out full containers of drugs from the store and enter the quantity of drug issued in the "out" column.
- Physically check the actual balance of stock against current balance in stock card from time to time to detect any discrepancy.
- Keep spoons and measuring cups within reach for dispensing.

Keep separate stock (bin) cards for:

- Acetylsalicylic acid 300-mg tablets
- Acetylsalicylic acid 500-mg tablets.

7.2   Entries to be made in stock (bin) card

- When an item is received from the central store, enter the quantity received in the "IN" column on the stock card using a red pen.
- Add the number to the previous balance on the stock card to obtain the current balance.
- Enter the unit price.
- Enter the date and number of the delivery note of the central store in the column "Ref. No."
- It is preferable to take a full container of a drug from the shelf in the store to the dispensing area when the stock in the dispensing area is finished or almost finished.
- Each time a full container of a drug is taken from the shelf to the dispensing area, an entry of the number of containers taken out is made in the stock (bin) card using a blue or black pen in the "OUT" column.
- Subtract the number of containers taken out from the previous balance in the stock card to obtain the current balance.

Diagram 8

Example of Stock (bin) Card

Ako   Dispensary   Stock Card No.   1
ITEM: Paracetamol   Dosage   500 mg.   Unit of Issue   1,000 Tablets   RI89 x 1,000

Date (1997)	Ref. No.	From/To	Quantity In	Quantity Out	Balance Price	Cost	Remarks	Signature
30/5		B/F				3		
5/6	51/97	From central store	7			10		
5/6		To central store			1	9	2,000	IDR Exp 8/97
6/6		To dispensary store			1	8	2,000	
20/6		To dispensary store			1	7	2,000	
4/7		To dispensary store			1	6	2,000	
18/7		To dispensary store			1	5	2,000	
4/8		To dispensary store			1	4	2,000	
25/8		To dispensary store			1	3	2,000	
1/9		Stock taking				3		Annual

Where RI represents the re-order level, the lowest stock level before an order is placed for the next stock.

7.3   Consumption records at the dispensary level

There is a need to maintain a record on consumption of drugs at the dispensary through the use of a daily use record book.

- The daily use record book is used to make entries of all drugs dispensed on a daily basis.
- Maintain a daily use record in the daily use record book in the format shown in Diagram 9.
- Use a fresh page for making entries for each drug dosage form.
- Reserve a page or two for every month's consumption of drugs.
- Make entries from actual receipts issued.
- When a drug item is taken out of the dispensary store, an entry is made in the "OUT" column in the stock (bin) card in the store. An entry is also made in the "IN" column, with red pen, in the daily use record in the dispensing area as well as the date the entry was made.
- Add the quantity of drugs taken from the store to the dispensary to the previous balance in the daily use record to obtain current balance.
- Enter the dispensing date and the total quantity of dosage form dispensed daily in the "OUT" column.
- Subtract the quantity dispensed or used daily from the balance to obtain current balance.
- Enter any shortage in the "OUT" column and necessary remarks in the "REMARKS" column.

7.4   Discrepancies

Discrepancies should always be recorded in the "REMARKS" column (as in Diagram 9). Discrepancies may arise for one of the following reasons:

- Some of the tablets may have been crushed into powder or broken,
- A shortage may result from a mistake by the manufacturer,
- A shortage may occur in the containers when tablets issued are not recorded in the daily use record sheet,
- Arithmetic errors may result in shortages or excess stock.

Considering the case of acetylsalicylic acid tablets in Diagram 9, only proper record-keeping on a daily basis can give early warning of a possible shortage.

Example: **The daily use record on 19/6 indicates that there is a balance of 42 tablets of acetylsalicylic acid.**

Actual balance is only 22 tablets.
There is therefore a shortage of 20 tablets.

If some powder or broken tablets are found in the container from which drugs were dispensed, the powder or broken tablets may account for the 20 tablets shortage in the daily use record book.

If there is nothing remaining in the container and entries were made of all drugs dispensed in the daily use record book, then it could be concluded that the shortage came from the manufacturer during packaging. Keep all available evidence and report to the medical store as soon as possible. The medical store may receive similar reports from other health centres and can then estimate the average shortage per container for that particular drug item and credit your account.

This irregularity may also be reported by the medical store to the suppliers for compensation, where possible. This exercise can only be accurately done with proper documentation in the daily use record book.

This exercise will explain shortages declared at the end of the financial year when an audit is carried out.

Diagram 9

Example of Daily Use Record

Acetylsalicylic acid tablets 3,000 mg

Date (1997)	From/To	Quantity		Balance (Tabs)	Remarks
		In	Out		
2/6	B/F			20	
3/6	From dispensary store	1,000		1,020	
4/6	To patients		60	960	
5/6	To patients		48	912	
6/6	To patients		84	828	
9/6	To patients		60	768	
10/6	To patients		84	684	
11/6	To patients		84	600	
12/6	To patients		120	480	
13/6	To patients		48	432	
16/6	To patients		150	282	
17/6	To patients		84	198	
18/6	To patients		60	138	
19/6	To patients		96	42	
20/6	Shortage		20	22	20 Crumbled tablets
23/6	From store	1,000		1,022	
23/6	To patients		120	902	
24/6		"		150	752
25/6		"		180	572
26/6		"		160	412
27/6		"		180	232
30/6	From store	1,000		1,232	
30/6	To patients		240	992	
	Monthly consumption for June 1997		2008		Two tins used for the month

7.5   Receipts for drugs dispensed

■ When payments are made for the drugs dispensed, it is advisable that the fees for the dispensed drugs are collected and receipts issued before the drug is given to the patient.
■ Every dispensary should have a receipt book in duplicate form.
■ Every patient should be issued a receipt for drugs purchased (see Diagram 10 for example).
■ Use carbon paper to produce a duplicate copy.
■ Stamp the original receipt with "PAID" on receipt of cash payment for the dispensed drugs.
■ Give the original receipt to the patient and retain the duplicate in the receipt booklet.

Diagram 10

Example of Receipt
Receipt for drugs

No. 00012

Dispensary _____

Name _____

Date _____

Name of drug	Qty sold	Unit Price	Amount
Chloroquine	10	3,000	30,000
Aspirin	10	2,000	20,000
Seller		Total	50,000

7.6   Daily use/cash record

The daily use/cash record has to be filled on a daily basis and in particular when payments are made for dispensed drugs. The following data could be transferred from the duplicate copies of the receipt book to the daily use/cash record sheet (Diagram 11) when the last patient (client) for the day has been served:

- Date,
- Name of patient,
- Receipt number,
- Quantity of each drug dispensed,
- Money collected from the patient.

