The management and prevention of diarrhoea

Practical guidelines

Third edition

World Health Organization
Geneva

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Foreword

This book is intended for health workers who are concerned with the management and prevention of diarrhoea, and for their supervisors and trainers. It is a revised and updated version of *The treatment and prevention of acute diarrhoea. Practical guidelines* (second edition, Geneva, World Health Organization, 1989). The guidelines are based on the chart *Management of the patient with diarrhoea* (segments of which are reproduced in Annex 1), and form the technical basis of the module entitled *Management of the patient with diarrhoea* (1992) in the *Supervisory skills training course* of the WHO Programme for Control of Diarrhoeal Diseases.[1]

The book is divided into eight sections. Each of the first seven sections is followed by a list of points of essential skills and knowledge required by health workers for the management and prevention of acute diarrhoea. All 17 points of essential skills and knowledge are summarized in Annex 7. The segments of the chart *Management of the patient with diarrhoea* given in Annex 1 summarize the approach to management of diarrhoea explained in this book (and are referred to collectively as the "diarrhoea management chart" throughout the remainder of the book). The chart may be adapted to local conditions and should be available to health workers for reference at all times.

Although this book refers mainly to diarrhoea in children, its recommendations apply equally to adults.

[1] Both the *Supervisory skills training course* and the separate module *Management of the patient with diarrhoea* are available on request from the Programme for Control of Diarrhoeal Diseases, World Health Organization, 1211 Geneva 27, Switzerland.

The World Health Organization is a specialized agency of the United Nations with primary responsibility for international health matters and public health. Through this organization, which was created in 1948, the health professions of some 185 countries exchange their knowledge and experience with the aim of making possible the attainment by all citizens of the world by the year 2000 of a level of health that will permit them to lead a socially and economically productive life.

By means of direct technical cooperation with its Member States, and by stimulating such cooperation among them, WHO promotes the development of comprehensive health services, the prevention and control of diseases, the improvement of environmental conditions, the development of human resources for health, the coordination and development of biomedical and health services research, and the planning and implementation of health programmes.

These broad fields of endeavour encompass a wide variety of activities, such as developing systems of primary health care that reach the whole population of Member countries; promoting the health of mothers and children; combating malnutrition; controlling malaria and other communicable diseases including tuberculosis and leprosy; coordinating the global strategy for the prevention and control of AIDS; having achieved the eradication of smallpox, promoting mass immunization against a number of other preventable diseases; improving mental health; providing safe water supplies; and training health personnel of all categories.

Progress towards better health throughout the world also demands international cooperation in such matters as establishing standards for biological substances, pesticides and pharmaceuticals; formulating environmental health criteria; recommending international non-proprietary names for drugs; administering the International Health Regulations; revising the International Statistical Classification of Diseases and Related Health Problems; and collecting and disseminating health statistical information.

Reflecting the concerns and priorities of the Organization and its Member States, WHO publications provide authoritative information and guidance aimed at promoting and protecting health and preventing and controlling disease.

Contents

SECTION 1

Understanding the problem

What is diarrhoea?

The number of stools normally passed in a day varies with an individual's diet and age. When there is diarrhoea, stools contain more water than usual—they are often called loose or watery stools. They may also contain visible blood, in which case the illness is called dysentery.

Mothers usually know when their children have diarrhoea. When diarrhoea occurs, mothers may say that the stools smell strong or pass noisily, as well as being loose and watery. Talking to mothers often reveals one or more useful local definitions of diarrhoea. For practical purposes, diarrhoea is defined as three or more loose or watery stools in a day (24 hours).

Diarrhoea is most common in children, especially those between 6 months and 2 years of age. It is also common in babies under the age of 6 months who are drinking cow's milk or infant feeding formulas.

Frequent passing of normal stools is not diarrhoea.

Babies who are taking only breast milk commonly have frequent soft stools; this is not diarrhoea.

Acute and persistent diarrhoea

Diarrhoea is classified as acute or persistent according to its duration. An episode of diarrhoea that lasts less than 2 weeks is acute diarrhoea; diarrhoea that lasts 2 weeks or longer is persistent.

Why is diarrhoea dangerous?

The two main dangers of diarrhoea are death and malnutrition.

Death from acute diarrhoea is most often caused by loss of a large amount of water and salt from the body. This loss is called dehydration. Another important cause of death is dysentery. Death from dysentery is caused by damage to the intestine, systemic infection, and malnutrition.

Severe diarrhoea with complications is most common in people with malnutrition. Diarrhoea can also cause malnutrition and make existing malnutrition worse because:

- nutrients are lost from the body
- nutrients are used to repair damaged tissue rather than for growth

- a person with diarrhoea may not be hungry
- mothers may not feed children normally while they have diarrhoea, or even for some days after the diarrhoea is better.

