



Programme for the Control of Diarrhoeal Diseases

**THE SELECTION OF FLUIDS AND FOOD
FOR HOME THERAPY TO PREVENT
DEHYDRATION FROM DIARRHOEA:**

Guidelines for Developing a National Policy



World Health Organization

THE SELECTION OF FLUIDS AND FOOD FOR HOME THERAPY TO PREVENT DEHYDRATION FROM DIARRHOEA:

Guidelines for Developing a National Policy

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Introduction

The most important adverse effects of acute diarrhoea are *dehydration*, owing to the loss of water and salts in liquid stools, and *nutritional damage*, owing to reduced intake and absorption of nutrients. Appropriate home therapy of diarrhoea can prevent these effects in most children.

The critical actions for home therapy of diarrhoea are to give the child more fluids than usual and to continue feeding. It is also essential that mothers know when a child should be taken to a health worker.

To prevent dehydration, increased fluids should be given when diarrhoea starts and the child should take as much as he or she wants. Some fluids are especially effective and should be promoted; a few should be avoided. Continued feeding also helps to prevent dehydration, in addition to preventing nutritional damage; some foods are especially helpful.

This document describes a simple, logical process for selecting the fluids and foods

to be promoted *for preventing dehydration*. It also shows how to include the selected fluids and foods in national guidelines for home therapy of diarrhoea. The document does *not*, however, concern comprehensive guidelines for home therapy. Such guidelines may require additional details about feeding during and after diarrhoea, and when to take a child to a health worker.

Managers of national diarrhoeal disease control programmes (CDD programmes) should use these guidelines to identify the most appropriate home fluids and foods for use during home therapy in their countries. Countries that already have policies on home therapy should use this document to re-examine those policies and revise them as necessary.

This document replaces the WHO CDD document entitled *A Decision Process for Establishing a Policy on Fluids for Home Therapy of Diarrhoea* (WHO/CDD/SER/87.10).

How home therapy prevents dehydration

Diarrhoea causes dehydration through the excess loss of water and salt (sodium chloride) in liquid stools. One aim of home therapy is to prevent dehydration by replacing these losses as they occur. This can be done when sufficient amounts of appropriate fluids and food, with salt, are given by mouth.

When water is taken by mouth it is rapidly absorbed, even during diarrhoea. In contrast, salt is absorbed by persons with diarrhoea only when food molecules, such as glucose (released during the digestion of sugar or cooked starch) or certain amino acids (released during the digestion of proteins), are also present in the intestine and are being absorbed. As a rule, for every

molecule of glucose or amino acid absorbed, one molecule of salt is also absorbed. Fortunately, the ability to absorb these food molecules remains nearly normal during diarrhoea.

Oral Rehydration Salts (ORS) solution prevents dehydration during diarrhoea by providing water, glucose and salt, plus other electrolytes, in a single solution. When the glucose and salt are absorbed, water and other electrolytes are also absorbed, thus replacing the losses in liquid stool. Home therapy works in the same way, but uses the water, starch (or protein) and salt in fluids and food that are readily available in the home.

What fluids are suitable for home therapy?

Most fluids that a child normally takes can also be used for home therapy. Those promoted should, however, be ones the mother would agree to give in large or increased amounts to a child with diarrhoea, be readily available, and be affordable. Some fluids are especially useful because they contain salt. It is helpful to divide fluids for home therapy into two groups, as follows:

Fluids that contain salt

Wherever possible, a fluid should be promoted that contains salt. The possibilities include:

- ORS solution
- a salted drink
- a salted soup

ORS solution is very effective for home therapy to prevent dehydration. It should be promoted if ORS packets are readily available and affordable, and mothers know, or will be taught, how to mix and give ORS solution.

Alternatively, a widely used drink or soup that is *normally* prepared with salt may be promoted, provided there is evidence that mothers consider it acceptable for children with diarrhoea. Examples are salted rice water, a salted yoghurt-based drink, and vegetable or chicken soup with salt. These fluids should be prepared in the usual way. Precise measurement of the salt content is not necessary. Because these fluids are safe when given to healthy children, it is not likely that a child with diarrhoea who takes them would receive too much salt.