Draw a line under the last entry for the day in your daily use/cash record sheet using a red pen. The quantity of drugs is expressed as number of tablets (for tablets) or volume in ml. (for liquids) dispensed. Add up the quantities of each drug dispensed and cash collected to give the details of daily transactions.

Diagram 11

Daily Use/Cash Record Book

Daily Use Cash

Pharmacy _____

CHW _____

Date	Patient's name	Rec. No.	Item												Daily cash received	Signature

7.7 *Financial record book*

The total daily cash from the column "CASH RECEIVED" of a daily use/cash record should be transferred to the financial record book (FRB) and the new balance calculated in the FRB as shown in Diagram 12.

Diagram 12

Example of Financial Record Book

| Date	Cash collected	Cash paid out	Balance	Remarks
8/7/00	B/F		210,000	
9/7/00	15,100		225,000	
10/7/00	5,060		230,160	
11/7/00	6,960		237,120	
12/7/00	9,860	20,000*	46,980	*Paid to CMS
15/7/00	11,340		58,320	
16/7/00	17,100		75,420	
17/7/00	6,705		82,125	
18/7/00	980		83,106	
19/7/00	7,565		90,670	
22/7/00	12,420		103,090	
		Cash in hand =	**103,090**	

Audited on 23/7/00 by _____
Chairman of _____ *health committee.*

7.8   Summary of daily data flow

A summary of daily data is given in Diagram 13.

Dispensary Data Flow

Daily Dispensary Data Flow

Daily Use/Cash Book

Daily Use Record

Financial
Record Book
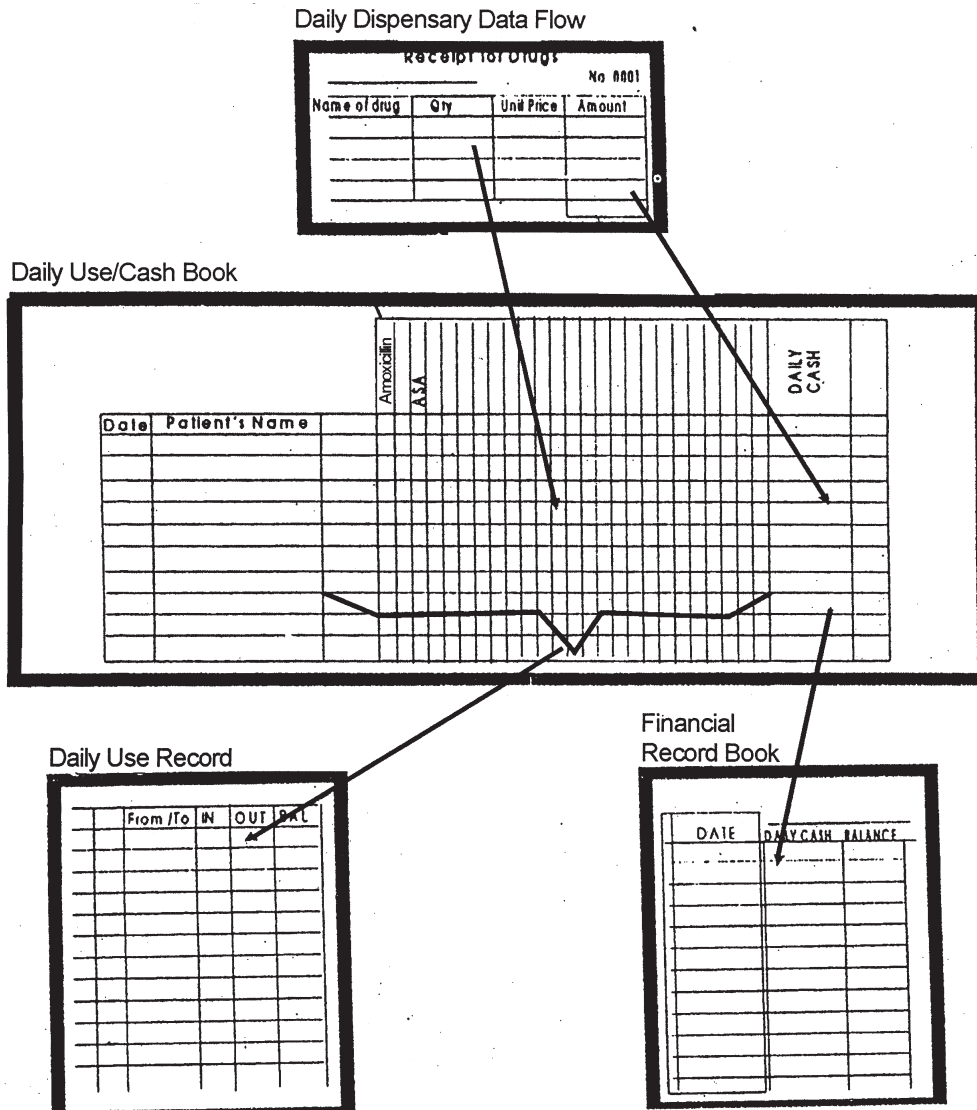
7.9   Custody of cash

Commercial banks usually do not have branches in most villages where health centres are located. It is, therefore, important to adopt convenient methods for securing all cash and always having money available for the replenishment of drugs.

The following procedures can be helpful in the handling of cash:

- A locally-made durable safe cash should be provided and buried in the floor in such a way that it cannot easily be located by other people. This safe should be used in such a way that once money has been deposited, it can only be taken out in the presence of a member of the health committee or supervisory team who has one of the keys.
- Purchase money orders with cash collected. Address such money orders to the medical store, if possible, and keep in the safe for making payment to the medical store during the next supply.
- Take money along for making payments for supplies whenever a trip is made to the medical store.
- The delivery team could collect cash for supplies made to the health centre when delivering supplies.
- *Only person from the central store team should collect money from the health centre!*
- Any amount that is not paid out (balance) is carried forward and used to pay during the next visit to the medical store.
- A receipt, such as that in Diagram 14, could be used to document the collection and payment of cash in the FRB.