To prevent malnutrition, children with diarrhoea should be given food as soon as they will eat, and should be given extra food after diarrhoea stops.

How does diarrhoea cause dehydration?

The body normally takes in the water and salt it needs (input) through drinks and food. It normally loses water and salt (output) through stools, urine, sweat, and breathing.

When the bowel is healthy, water and salt pass from the bowel into the blood. When there is diarrhoea, the bowel does not work normally. Less water and salt pass into the blood, and more pass from the blood into the bowel. Thus, the amounts of water and salt passed in the stools are greater than normal.

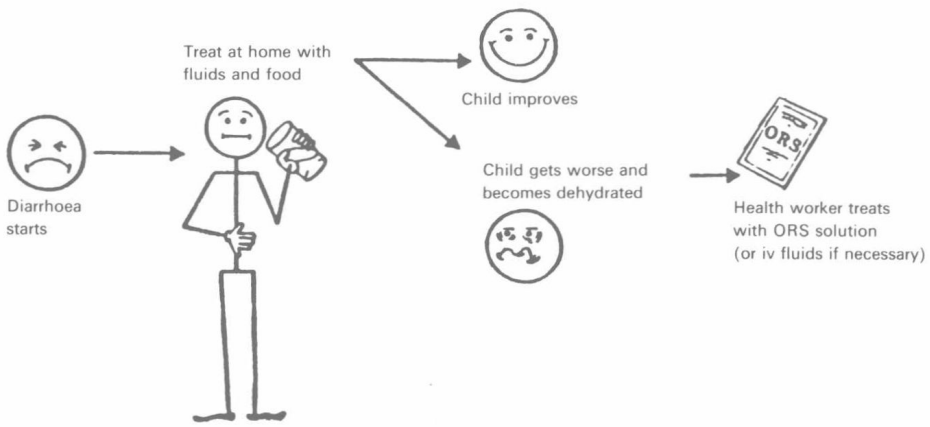
This larger than normal loss of water and salt from the body can result in dehydration. Dehydration occurs when the output of water and salt is greater than the input. The more diarrhoeal stools a person passes, the more water and salt he or she loses. Repeated vomiting, which often accompanies diarrhoea, can also contribute to dehydration.

Dehydration occurs faster in infants and young children, in hot, dry climates, and when there is fever.

Treating a child who has diarrhoea

The most important parts of treatment of diarrhoea are:

- to prevent dehydration from occurring, if possible
- to treat dehydration quickly if it does occur
- to feed the child.



Prevention of dehydration

Dehydration can usually be prevented in the home if the child drinks extra fluids as soon as the diarrhoea starts. A child should be given one of the fluids recommended

locally for home treatment of diarrhoea. These include: oral rehydration salts (ORS) solution, food-based fluids (such as soup, rice water, and yoghurt drinks), and plain water. If possible, food-based fluids should contain a small amount of salt. ORS solution can be used for both prevention and treatment of dehydration, and should also be given in the circumstances described in Treatment Plan A (see Annex 1, Diarrhoea management chart). If the child is under 6 months old and is not yet taking solid food, ORS solution or water should be given rather than a food-based fluid.

Treatment of dehydration

If dehydration occurs, the child should be taken to a community health worker or health centre for treatment. The best treatment for dehydration is oral therapy with a solution made with ORS. ORS solution can be used alone to rehydrate 95% or more of patients with dehydration. Patients with severe dehydration require rehydration with intravenous (IV) fluids at first, but should be given ORS solution in addition to IV fluids as soon as they can drink. ORS solution should be used alone when the signs of severe dehydration are gone.

Feeding

Feeding during diarrhoea provides nutrients the child needs to grow and be strong, and prevents weight loss. Fluids given to prevent or treat dehydration, such as the recommended home fluid or ORS solution, do not provide the required nutrients; frequent feeding with adequate amounts of nutritious food is essential.

Breast-fed children should be offered the breast frequently. Other children should receive their usual milk. Children of 6 months or older (or infants who are already taking solid food) should frequently be offered small amounts of nutritious, easily digestible food. After the diarrhoea has stopped, an extra meal should be given each day for 2 weeks to help children regain weight lost during the illness.

Other treatments

There are no drugs available at present that will safely and effectively help to stop diarrhoea.

Antibiotics are not effective against most organisms that cause diarrhoea. They rarely help and can make some people sicker in the long term. Their indiscriminate use increases the resistance to antibiotics of many disease-causing organisms. In addition, antibiotics are costly, so money is wasted. Antibiotics should therefore not be used routinely. Their appropriate use for dysentery and cholera is described in Section 6 and in Annex 6.

