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MANAGEMENT OF DRUGS AT HEALTH CENTRES

TECHNICAL GUIDELINES

1. Why must drugs be managed?
2. Drugs: definition and characteristics
3. Stocking of drugs
4. Packaging and labelling of drugs
5. Stock management
6. The monthly drug requisition
7. Foreseeing requirements
8. Correct administration of drugs to patients



These technical guidelines have been prepared by the staff of the Ministry of Public Health of Burundi with the collaboration of Marie-Paule Fargier, pharmacienne des hôpitaux, WHO consultant

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1. WHY MUST DRUGS BE MANAGED?

The management of drugs is a major responsibility of technicians at health centres. It is all the more necessary and challenging where shortages prevail and geographical and climatic conditions are adverse.

The purposes of drug management are:

- (1) To have the drugs always in stock and never to run out, especially of prime necessities, i.e.:
 - analgesics
 - antipyretics
 - antibiotics
 - antiparasitics
- (2) To obviate the need for emergency requisitions, which are always expensive (in terms of transport and staff time);
- (3) To avoid waste or outdating, which mean loss not only of the drug concerned but also of money that could have been used to buy another, more useful one;
- (4) To be able to recognise at any time the name, dosage and administration form of a drug. To have a clear idea of its physical condition and expiry date, so as to be sure the patient is getting an effective and safe medicine:

e.g. a date expired analgesic will be ineffective and fail to soothe the pain;
date expired tetracycline will be ineffective and toxic.
- (5) To prescribe the drug discriminatingly, explaining clearly to the patient when and how to take it; to make sure that the drug will be administered during the full course of treatment;
- (6) To supply the drug to the patient properly packaged, which will protect it and facilitate correct administration;
- (7) To gain time: Management of drugs stocks sounds a formidable assignment in view of all the day to day tasks to be performed at health centres. Properly organized, however, it saves a huge amount of time because:
 - ° a well arranged stock enables an item to be found quickly, saving time when it is issued to the patient;
 - ° sound management enables the remaining stocks and the requirements to be quickly determined, saving time with the monthly requisition.

Conclusion:

A health centre that is never out of drugs is one where patients come back for care with confidence. The work and prestige of the technicians and auxiliaries working there is accordingly enhanced.

2. **DRUGS : definition and characteristics**

A DRUG is defined by:

- (1) **Its active principle**, i.e. the chemical substance that will produce the expected pharmacological effect. This active principle has an international nonproprietary name, called:

The **INTERNATIONAL NONPROPRIETARY NAME, OR INN**.

For one and the same INN there may be several trade names:

e.g. **STANDACILLINE**
 TOTAPEN
 UKAPEN

but all designated the same INN: **AMPICILLIN**.

It is the pharmacological effect of the active principle that determines whether the drug is to be classified in one or another therapeutic group.

- (2) **Excipients**: these are pharmacologically inert chemicals which help to preserve the active principle or facilitate administration of the drug. The particular combination will give the pharmaceutical form, i.e., the form in which the drug is administered.

e.g. **Iron + plain syrup = Iron syrup**
 Iron + compressible powders = Iron tablet.

Thus we have the same active principle "Iron" and two different pharmaceutical forms.

- (3) **Dosage**: for the same INN and pharmaceutical form, there can be different dosages:

e.g. **AMPICILLIN, 250 mg capsule**
 AMPICILLIN, 500 mg capsule

A drug can be defined by:

<u>INN</u>	<u>DOSAGE or STRENGTH</u>	<u>PHARMACEUTICAL FORM</u>
AMPICILLIN	250 mg	capsule
AMPICILLIN	500 mg	capsule
AMPICILLIN	500 mg	injectable

Thus we have three different drugs with the same INN.

° When drugs are stocked, these three items should be put in different places.

° When an order is placed for a drug, it is important always to indicate these three characteristics:

INN; dosage; pharmaceutical form.

° If there is a stock shortage of one of these pharmaceutical forms, it may be possible to use one of the other two with due regard to the different dosage and mode of administration.

3. STOCKING DRUGS

Orderly stocking is an essential factor in drug management: drugs cannot be properly managed if they are badly stocked.

The first essential for good management is to be able to look over the stock very quickly and count the drugs available.

In addition, the drugs must be protected against deterioration or theft.

When physical conditions allow, drugs should be stored in a separate room and only those containers intended for current dispensing or consumption should be available in the treatment room.