Diagram 14

Model Receipt for Payments to Medical Store

Turnover (From _____ to _____) _____

Paid to central store _____

Balance _____

Name/Signature of payer _____

Name/Signature of receiver _____

Date _____

7.10   Current capital situation card (CCSC)

The current capital situation card (CCSC) is an important source of financial information for the dispensary, supervisory team and members of the health committee. It should be possible to give, at any time, a report on the finances of the dispensary using the CCS card. This means that all financial transactions in the health centre dispensary are documented.

This document is used to follow up the value of stock and cash in the dispensary at any time. When a drug consignment is received, the cash value of stock at the dispensary increases. When an internal drug return is made, it reduces the dispensary's value of stock. At any time, the value of stock/cash should be equivalent to the figure on the CCSC.

The following transactions are recorded on the CCSC as shown in Diagram 15:

- When drugs are received, their total value is entered in the column "SUPPLY" and this is added to the previous balance.
- Cash paid to the medical store should be entered in the column "CASH PAID" and subtracted from the previous balance.
- All internal drug returns should also be expressed in cash and entered in the column "IDR" wit a red pen and subtracted from the previous balance. Note "IDR" under "REMARKS" (Diagram 15).
- Any price revision is entered in the column "SUPPLY" and added to or subtracted from the previous balance depending on whether the revision has resulted in an increase or decrease in the value of stock. Note "Price Revision" under "REMARKS" (Diagram 15).
- Whenever there is an inventory-taking exercise, enter the value of stock taking in the column "BALANCE". The balance represents the amount of cash in hand and the drugs not dispensed (in stock) reflected as cash.

Diagram 15

Current Capital Situation Card

Card No. *1*

Name of Dispensary: *Gazawa*

Date	Supply	IDR	Cash	Balance Paid	Remarks
8/1/97	2,000,000			2,000,000	1st supply
8/97					
2/4/97			520,000	1,480,000	
2/4/97	604,000			2,084,00	Supply
2/4/97		186,045		1,897,955	IDR (00142)
2/4/97	89,250			1,987,205	Price revision
1/96					
28/6/97			60,000	1,387,205	
28/6/97	721,100			2,108,305	Supply
28/6/97				2,108,305	Stock Taking
26/9/97	820,045			2,928,250	Supply
26/9/97			705,835	2,222,515	

7.11   Monthly return form

The monthly return form is used at the end of each month to collect data for the medical store. This data will help the medical store to assess monthly consumption in the health centre and determine the future purchases at the health centre. This financial progress of the dispensary in relation to attendance at the health centre can also be assessed with the data. The information on the monthly return form (Diagram 16) is:

- Cash collected for the month (as in the FRB),
- Total number of patients that attended the health centre. Information provided by the head of the health centre,
- Quantities of each drug dispensed for the month (refer to daily use record or the daily use/cash record sheet.

Diagram 16

Example of Dispensary Monthly Return Form

Dispensary: _____ Month and Year: _____

Monthly turnover (in local currency): _____ (Refer to FRB)

Health centre attendance for month: _____

Items sold during the month	Quantity
Acetylsalicylic acid 500 mg tab	_____
Acetyl salicylic acid 250 mg tab	_____
Benzyl benzoate 25% lotion	_____
Chloroquine 100 mg tablet	_____
Diethyl carbamazine 100 mg tablet	_____
Folic acid 5 mg tablet	_____

Name of health worker:_____

Signature of health worker: _____

Date:_____

7.12   Inventory form

The inventory form (Diagram 17) is used at the end of each financial year or at any time it becomes necessary to undertake an inventory exercise in the dispensary. Both shortages and excesses can be found in the exercise. In either situation, a thorough investigation needs to be done (e.g. reviewing all additions and subtractions in the inventory sheets). It is advisable to carry out an inventory exercise at six-monthly intervals (or even quarterly) in order to identify any problems early enough rather than waiting for the end of the year.

A representative of both the medical store and the health committee should participate in the inventory exercise. The following activities should be carried out during the inventory:

- Any cash in hand should be counted first and included in the inventory figures.
- Any supply made before the inventory must be counted with the other items.
- Count all drugs in the store and dispensing area and record the numbers. Use a tablet counter to prevent contamination.

- Do not open full tins and packages to count the contents.
- Verify all full tins and packages to make sure that their contents are intact.
- Calculate the total value of stock by adding the values of all items.
- Compare this number with the current balance in the CCSC. The two should correspond if there has been efficient management of stock and cash during the period being audited.
- These figures will be used by an external auditor to prepare a balance sheet for the dispensary.
- The health worker should pay for any deficits established at the end of the audit.
- Profits declared in the audit report should be put back into the health system.

Diagram 17

Example of Inventory Form

Place: _____ Date: _____

Item	Quantity	Unit Price	Total Cost
Acetylsalicylic acid 500 mg tablet	_____	30	_____
Cotrimoxazole 400/800 mg tablet	_____	800	_____
Benzyl benzoate 25% lotion B/100 ml	_____	500	_____
Chloroquine 150 mg tablet	_____	10	_____
Mebendazole 100 mg tablet	_____	10	_____
Folic acid 5 mg tablet	_____	5	_____
Total:	_____		_____

Cash in hand: _____

Total capital: _____

Amount on CCSC: _____

Deficit/Surplus amount: _____

Name/Signature of health worker: _____

Name/Signature of head of centre: _____

Name/Signature of health committee representative: _____

Name/Signature of person taking over Dispensary, where applicable): _____

7.13   Storage of documents

For easy reference, documents should be numbered and put into different files. Various colours of files may be used for easy reference. The following documents should be put into different files:

- Daily use/cash record,
- Financial documents (e.g. IDR),
- Requisition/delivery form,
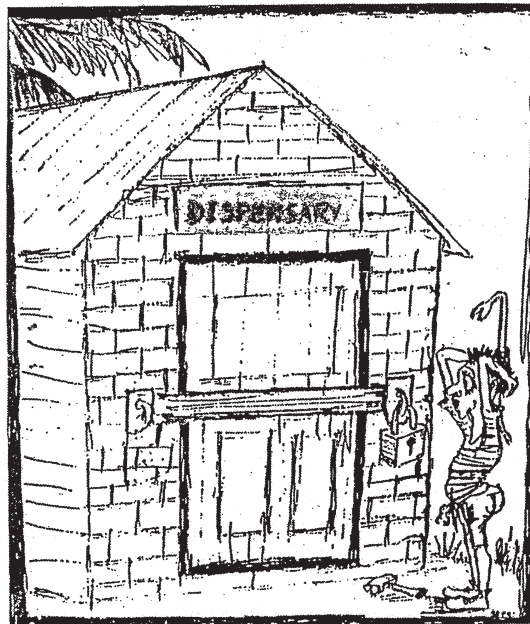- General correspondence,
- Miscellaneous.