Antidiarrhoeal drugs and antiemetics should never be given to children and infants. These include adsorbents (such as kaolin, attapulgite, and activated charcoal), antimotility drugs (such as codeine, tincture of opium, diphenoxylate, and loperamide), and drugs to treat vomiting (such as chlorpromazine and promethazine). None has proven value in treating diarrhoea and some can be dangerous. Some of these drugs

can cause paralysis of the gut or make children abnormally sleepy, and some can be fatal, especially in infants, if used improperly.

ESSENTIAL SKILLS AND KNOWLEDGE: SECTION 1

The health worker should be able to:

- define diarrhoea and dysentery in a way that is appropriate to his or her work setting
- distinguish between acute and persistent diarrhoea
- explain why diarrhoea and dysentery are dangerous
- explain how diarrhoea causes dehydration
- describe the most important parts of the treatment of diarrhoea and dysentery.

SECTION 2

Home treatment of a child who has diarrhoea

Educating family members about home treatment of a child who has diarrhoea

Mothers and other family members can often treat children who have diarrhoea with fluids and foods that they have at home. Health workers can help by showing mothers how to do this.

There are three rules for treating diarrhoea in the home. Whenever a child gets diarrhoea, the mother (or any other family members who care for the child) should follow these rules. Briefly, the rules are:

- increase fluids
- give the child plenty of food
- take the child to a health worker if he or she is not getting better.

These rules are explained below. They are also given in Treatment Plan A (see Annex 1) and in Annex 2.

Mothers whose children are sick with diarrhoea will be particularly interested in learning about home treatment. When teaching them about home treatment of diarrhoea:

- Select an appropriate time. For example, the mother of a child who has diarrhoea should be taught how to *treat* diarrhoea at home; information about prevention can be given at another time, when the child is healthy.
- Remember the community's beliefs about diarrhoea and ways of treating it. Relate your advice to current practices, and use words the mother will understand.
- Show the mother what to do (for example, show her how much fluid to give the child after each stool).
- Use teaching aids that are familiar (for example, use common containers to demonstrate how to mix ORS).
- Let the mother practise what she is learning while you watch. (For example, let her give the fluid with a spoon while you watch.) This will help the mother to remember what she has learned. It will also let you see whether she has learned correctly, so that you can provide extra help if necessary.
- Ask the mother to tell you, in her own words, things that she has learned but not practised, to be sure that she remembers. (For example, she can tell you what food she will give and how often.)
- Ask the mother whether she has any questions, and try to answer them.
- Ask her whether she has any problems in following your instructions. Listen to what she says and try to help her find a solution to the problems.
- Tell the mother what to expect (for example, how long it will take for her child to get well).

Three rules for home treatment of a child who has diarrhoea

RULE 1: GIVE THE CHILD MORE FLUIDS THAN USUAL

What fluids?

Give recommended home fluids, which may be ORS solution, food-based fluids (such as soup, rice water, and yoghurt drinks) and plain water. If the child is under 6 months old and is not yet taking solid food, give ORS solution or water, rather than a food-based fluid.

How much fluid?

Give more fluids than usual, as soon as the diarrhoea starts.

Give children under 2 years old approximately 50–100 ml (1/4–1/2 large cup) of fluid after each loose stool.

Give children aged between 2 and 10 years 100–200 ml (1/2–1 large cup) after each loose stool. Older children and adults should drink as much as they want.

RULE 2: GIVE THE CHILD PLENTY OF FOOD

What foods?

Breast milk is the best food for young babies. Continue to breast-feed frequently. If the child is not breast-fed, give the usual milk.

If the child is 6 months or older, or is already taking solid food, give cereal or another starchy food mixed, if possible, with pulses, vegetables, and meat or fish. Add 1 or 2 teaspoonfuls of vegetable oil to each serving to make it more energy-rich. Red palm oil is especially good because it contains a large amount of provitamin A. Fresh fruit juices and bananas are helpful because they contain potassium. (Sweetened fruit drinks are not suitable and may make diarrhoea worse.)

Avoid:

- high-fibre or bulky foods, such as coarse fruits and vegetables, fruit and vegetable peels, and whole grain cereals—these are hard to digest
- foods and drinks with a lot of sugar—these foods can make diarrhoea worse.

How much food?

Encourage the child to eat. Offer food every 3 or 4 hours (at least 6 times each day). Small, frequent feeds are best because they are more easily taken and digested by the child.

After the diarrhoea has stopped, continue to give the child one extra meal each day. Most children need this extra meal for about 2 weeks. Children who have had persistent diarrhoea should be given an extra meal each day for at least a month. Malnourished children will continue to need extra food until they reach a normal weight for their height.

How to prepare the food

Prepare foods by cooking well, fermenting, mashing, or grinding. This will make the foods easier to digest.

Give freshly prepared foods to minimize the chance of contamination. If previously prepared foods must be offered, first reheat them until they are thoroughly hot.

Water used for preparing drinks should be boiled.

Why feed the child?