- (1) Stocks should be kept in a locked cupboard where possible, or else on shelves, which should be regularly cleaned to eliminate dust.
- (2) Most drugs need to be stored in a dry, cool place away from light:
 - ° If possible, keep tablets in airtight tins or screw-top jars.
 - ° Injectables should be protected from light, as some of them otherwise deteriorate.
 - ° Syrups should be kept in glass bottles, not tins.
 - ° Finally, a refrigerator in good working order should be reserved exclusively for drugs, vaccines and serums that require maintenance of the cold chain. The inside temperature of this refrigerator should be checked morning and evening (maximum 4°C).
- (3) Drugs must all have their assigned storage place. They can be arranged in different ways:
 - ° in alphabetical order of INNs;
 - ° by administration form + alphabetical order;
 - ° by therapeutic groups.

- Classification by therapeutic groups is the most practical at a health centre. It allows a missing item to be replaced by another of the same therapeutic class. It ensures that the health technician learns about the therapeutic indications of the drugs. It facilitates ordering of supplies.

- Fix onto the shelf assigned to each therapeutic group a label showing the name of that group:

e.g. ANTIBIOTICS.

- When, for one and the same INN, dosage or pharmaceutical form there are two drugs with different trade names, those two drugs must be managed as constituting one and the same item.

e.g.

	AMPICILLIN	250 mg/5ml syrup
may be either:	STANDACILLINE	250 mg/5ml syrup
or	AMPICILLIN	250 mg/5ml syrup
or	TOTAPEN	250 mg/5ml syrup

- (4) Every month, for example just before the requisition is submitted to the sector - an inventory should be made of the drugs available and their expiry dates checked. Outdated items should be packed separately in a cardboard box and returned to the sector or district.

If there are drugs that are not date-expired but are no longer used, they too should be sent to the sector, so that they can perhaps be distributed to other centres and not left to get out of date.

4. PACKAGING AND LABELLING OF DRUGS

Each container (tin or bottle) must be properly labelled.

Two drugs must never be put together in the same receptacle.

A receptacle containing drugs must never be left unlabelled.

AMPICILLIN 250 MG - tablets

Expiry date: 12.01.1993

Batch No.795

Manufacturer

The label should indicate at least:

- **The International Non-Proprietary Name, dosage and pharmaceutical form of the drug.**
e.g. AMPICILLIN 250 mg tablets.
- **The expiry date:** a red cross should be marked on the items nearest to their expiry date and they should be placed in front, so that they will be used first.
- **The batch number and the name of the manufacturing firm:** when these data are available, they absolutely must be copied on to the label. Then, when there is a manufacturing problem, the batches affected by it can be promptly identified.

5. STOCK MANAGEMENT

Once the drugs have been stocked in an orderly way, we must at all times know which are in use and the quantities available.

For this, we must:

- (1) Keep a proper register of patients seen;
- (2) Make out stock cards for each drug;
- (3) These two sources will enable us to calculate certain data that will be used for drawing up the requisition;
- (4) Make periodic inventories.

- (1) Keeping the register of patients seen

This indispensable register enables us to see:

- the illnesses treated;
- the number of patients' visits;
- the drugs and quantity of the drugs used.

Each page in the register may be marked out as follows:

DATE	PATIENT	ILLNESS	DRUG	
			Name	Quantity
3.11.88	X ---	Malaria	Chloroquine tablets	6

- 2) A stock card is made out for each drug.

It should be on stiff board and may look like this:

Drug: PARACETAMOL 500 mg tablets		Average monthly consumption = 3000 (4)	Safety stock=700 (5)	
DATE	From .. and for ..	Received	Issued	Stock in hand
1.11.88				1000(1)
15.11.88		3000		4000(2)
22.11.88			800	3200(3)
	Inventory			3100(6)

- When starting a card, make an inventory of the drug and mark the quantity in the first line (1) of the "stock in hand" column:
e.g. 1.11.88 inventory 1000 tablets.
- Then, as each order comes in, mark the quantity delivered under "Received":
e.g. 15.11.88 Received 3000 tablets
and work out the balance = (Received + stock in hand) - (Issued), (line (2) of the card).
- At the end of each day (or, if that is too much work, at the end of each week) draw a line across the register, work out for each drug the total quantity delivered and mark it on the corresponding stock card in the "Issued" column, with the date.
e.g. if in one week 800 tablets of Paracetamol are distributed, mark 800 in the "Issued" column and calculate the balance, (line(3) of the card).
- Thus each movement - receipt or issue - is entered on the card and each time the balance, which should in theory correspond to the stock remaining in hand, is calculated.