Keep all used documents (e.g. receipt booklets, FRB, stock cards, CCSC) in safe custody for at least five years before they are thrown away.

7.14   Security measures in the dispensary

Necessary security measures in the dispensary must be implemented in order to avoid theft.

Diagram 18

Security Measures

7.14.1 Doors, windows, roofs and ceilings

Install an inner wooden door shutter and an outer metallic door shutter as shown in Diagram 18. All locks on the door should be functioning well. Ensure that all the doors are closed and locked at the end of each day.

There should be one window in the dispensary to provide light for serving patients. The window should have strong burglar bars and a metallic shutter.

The roof and ceiling of the building should be made of materials that will prevent any illegal entry into the dispensary.

7.14.2 Safe and keys

A solid safe locally made to reduce cost should be installed in the dispensary for deposit of cash from daily sales. The safe should be buried in the floor in the dispensary in an area not accessible to other people.

Keys should be kept by the individual responsible for the dispensary at all times. In the absence of the dispenser, the head of the health centre should make alternative arrangements for safe custody of the keys.

7.14.3 Watchman

An honest watchman should be employed to keep watch over the health centre and dispensary on a regular basis.

7.15 Handing over the dispensary

The dispenser may have to be away for one of the following reasons:

- Annual leave,
- Maternity leave,
- Sick leave.

The chairman of the health committee and the head of the health centre should make arrangements for temporary staff to serve in the dispensary during the absence of regular staff. Use the inventory form (Diagram 17) to establish the current stock with the person taking over. The outgoing and incoming staff should sign the inventory, and the health committee representative and head of the health centre should endorse it. Cash should be personally handed to the person tak-

ing over. Do not take any money away. Send a copy of the "handing over" note to the head of the health centre. Upon return from leave, the regular dispenser should follow the same procedure in taking over. In an emergency, the head of the health centre should arrange adequate coverage of the dispensary for the period of the emergency.

7.16   What to do in case of burglary

If there is any burglary in the dispensary, follow this procedure:

- Do not go into the dispensary, and do not make any sale.
- Write and inform the head of the health centre and the chairman of the health committee.
- Follow up so that the head of the health centre reports immediately to the police.
- An inventory of the dispensary similar to Diagram 17 should be done in the presence of the police or any other person designated by the head of the health centre.
- Compare the inventory stock with the stock on the bin (stock) cards or daily use/cash record so as to assess the quantities of drugs stolen.
- A copy of the report of inventory should be sent to the head of the health centre and to the medical store.
- The health committee should immediately reinstate the necessary security measures to prevent further burglary.
- Start sales only after the head of the health centre and the health committee so authorize.

7.17   Supervision/inspection

7.17.1 Role of supervision/inspection

Two teams should be involved in conducting inspection of the dispensary. The first is the team from the appropriate authority. A pharmacist should be a member of this team. The second team is represented by some members of the health committee.

Among other duties, the team should do the following:

- Ensure that drugs are properly arranged on shelves in the dispensary.
- Check that security measures are in place.
- Collect a few names with dates at random from receipt books, cross-check with the health centre consultation register and verify if those patients were actually consulted before coming to the dispensary.
- Recalculate at random the figures in the FRB to ensure that they are correct.
- In consultation with the health committee, make payments following laid down criteria.
- Decide with the health committee who will be responsible for deficits and surpluses.

- Make advance payment of salary to the health committee who will later pay the health worker on a monthly basis.
- Pay incentives where approved.
- Recommend to the health committee further work to be done in the dispensary.
- Give on-the-job training so that records are always kept up-to-date.
- Establish a report on-the-spot on observations and leave a copy in the health centre.
- Confirms the availability of all approved drugs on the list.

7.17.2 Role of health committee

The health committee should be mobilized to realise the following in proper functioning of the dispensary:

- Go through previous inspection reports made by the appropriate authority and note any action to be taken.
- Check the general cleanliness of the dispensary.
- Compare monthly turnover at the dispensary in relation to the number of patients that were seen at the health centre.
- Confirm the availability of all approved drugs on the list in the dispensary.

The committee has to meet on a regular basis with the head of the health centre to plan activities for the health centre and dispensary and prepare strategies for the implementation of planned activities. The health committee should be mobilized to do the following:

- Oversee necessary security measures in the dispensary as described in Section 7.14.
- Provide adequate furniture for the centre.
- Procure shelves for the drugs.
- Use an appropriate method to select a candidate to work in the dispensary.
- Follow up training of selected candidates at the medical store.
- Engage the trained candidate on contract.
- Inspect financial documents and detect any deficits early enough.
- Check that all administrative records in the dispensary are up-to-date.
- Ensure maintenance, cleanliness and proper-set up of the dispensary.
- Participate in handing over the dispensary in case of any absence.
- Sensitize the population on the advantages of the use of the dispensary.
- Assist in receiving drugs for the health centre, when necessary.
- Assist in all inventory taking.
- Employ a watchman for the dispensary and health centre.

Definitions

Active Ingredient—That portion of a drug dosage form that has therapeutic properties.

Basic Unit—The smallest unit in which a drug can be conveniently dispensed or administered.

Brand or Trade Name—This is a name given to a drug product by its manufacturer. Only the company that has the trade name for this product manufactures it or has it manufactured under license.

Branded Generic—Generic drug product marketed under brand name.

Central Store—A store within a health care delivery system charged with the storage and distribution of drugs.

Community Health Worker—A trained health worker designated to work within the community and offering curative, preventive and promotive health services.

Current Capital Situation Card (CCSC)—A card showing the financial situation of a dispensary of any given time.

Delivery (Lead) Time—The time between which an order for new stock is placed and the time it is received.

Dispensary—An area suitably designed for the preparation and distribution of drugs to the patients.

Dispensary Store—A store for keeping stock of drugs within the dispensary area.

Dispense—To prepare and supply to a patient a course of therapy on the basis of a prescription.