Withholding food from a child who has diarrhoea can cause malnutrition or make existing malnutrition worse. Mothers may withhold food, or be advised to withhold food, in the belief that this will decrease the diarrhoea. However, food does **not** make diarrhoea worse. It gives the child the nutrients he or she needs to stay strong and to grow. A strong child will resist illness better.

Although absorption of nutrients from food is lessened somewhat during diarrhoea, most of the nutrients will be absorbed. Fluids given to the child for prevention or treatment of dehydration do not contain enough energy to fulfil the need for food.

RULE 3: TAKE THE CHILD TO THE HEALTH WORKER IF HE OR SHE IS NOT GETTING BETTER

Take the child to a health worker if the child does not get better in 3 days or develops any of the following:

- many watery stools
- repeated vomiting
- marked thirst
- eating or drinking poorly

- fever
- blood in the stool.

ESSENTIAL SKILLS AND KNOWLEDGE: SECTION 2

The health worker should be able to explain to family members the three rules for home treatment of diarrhoea. These are: to give more fluids than usual; to give plenty of food; and to take a child to the health worker if he or she is not getting better.

SECTION 3

Assessment by a health worker for dehydration, and selection of a treatment plan

Identifying a case of diarrhoea

When a mother brings a child with diarrhoea to a health worker, she will usually mention the diarrhoea when describing the child's problems. However, the health worker should always ask whether there is diarrhoea, especially when a child has an illness that is often accompanied by diarrhoea, such as measles, pneumonia, or severe malnutrition.

The health worker should therefore ask both of the following questions:

- Has the child had loose or watery stools?
- Have there been loose stools with blood?

If the answer to either question is YES, the health worker should use the diarrhoea management chart to assess and treat the child. The first step is to assess the child for signs of dehydration.

Assessing the child for signs of dehydration

The signs that the health worker should look and feel for are listed here, in the table *Assess your patient for dehydration* (page 10), and in Annex 1. Refer to the table as you read this section.

Look for the following

- What is the child's general condition? Is the child:
  - — well and alert?
  - — restless or irritable?
  - — lethargic (abnormally sleepy), floppy, or unconscious?
- Are the child's eyes normal, sunken, or very sunken and dry?
- Does the child have tears when he or she cries?
- Are the child's mouth and tongue wet, dry, or very dry?
- When offered a drink, does the child:
  - — drink normally or seem not thirsty?
  - — drink eagerly and seem thirsty?
  - — drink poorly or seem unable to drink?

Feel for the following

- When the skin of the abdomen is pinched, does it go back quickly, slowly, or very slowly (longer than 2 seconds)?

FIRST, ASSESS YOUR PATIENT FOR DEHYDRATION

		A	B	C
1. LOOK AT:	CONDITION	Well, alert	* **Restless, irritable** *	* **Lethargic or unconscious; floppy** *
	EYES	Normal	Sunken	Very sunken and dry
	TEARS	Present	Absent	Absent
	MOUTH and TONGUE	Moist	Dry	Very dry
	THIRST	Drinks normally, not thirsty	* **Thirsty, drinks eagerly** *	* **Drinks poorly or not able to drink** *
2. FEEL:	SKIN PINCH	Goes back quickly	* **Goes back slowly** *	* **Goes back very slowly** *
3. DECIDE:		The patient has NO SIGNS OF DEHYDRATION	If the patient has two or more signs including at least one * **sign** *, there is SOME DEHYDRATION	If the patient has two or more signs, including at least one * **sign** *, there is SEVERE DEHYDRATION
4. TREAT:		Use Treatment Plan A	Weigh the patient, if possible, and use Treatment Plan B	Weigh the patient and use Treatment Plan C URGENTLY

Note: Pinching the skin may sometimes give misleading information:

— in the severely malnourished patient with marasmus, when the skin may go back slowly even if the patient is not dehydrated
— in the obese patient or the patient with oedema due to kwashiorkor, when the skin may go back quickly even if the patient is dehydrated.

Deciding which treatment plan to use

After the examination, decide which treatment plan to use to treat the child.

- Recall your findings while you were examining the child and look at the table *Assess your patient for dehydration* above. Find the signs that describe the child's condition.

Notice that there are certain **key signs** which are in bold print and marked with asterisks (*). Experience has shown that dehydrated children usually have these key signs. These are also the signs most reliably detected by health workers. You should therefore give these key signs special attention when you are assessing the child for dehydration.

- Determine the degree of dehydration

Look first at Column C. If two or more of the signs listed in that column are present, **including at least one key sign**, conclude that the patient has **severe dehydration**.

If the patient does not have severe dehydration, look next at Column B. If two or more of the signs listed in that column are present, **including at least one key sign**, conclude that the patient has **some dehydration**.

If the patient does not meet the criteria for some dehydration, conclude that he or she has **no signs of dehydration**.