(3) From the data entered on the card, we determine a number of parameters necessary for preparing the monthly order.

3.1 We determine the average monthly consumption: for this we need only determine each month the total amounts issued and calculate an average. This is written at the top of the card, in the box "Average monthly consumption": 3000 (line (4) of the card). This figure can be revised every three or four months (better to write it in pencil).

At the end of each year, the total annual consumption can be calculated and divided by 12 to give a monthly average of the whole year.

3.2 The safety stock must be determined: this is the quantity of the drug needed for consumption during the interval between the placing of the order and the delivery, i.e., during the delivery lead time.

This is the minimum below which the stock cannot be allowed to fall if it is not to run out:

e.g. if the lead time is 7 days, and the average monthly consumption is 3000 tablets, the safety stock will be $\frac{3000 \times 7}{30} = 700$ tablets

30

(number of days in a month)

This figure is written in the column "Safety stock", (line (5) of the card).

Thus, whenever a new order is placed, there must still be 700 tablets in stock to make sure of not running out before the order is delivered.

4. Inventory: at regular intervals (for example, once a month when the order is made out), we take the card, count the stock in hand and see whether the quantity counted is equal to the quantity marked on the card.

If the figures are not equal, note it in red:

e.g. inventory and quantity 3100, (line (6) of the card);

then try to determine the reason for the discrepancy:

- expiry
- disappearance
- card not properly kept
- register not properly completed, etc.

When the stock falls to zero, be careful to note the date this occurs.

Good stock management does not mean just keeping a card. The information entered on that card must at all times be correct and the quantities on the shelves must correspond to the quantities written on it.

For this, it is simpler to leave the card always near where the drug concerned is stored, so that regular checks can be made.

6. DRUG REQUISITION

This involves two stages:

- (1) the completion of the requisition form;
- (2) the delivery of the order.

(1) Completion of the requisition form

When placing the drug requisition:

- ° It should be made out by therapeutic groups.

For each drug, take the card:

- ° look at:
 - the stock remaining in hand on the day of the order
 - the safety stock
 - the average monthly consumption

- ° and calculate the quantity to be requested in the light of those three data.

A variety of situations can arise to take the example cited above of the Paracetamol stock card:

1.1 Stock in hand = security stock

This is the simplest situation.

In the example cited of the Paracetamol, there remain 700 tablets.

We recommend exactly the quantity that is equal to the average monthly consumption
- in this case 3000 tablets.

1.2 The quantity remaining is greater than the safety stock.

Then we order:

the average monthly consumption - (stock in hand - safety stock).

In the example given: $3000 - (1000 - 700) = 3000 - 300 = 2700$.

1.3 The quantity remaining is zero. Look at the date the supply ran out:

The quantity to be ordered is:

- the average monthly consumption
- + safety stock
- + average consumption during the out-of-stock period.

e.g. $3000 + 700 + 300 = 4000$ tablets.

If the drug was out of stock for three days, the quantity that would have been consumed during those three days is:

$$\frac{3000 \times 3}{30} = 300 \text{ tablets}$$

Of course, the consumption of a drug is not so arithmetically precise as this. But in general consumption is fairly regular and these rules can be applied for calculating it.

Account must, however, be taken of epidemics, which are temporary phenomena and for which an emergency requisition will need to be made, with due regard in the calculations to the average monthly consumption.

Similarly, account must be taken of seasonal variations in certain diseases, but these balance out when we have the averages for the whole year.

(2) Receipt of the consignment

The consignment should be accompanied by the delivery slip on which are listed each drug and the quantity delivered.

° Check that the quantity delivered really corresponds to the quantity supplied as indicated on the delivery slip.

Tick off each item after checking.

° Then check the packaging of each drug, its label, the expiry date and the look of the drug.

Any item already date-expired should be refused and returned for destruction.

Any item that looks in doubtful condition should be also sent back.

° The drug is put in the place reserved to it, with those items nearest their expiry dates in front so that they will be used first.

° Finally, the delivery slip, clipped together with the corresponding order slip, is put in the "order" file.

° It is recommended that the order and delivery slips and stock cards be kept for at least three years.