Dispenser—A general term for anyone who dispenses drugs. It is specifically used to mean anyone who is not a graduate pharmacist but is trained to dispense medications, maintain stock records and assist in procurement activities.

Dispensing—The preparation and distribution of a course of therapy to a patient, with appropriate instructions, based on a prescription.

Dosage Form—The form of a finished drug product (e.g. tablets, capsule, elixir, suppository).

Drug Potency—The extent to which a drug product contains the specified amount of active ingredient.

Drug Product—A unique combination of drug(s), strength and dosage form (e.g., paracetamol 500 mg tab) in which a drug is administered.

Drug Product Strength—This is the quantity of active ingredient(s) of a drug(s) in a dosage form.

Drug Use—The process of diagnosing, prescribing, labeling, packaging and dispensing to ensure adherence of the patient to the given drug treatment.

Expiration Date—The expiration date indicates the date after which the manufacturer can no longer guarantee the stability, safety and potency of a drug.

FEFO—A system of stock movement based on First to Expire First Out.

FIFO—A system of stock movement based on First In First Out.

Generic Name—A generic name is the unique INN given to the active ingredient(s) of a drug and is recognized worldwide.

Generic Product—A generic product is a drug that is manufactured by an authorized manufacturer under nonproprietary or approved names. A generic product may be marketed under its generic name or brand name.

Health Centre—The lowest level of public health care establishment to which qualified health workers are deployed.

Health Committee—The committee selected from ordinary citizens in the community to oversee the proper running of health facilities within the community, including the managing of drug supplies.

Inventory—The sum of all items held in stock at any time.

International Nonproprietary Name (INN)—Internationally recognized name for a chemical entity.

Labeling—Placing written or symbolic instructions on the immediate container in which drugs are dispensed.

Prescriber—A qualified health worker authorized to write prescriptions.

Prescribing—The act of determining what medication the patient should have and the correct dosage and duration of treatment.

Prescription—A set of instructions written by a qualified or authorized prescriber to a dispenser for supply of drugs and provision of information to the patient.

Procurement—The process of acquiring supplies, including those obtained by purchase, donation and manufacture.

Rational Drug Use—The rational use of drugs implies the selection of an appropriate drug for the correct patient; given in the correct dose, dosage form, route, frequency and duration. The patient must also receive appropriate instructions on how to use the drugs.

RI—Stands for request indicator, the lowest stock level of a drug product before an order is placed for new stock.

Revolving Drug Fund—A drug sales programme in which revenues from drug fees are used to replenish drug supplies.

Shelf Life—The length of time a drug may be stored without affecting its usability, safety, purity or potency.

Stock (Bin) Card—A card that records receipts, issues and balances of items held in a store. The bin card is kept in the store with the physical stock.

Unit of Issue of Drug from the Dispensary—At the dispensary, the unit of issue is a tablet, capsule, bottle or vial because only a few of those are dispensed to a patient.

Unit of Issue of Drug from the Store—The unit of issue for a request from the store is usually full of tins, packets or boxes of say 1,000 tablets or 100 vials, as the case may be.

User Fees—Charges paid by the user for a service.

References

Meinolf Kuper and Helen Tata. Bamenda, Cameroun. (1989). *Guidelines for Managing a Pharmacy* (unpublished).

Management Sciences for Health and World Health Organization. (1997). *Managing Drug Supply*. Boston.

World Health Organization, 1990 *Management of Drugs at Health Centres*. WHO/DAP/90.10. Geneva: WHO.

Annexes

ANNEX 1

Pre-Test

Course on the Management of Drugs at Health Centre Level

Please answer all questions.
Read instructions at the beginning of each section carefully.

Participant's Name: _____

Participant's Profession: _____
(eg, Registered Nurse, Enrolled Nurse, Medical Assistant, Clinical Officer, Other.)

Participant's Station: _____

Time Allowed: 1 Hour

Section A

Put a check (✔) against the correct answer for each question.

1. The Bamako Initiative is:
    a) A strategy that seeks the involvement of local communities in financing and managing their health care needs.
    b) A procedure for managing health care needs.
    c) A decision taken by the United Nations.
    d) A drug supply system.

2. Drugs must be properly managed because:
    a) They are expensive.
    b) Availability must be guaranteed.
    c) Waste must be minimized.
    d) They must be used within a certain period.

3. An expiration date indicates:
    a) The date on which the drug was manufactured.
    b) The date that one may not use the drug again.
    c) The period when the manufacture can no longer guarantee the quality, safety and potency of a drug.
    d) The date before which drugs become ineffective.

4. FIFO means:
    a) First in first out.
    b) First invoiced first out.
    c) Free items first out.
    d) Fill in forms only.

5. Bin cards are:
    a) The same as stock cards.
    b) Tools for the monitoring of stock movements.
    c) Usually on stiff cardboard paper.
    d) Kept in a filing cabinet.

6. The following entries should be made on the bin card:
    a) The name of the patient.
    b) The quantity of drug received.
    c) The quantity of drug requested.
    d) The quantity of drug issued.

7. Internal drug return is the:
    a) Internal return of drugs to the patient.
    b) Internal return of drugs to another pharmacy.
    c) Return of drugs to the central store in case of expiration, damage or spoiled items.
    d) Return of surplus items only.

8. A prescription should include the following:
    a) The name of the prescriber.
    b) The name of the health unit.
    c) The signature of the prescriber.
    d) The name of the patient.

9. When tablets/capsules are being dispensed for a patient:
    a) Put all tablets/capsules in one envelope.
    b) Use clean fingers.
    c) Use a clean spatula.
    d) Put each type of tablet/capsule in separate envelopes.

10. When liquid medicines are being dispensed for a patient:
    a) Mix all liquids in one bottle.
    b) Pour each liquid medicine in a separate bottle.
    c) Use clean bottles.
    d) The bottle you use does not matter.

11. Labels must be made on:
    a) All envelopes before the tablets are packed in.
    b) All bottles before liquids are put in.
    c) All envelopes after tablets are put in.
    d) None of the above.

12. A properly labeled container should have the following:
    a) Name of the patient.
    b) Name of the drug.
    c) The strength and dose to be taken.
    d) All of the above.

13. Instructions to the patient on the use of the medicine should be given:
    a) In English.
    b) In the language understood by the patient.
    c) If it is at all necessary.
    d) Until the patient understands.