Teaching mothers to add salt (about 3 g/l) to an unsalted drink or soup during diarrhoea is also possible, but requires a substantial and sustained educational effort. The cost and feasibility of this effort should be carefully considered before adopting this strategy.

Sugar-salt solution (SSS) has been promoted previously for home therapy, but has not proven satisfactory in most countries. This is because mothers often forget the recipe, or are unable to obtain sugar or salt. Moreover, mistakes in mixing SSS can cause the concentrations of sugar and salt to be dangerously high. In most countries, SSS should not be promoted. However, if its use is already well-established in a country and there is evidence that it is prepared safely and given correctly, SSS may continue to be promoted for home therapy. In this case, ongoing training of mothers and monitoring of their performance is required to ensure that mothers continue to prepare SSS safely and use it correctly. The recommended composition of SSS is: common salt, 3g/l, and sugar, 18g/l.

Fluids that do not contain salt

One or more fluids that are prepared without salt should also be promoted. These often include widely used home drinks that are most likely to be given in greater amounts than usual to a thirsty child. Some common examples are:

- plain clean water
- water in which a cereal has been cooked, e.g. rice water (unsalted)
- soup (unsalted)
- yoghurt-based drinks (unsalted)
- green coconut water
- weak tea (unsweetened)
- unsweetened fresh fruit juice

Plain clean water is the most widely given home fluid. Most mothers give water to children with diarrhoea. Water should *always* be one of the promoted home fluids. The selection of other fluids requires knowledge about which ones are most frequently given to children in the area, are considered acceptable by mothers for children with diarrhoea, and would likely be given in greater amount than usual if the mother were encouraged to do so.

What fluids should *not* be given?

Some fluids are potentially dangerous and should **not** be given to children with diarrhoea. An important example is fluids that are sweetened with sugar. These can draw water into the intestine by their high osmotic activity, thus making the diarrhoea worse, aggravating dehydration and causing the concentration of sodium in the serum to rise to dangerous levels (hypernatraemia). Examples of such fluids include:

- most soft drinks
- sweetened fruit drinks
- sweetened tea

Other fluids that should be avoided are those with stimulant, diuretic or purgative effects; for example:

- coffee
- some medicinal teas or infusions

What foods should be given during diarrhoea?

A child's diet during diarrhoea should be what is recommended for the child's age. This may be the child's usual diet, or advice on improving the diet may be required. Several points should be emphasized:

- Breast feeding should be given frequently, as often and as long as the child wants.
- If the child normally takes animal milk or formula, this should be given in the usual amount and at full strength.

- For children who take solid foods:

- Give the recommended diet for the child's age.
- Foods prepared with salt should be encouraged.
- Food should be given frequently, about 6 times a day.
- An extra meal should be given each day for two weeks after diarrhoea stops.

What background information is required?

You will need to obtain and consider certain information before attempting to select the most appropriate fluids and foods for use at home during diarrhoea. This includes information on which fluids and foods:

- mothers consider acceptable for a child with diarrhoea;
- mothers would be willing to give in increased amounts during diarrhoea;
- are usually prepared with salt;
- are most available, affordable and easy to prepare; and
- are sweetened with sugar or are known to have undesirable effects.

Your efforts to gather this information should focus on the questions listed in the Annex.

First, find out whether some of this information is available in reports of previously conducted studies. You can do this by reviewing all available published and unpublished reports that describe, for your area, the foods and fluids commonly given to young children and the local practices concerning home management of childhood diarrhoea. These may include household surveys, ethnographic studies and reports of research conducted by the NCDDP, other government agencies, universities, research institutes or non-governmental organizations. Any relevant information should be summarized and areas in which more information is needed should be noted.

Then, consider how you can obtain the missing information. This will usually

require a study that describes maternal beliefs and practices with regard to fluids and foods given during diarrhoea. If your country has several distinct ethnic or cultural groups, several studies may be needed. Rapid ethnographic assessment methods are available that could be used in these studies.