7. FORESEEING NEEDS

The drug requirements for a standard drug list are prepared in the following way:

- (1) By analysing the average monthly consumption of the health centre concerned, establishing an average for about six months and readjusting it in the light of any major cases of items going out of stock or passing their expiry dates (consumption method);
- (2) By determining standard treatments for each health problem (morbidity/standard treatment method).

On the basis of these standard treatments, the quarterly morbidity returns and the quantification of needs are analysed;

e.g. total quantity of drug per health problem for one month

$$= \frac{\text{quantity of drug for one treatment}}{\text{total number of treatments for one month}}$$

- (3) By questioning the person in charge of the centre to iron out any discrepancies.

From these three sources of information an average is determined for each drug and the list is thus established.

Obviously this list may need updating every year and sometimes adjusting in response to certain specific problems - e.g. epidemics - or to the replacement of a traditional treatment by a new, more effective and affordable one.

8. CORRECT ADMINISTRATION OF DRUGS TO PATIENTS

- (1) After the right diagnosis has been made, the patient must be given the right drug.

° The right drug means the one that is safe and effective and have the best cost/benefit ratio.

e.g. As an analgesic Paracetamol is as effective as any other analgesic drug and costs far less.

° Account must also be taken of the possible harmful effects of drugs.

e.g. Before prescribing Penicillin G or Ampicillin, question the patient to find out whether he has already had that drug and whether as a consequence he has developed an allergy or "shock".

The purpose here is not to enumerate all the undesirable effects of drugs, but to point out that prescribing is a deliberate act which is not performed randomly or by habit.

- (2) The second important point is that a patient must never be given too many drugs at the same time. A great pharmacologist used to say: "When we give a patient one drug, we know what we are doing; with two, we can still know; with three, we have no idea what may happen".

An antibiotic can, for example, be given with an analgesic, but as far as possible try not to go beyond two drugs.

- (3) We must take the time to explain to the patient why we are giving him the drug:

- How he must take it;
- When he must take it: e.g. an antacid tablet is always taken after a meal or at bedtime;
- How long the treatment is to last, and that it must be followed through to the end: e.g. In general a course of antibiotic treatment must always last at least five days. Otherwise, an antibiotic treatment started but interrupted can create resistant-microbe situations with subsequent catastrophic results.

- (4) The health technician must appraise the physical condition and degree of understanding of the patient, before deciding whether he should request him to come back or give him what he needs for the full treatment. To make a very sick patient travel miles can only worsen his condition.

In all cases, if the technician gives drugs for the full treatment, he must make it clear to the patient that they are to cure his illness and not also that of his neighbour, for whom they could on the contrary be dangerous without a correct diagnosis.

- (5) As far as possible, preference should always be given to oral over injectable formulations (especially for children).

It is important to explain to patients, who often ask for and believe that the injectable form is more effective, that it can have big disadvantages such as:

- risk of contamination and disease transmission;
- superinfection and abscess;
- sciatica (especially with intramuscular injections of quinine).

- (6) Finally, when a patient is given drugs for self-treatment, try to give them properly packed for ease of administration.

This can easily be done by prepackaging. This means putting the entire quantity of a certain tablet necessary for a full course of treatment into small envelopes or a small packet before the patient's visit. It is all ready when the patient needs it:

- ° the patient has the requisite quantity for the full treatment;
- ° this saves times and obviates waiting and queuing while the tablets are counted;
- ° it is useful for certain standard treatments: e.g. iron and folic acid tablets to be given to all pregnant women;
- ° it is thus easier to supervise and check on the issue of drugs.

The same can be done with syrups for children by preparing the entire dose for the treatment in small bottles.

How to prepackage drugs?

1. Make a list of drugs that are often prescribed.
2. Write down in detail the usual treatment for each age group:
1-4 years; 5-17 years; adults.
3. Obtain or make some little bags or envelopes.
4. Put into the envelopes the exact number of tablets for a full course of treatment and mark the name of the drug and the instructions on the envelope. A different colour of paper can be used for each age group.

For syrups, we can also take little bottles holding 60 ml, fill them and give them to the mothers, carefully explaining how many spoonfuls should be taken at a time and per day.

All this sounds very time consuming, but in reality will save a huge amount of time in the daily round of dealing with patients.

To know more, please refer to the manual:

"Managing Drug Supply"

published by Management Sciences for Health, Boston