Section B

Put a check (✔) against the answer which does **not** agree with the others.

14. Stocktaking should be done in the pharmacy:
    a) Once every four years.
    b) Each time there is a burglary.
    c) At least once every year.
    d) Anytime it becomes necessary.

15. The doors of the pharmacy must:
    a) Be transparent so that patients can see through.
    b) Have a metal bar across with padlocks.
    c) Have locks that are functioning well.
    d) Have metallic door shutters.

16. The pharmacy must be handed over to another staff when going on:
    a) Maternity leave.
    b) Sick leave.
    c) Annual leave.
    d) Lunch break.

17. If there is a burglary in the pharmacy, carry out the following:
    a) Do not enter the pharmacy.
    b) Make a written report to the head of the health facility.
    c) Do not inform the police because this is an internal matter.
    d) An inventory of the store is undertaken.

Section C

Put a **"Y"** (for "Yes") against statements that you agree with, and an **"N"** (for "No") against those you do not agree with.

____ 18.   Supervision of the pharmacy can be done by anybody.

____ 19.   The supervisory team should give on-the-spot training to the dispensing staff.

____ 20.   When handing over the pharmacy to another staff, take away any money in your keeping.

____ 21.   Generic products are normally cheaper than brand name products because there are no patents to protect.

____ 22.   Drugs that have expired can still be used for some period.

____ 23.   The abbreviation "TDS" means twice daily.

____ 24.   Buffer stock is the same as security stock.

____ 25.   First in first out is equivalent to first expiry first out.

____ 26.   Request indicator (reorder level) is the lowest stock level of a given drug before an order is placed for new stock.

____ 27.   A bin card is good for recording stock balances.

____ 28.   It is necessary to be familiar with brand names as opposed to generic names of drugs.

Section D

Solve the following problems.

29. The table below is an example of a daily use record from Kawale Health Centre. Review the entries and comment on the entry on 20/6, giving several possible reasons for the shortage.

Acetylsalicylic acid tablets 3000 mg

Date (1997)	From/To	Quantity In	Out	Balance (Tabs)	Remarks
2/6	B/F			20	
3/6	From dispensary store	1,000		1,020	
4/6	To patients		60	960	
5/6	To patients		48	912	
6/6	To patients		84	828	
9/6	To patients		60	768	
10/6	To patients		84	684	
11/6	To patients		84	600	
12/6	To patients		120	480	
13/6	To patients		48	432	
16/6	To patients		150	282	
17/6	To patients		84	198	
18/6	To patients		60	138	
19/6	To patients		96	42	
20/6	Inventory			22	Shortage
23/6	From store	1,000		1,022	
23/6	To patients		120	902	
24/6	To patients		150	752	
25/6	To patients		180	572	
26/6	To patients		160	412	
27/6	To patients		180	232	
30/6	From store	1,000		1,232	
30/6	To patients		240	992	
	Monthly consumption for June 1997		2,008		Two tins used for the month

30. The following information was extracted from the bin card/stock card for paracetamol tablets at the pharmacy store.

Paracetamol 500 mg tablets; tin or container or box/1,000 tablets
Monthly consumption for proceeding six months is as follows:

4/04   6 x 1,000 tablets
5/04   5 x 1,000 tablets
6/04   4 x 1,000 tablets
7/04   3 x 1,000 tablets
8/04   7 x 1,000 tablets
9/04   4 x 1,000 tablets

Calculate: Assume a lead (delivery) time of 3 months.

The average monthly consumption:

The quantity you would request from your central store (HAS/CMS) in the following situations:

a)   Balance in Stock: 4
b)   Balance in Stock: 40 (all expiry date: Dec. 2004)
c)   Balance in Stock: 6

Give possible reasons for the apparent large stock with limited shelf life (near expiration) in the situation (b) above.

Post-Test

Course on the Management of Drugs
at the Health Centre Level

Evaluation Test

**Please answer all questions.
Read instructions at the beginning of each section carefully.**

Participant's Name: _____

Participant's Profession (eg, Registered Nurse, Enrolled Nurse, Medical Assistant, Clinical Officer, Other): _____

Participant's Station: _____

Time Allowed: 1.5 Hours

Section A

Circle the correct answers (a question may have more than one correct answer).

1. The Essential Drugs Concept was conceived as a result of:
   a) Too many useless drugs in the markets.
   b) The increasing costs of drugs in the world market.
   c) Scarce financial resources being spent on less important drug items.
   d) Free health care services advocated by African governments.

2. Essential drugs are:
   a) Those that do not satisfy most health care needs.
   b) Of good quality and available at all times.
   c) Always given in their brand names.
   d) Usually not affordable.

3. The following statements can be associated with the Bamako Initiative:
   a) Non-community participation in health care matters.
   b) User fees for drugs.
   c) Drug revolving fund.
   d) Free health-care services.

4. HIV/AIDS can be:
   a) Diagnosed.
   b) Cured.
   c) Treated.
   d) Prevented by immunization.

5. Efficient management of drugs will:
   a) Ensure constant supply.
   b) Minimize wastage of resources.
   c) Reduce prices of drugs.
   d) Maximize adverse effects of drugs.

6. Buffer stock is:
   a) The same as request quantity.
   b) Security stock.
   c) Not always necessary.
   d) All of the above.

7. Cash obtained from the sale of drugs should be kept:
   a) In the house.
   b) In a safe in the dispensary.
   c) In the bank.
   d) With a friend in the bank.

8. When there is a burglary in the dispensary:
   a) Do nothing.
   b) Inform the head of the health centre.
   c) Report to the police.
   d) Take inventory.

9. An inventory is done in the pharmacy store:
   a) When there is a burglary.
   b) As necessary when free time is available.
   c) At the beginning or end of the year, at least.
   d) When handing over.

10. Drug use involves the following:
    a) Proper diagnosis of disease.
    b) Proper and accurate writing of a prescription using a trade name.
    c) Handing over the drug(s) to patient with appropriate information and counselling.
    d) All of the above are correct.

11. A label on a container or package of a dispensed drug should have the following:
    a) The cause or nature of illness.
    b) The trade name of the drug.
    c) The name and signature of the dispenser.
    d) The quantity of drugs dispensed.

12. To ensure patient compliance to the prescribed drug, the dispenser should stress the following points:
    a) When and how to take the drug.
    b) To share the drug(s) with the immediate members of the family to prevent the spread of disease in the family.
    c) To take all drugs on an empty stomach.
    d) To take all drugs after food.

13. Good dispensing practice involves several steps, among them the following:
    a) Interviewing the patient to establish the exact nature of the disease.
    b) Interpreting the prescription in terms of the dose, the patient and the requirements of a prescription.
    c) Calculating and measuring out the required quantity of drug to be dispensed.
    d) Recording details of the dispensed prescription to ensure accountability among other reasons.

14. Estimation of drugs required for a given period is undertaken for the following reasons:
    a) To avoid theft/pilferage.
    b) To avoid stock outs.
    c) To attract more patients to visit the centre.
    d) To prevent excess stock and therefore wastage through expiry.

15. When calculating monthly consumption of tetracycline, the most accurate figures would be obtained for:
    a) Consumption for 6 months.
    b) Consumption for 12 months.
    c) Consumption for 24 months.
    d) Consumption for 4 months.

16. When completing a stores requisition/delivery form, the following information should be filled accurately:
    a) Average monthly consumption.
    b) Name of drug and dosage form.
    c) Lead time.
    d) Unit of issue and quantity requested.

17. When receiving drugs at the health centre, ensure that:
    a) All the drugs are coming from district hospital stores.
    b) Drugs received are not expired.
    c) Quantity issued corresponds to quantity indicated on the stores requisition/delivery form.
    d) The drug box is opened when those delivering are gone.

18. When selecting drugs, one looks at the:
    a) Disease pattern of the area under consideration.
    b) Preference for drugs that are most popular among the community.
    c) Seasonal variation in disease patterns.
    d) Availability of drugs for the treatment of the most prevalent diseases, ailments, sicknesses and so forth at the given level of care.

19. Drug selection is influenced a lot by:
    a) National Health Policy.
    b) National Drug Policy.
    c) Quantity and type of care provided.
    d) Available human resources.

20. In the push system of distribution:
    a) No ordering of drugs is done.
    b) No inventory is taken.
    c) No expiration dates are checked.
    d) No management skills are required.

21. A stock card should have the following information:
    a) The manufacturer of the drug.
    b) Expiration date of the drug.
    c) Quantity of drug received.
    d) Quantity of drug issued.

22. Receipt entry shows:
    a) Date of manufacture of the drug.
    b) Reference number of supplies.
    c) Amount of drugs received.
    d) One month's consumption.

23. The following measures will ensure that temperatures in the drug store remain favourable for the storage of drugs.
    a) Painting walls with black paint.
    b) Installing heaters at regular intervals.
    c) Leaving windows open over night to allow air circulation.
    d) Installing air conditioners that will maintain a temperature below 245 degrees C.

Section B

24. Name the four main steps (in logical sequence) in the drug management cycle:

    a) _____

    b) _____

    c) _____

    d) _____

25. List six entries that should be made on a new stock card:

    a) _____

    b) _____

    c) _____

    d) _____

    e) _____

    f) _____

26. Enter the following transactions on the stock card below:

    In January 2001, Mabote Clinic received from the QE II hospital 60 tins of a new item in the store called Niverapine 60 mg tablets. During January, two tins of 500 tablets were issued to the dispensing area. In February, five tins were issued, and in the next two successive months, six and seven tins were issued respectively. Finally during the last four months, six, eight, nine and ten tins were issued, respectively.

    a) What is the average monthly consumption of niverapine?_____

    b) Assuming the lead time is one month, what is the request indicator? _____

    c) Assuming the lead time is one month, what is the quantity to be ordered? _____

    d) Assuming the lead time is two months, what is the quantity to be ordered? _____

Dispensary Store_____Stock Card No. _____

Item: _____ Dosage _____ Unit of Issue _____ RI____

Date	Ref. No.	From/To	Quantity In	Out	Balance	Cost	Remarks	Sign.

27. You are responsible for prescribing drugs at the Domicillary Health Centre in Maseru. You diagnose a 3-year-old baby, Thato Mosenene, weighing 15 Kg, with pneumonia and fever. The drug of choice is **amoxycillin** *15 mg/kg* orally every 8 hours for 10 days. Calculate the dose to be given every eight hours to the baby assuming a syrup presentation of **amoxycillin** containing 250 mg/5 ml is available.

Answer: (a)   _____ mg

Answer: (b)   _____ ml

28. On a separate page, using the accepted standard abbreviations, write a complete prescription for Baby Thato for dispensing by another nurse.

29. Give four reasons why drugs should be stored in appropriate storage areas.

     _____

     _____

30. What do the following stand for?
     a) FIFO
     b) FEFO
     c) Which of the above stock movement systems would reduce loss due to the expiration of drugs?

     _____

31. Why is it important to use generic names of drugs when they are being procured or prescribed? Give three reasons.

     _____

Proposed Training Outline

Subject Area	Subject Area	Duration	Methods	Materials
Evaluation: Pre-Test	To conduct a pre-test to assess participants' understanding of drug managements.	$^1/_2$ hr.	Pre-test	Questions (Trainers will select the appropriate question from a bank of questions.)
A. Principles of Drug Management	To review the components of the drug management cycle; To discuss with participants why drug management is important.	2 $^1/_2$ hrs.	Trainer–Lecture Participants–Group Work and presentation *(*Reasons for managements of drugs)	Visual Aids Work Sheet Transparencies *Attitude Question 8*
B. Selection of Drugs	To describe the principles of drug selection; To emphasize the importance of using generic name drugs; To explain the basis for selecting drugs for health centres; To assist participants to draw up a list of drugs for their facilities.	2 $^3/_4$ hrs.	Trainer–Lecture Participants–Group Work and Report back (Prepare a list of essential drugs for their health facility)	Visual Aids Work Sheet–EDL of Malawi Transparencies *Attitude Question 1*
C. Procurement of Drugs and Estimation of Drug Requirements	To define information sources for determining drug requirements; To show participants how to: ■ Calculate drug requirements ■ Estimate re-order levels ■ Estimate delivery time ■ Calculate average monthly consumption from a bin card ■ Determine RI for five drugs of different dosage forms.	4 hrs.	Trainer–Lecture Data entry exercises	Visual Aids Calculators Work Sheets

Subject Area	Subject Area	Duration	Methods	Materials
D. Drug Requisition	To review: ■ Components of a drug requisition form ■ Procedures to follow in drug requisition; To show participants how to complete drug requisition/delivery form, including cost calculations.	1 $^{1}/_{2}$ hrs.	Trainer–Lecture and Interactive demonstration	Visual Aids *Attitude Question 2*
E. Supply and Receipt of Drugs	To describe: ■ Procedures of receipt of drugs into stores and the detection of discrepancies in supplies ■ Procedures for internal return of drugs and posting onto bin cards; To show participants how to receive drugs from stores; To update stock cards; To identify near expired or damaged items; To complete procedure for return of damaged or near-expired items.	2 hrs.	Trainer–Lecture	Visual Aids
F. Distribution of Drugs	To describe: ■ Movement of drugs from central level to the user unit level ■ Push/pull systems.	1 hr.	Trainer–Lecture	Requisition for drugs, push/pull systems
G. Storage of Drugs	To review the correct arrangements of drugs in the store and at the dispensary; To emphasize the importance of FIFO and FEFO; Participants should be able to: ■ Arrange drugs in a store properly ■ Maintain a clean store;	4 hrs.	Trainer–Briefing for Field Trip Field Trip report on: ■ Storage arrangement ■ Keeping of stock (bin) card ■ Daily use of record; ■ Observe dispensing; ■ 5 positive and 5 negative overall observations.	Visual Aids Calculators Work Sheets Health Facilities (3)–Central Store, Health Centre *Attitude Question 3*

Management of Drugs at Health Centre Level

Subject Area	Subject Area	Duration	Methods	Materials
	To show participants how to: ■ Maintain stock (bin) cards daily use record ■ Make entries in stock cards daily use record.			
H. Drug Use	To describe the correct way of writing a prescription; To detect errors in prescriptions; To describe the principles of communication with patients; To emphasize the need for patient compliance and precautions with drugs (keep out of reach of children); To describe the way of: ■ Dispensing ■ Keeping dispensing records; To show participants how to: ■ Count or measure drugs to be dispensed ■ Record transactions ■ Package and label appropriately; To ensure that participants can read and understand prescriptions; and determine quantities of drugs to be prescribed and/or dispensed; To ensure dispensing of drugs to the right patient, in the right amount, correct container and adequately labelled; To explain why drugs should not be given on credit.	2 $^3/_4$ hrs.	Trainer–Lecture Discussion–Communication Skills	Visual Aids Examples of prescription Visual Aids Participants Setting of a dispensary drugs receipts, record forms, kind of labels, prescriptions, etc. Counting tray Containers *Attitude Question 4* *Attitude Question 5*
I. Stock Management	To review inventory taking and record keeping (stock bin cards, daily use records);	2 $^1/_2$ hrs.	Trainer–Lecture Data Entry Exercises	Visual Aids Forms *Attitude Questions 6 and 7*

Subject Area	Subject Area	Duration	Methods	Materials
	To show participants how to: ■ Maintain stock (bin) cards and daily use records ■ Make entries in stock cards and daily use records; To review the importance of: ■ Keeping good records ■ Storage of forms/documents.			
J. Handing Over	To give an overview of handing-over procedures; To show participants how to prepare handing-over notes.	$^1/_2$ hr.	Trainer–Lecture and Discussion	Visual Aids
K. Custody of Cash	To describe procedures for handling cash and how to keep accounting.	$^1/_2$ hr.	Trainer–Lecture and Discussion	Visual Aids
L. Security and Burglary	To describe security procedures and how to respond to a burglary; To protect property and report theft.	1 hr.	Trainer–Lecture and Discussion	Visual Aids
M. Supervision	To describe the requirements of supervision.	$^1/_2$ hr.	Lecture/Discussioin	Visual Aids
N. Final Examination	To conduct an evaluation test to assess participants' understanding of drug management.	1 $^1/_2$ hrs.	Closed Book Examination	Questions (based on lectures given)

Field Visit Checklist

Terms of Reference	Findings	Remarks (satisfactory or not)
1. General cleanliness of the premises, including shelves and dispensing counter/table.		
2. Refrigerator, where available, in good working condition, clean and tidy and is not used to store nonmedical items such as food.		
3. Floors, walls, windows and ceiling in good repair.		
4. Orderly placing of drugs on shelves, pallets and dispensing counters.		
5. Condition of the stock containers, dirty/clean.		
6. Closures on containers replaced after dispensing.		
7. Storage conditions prevailing in the dispensary. Principle of FEFO/FIFO adhered to.		
8. Health workers' cleanliness, laboratory coats, etc.		
9. Management tools: stock records, prescription records and epidemiological data.		
10. Dispenser highly motivated and adequately trained.		
11. Dispensing of medicines: labelling, packing adequate.		
12. Use of generic names in prescribing or dispensing.		
13. Patient reception and attitude of the health worker.		
14. How easy is it for a patient visiting for the first time to find his or her way?		
15. Information, particularly on drugs, accessible to health workers.		
16. Management systems: determination of quantity to order, lead time analysis, reorders level, stock-taking, and disposal of expired stock.		

Course Evaluation

1. Profession:_____

2. Number of years of working experience: _____

	Excellent	Good	Fair	Poor
3. Organization of workshop **(e.g. food, facilities, etc.)**	☐	☐	☐	☐
4. Lectures/presentations	☐	☐	☐	☐
5. Relevance of training to your work	☐	☐	☐	☐

	Yes	No
6. Were any of the topics difficult to understand? **If yes, specify the topic(s) _____**	☐	☐
7. Was the time adequate for each of the topics? **If no, specify the topic(s) _____**	☐	☐
8. Were the topics handled effectively by the facilitators? **If no, specify the topic(s) _____**	☐	☐
9. Have you gained any new useful knowledge?	☐	☐
10. Does the manual improve your understanding of drug management? **If no, give a brief account about what needs to be improved.**	☐	☐

_____

11. If you have any additional comments, use the space below and on the back of the page.

_____

_____

_____

_____

World Health Organization Regional Office for Africa

back cover

For further information please contact:

The Regional Director
WHO Regional Office for Africa
Attention: Dr Moses Chisale
Regional Advisor for Pharmaceuticals

P.O. Box 6
Brazzaville
Republic of Congo

Telephone: +47 241 39498, +47 241 39253
Facsimile: +47 241 39501, +47 241 39511

Email: *chisalem@afro.who.int*