When planning your study, you may want to obtain technical assistance from WHO or another organization with rele-

vant experience. Suitable investigators are most likely to be found in universities, research institutes and non-governmental organizations. Ideally, these persons should have experience in applied health research and be familiar with both qualitative and quantitative research methods. After identifying such persons, you will need to brief them about the CDD programme, the information that is needed, and how the proposed study would relate to specific programme objectives.

Selecting home fluids and foods for preventing dehydration

You should use the information obtained above to select the most appropriate home fluids and foods to promote for home therapy. This can be done by completing each of the following steps:

Select one or more fluids that contain salt

One fluid may be sufficient, if it is widely available and familiar to the entire population. For example, the policy may state that all children with diarrhoea should receive a traditional salted vegetable soup.

Additional fluids should be selected, as alternatives, when there is no single, appropriate fluid that is available throughout the country. This will usually be necessary if ORS solution is one of the selected fluids. For example, the policy may state that ORS solution is recommended, but where it is not available, a traditional salted vegetable soup should be given.

Select one or more fluids that do not contain salt

Usually two or three fluids should be selected. Promoting more than one fluid will help to ensure that at least one would be considered acceptable by every mother. Water should *always* be one of the selected fluids.

Select a food that contains salt

If possible, at least one such food should be selected. In some countries, however, it may not be possible to identify a salt-containing food that is widely available and considered acceptable for infants and young children with diarrhoea.

Identify fluids that should not be given

These are specific fluids from the list above (page 3) that are frequently given to children with diarrhoea and are known to have undesirable effects.

If it is not possible to identify an acceptable fluid or food that normally contains salt, fluids that do not contain salt should still be recommended and the child's usual diet should be given. In this instance, the national CDD policy should emphasize the importance of early referral of the child to a health facility where treatment with ORS solution is available. The addition of salt to a widely available and acceptable salt-free fluid should also be considered.

Four worksheets are attached, one for information related to each of the above points. Use the worksheets to record your notes on candidate fluids and foods, and to select those that have the most favorable characteristics.

WORKSHEET 1

SELECT FLUIDS THAT CONTAIN SALT

NAME OF FLUID	USUALLY AFFORDABLE? <i>(yes/no)</i>	USUALLY READILY AVAILABLE? <i>(yes/no)</i>	ACCEPTABLE TO MOST MOTHERS DURING DIARRHOEA? <i>(yes/no)</i>	MOST MOTHERS WILLING TO GIVE LARGE OR INCREASED AMOUNT? <i>(yes/no)</i>

Selected fluid(s):

1. _____
2. _____

Notes:

1. Use the table to summarize information for the entire country or a specified part of the country.
2. Consider for selection only fluids for which the answers to "Affordable?", "Available?", and "Acceptable?" are "yes".
3. Among these, select one or two fluids that are most acceptable and would most likely be given in large or increased amounts during diarrhoea.
4. If ORS solution is selected, a home fluid with salt should also be selected, if possible.

WORKSHEET 2

SELECT FLUIDS THAT DO NOT CONTAIN SALT

NAME OF FLUID	USUALLY AFFORDABLE? <i>(yes/no)</i>	USUALLY READILY AVAILABLE? <i>(yes/no)</i>	ACCEPTABLE TO MOST MOTHERS DURING DIARRHOEA? <i>(yes/no)</i>	MOST MOTHERS WILLING TO GIVE LARGE OR INCREASED AMOUNT? <i>(yes/no)</i>

Selected fluid(s):

1. **CLEAN WATER**

2. _____

3. _____

4. _____

Notes:

1. Use the table to summarize information for the entire country or a specified part of the country.
2. Eliminate any fluids that are potentially dangerous (see Worksheet 4).
3. Among the rest, consider for selection only fluids for which answers to "Affordable?", "Available?", and "Acceptable?" are "yes".
4. Among these, select one or more fluids that are most acceptable and would most likely be given in large or increased amounts during diarrhoea. Clean water should *always* be one of the fluids selected.

WORKSHEET 3

SELECT A FOOD THAT CONTAINS SALT

NAME OF SALTED FOOD	USUALLY READILY AVAILABLE? <i>(yes/no)</i>	ACCEPTABLE TO MOST MOTHERS DURING DIARRHOEA? <i>(yes/no)</i>

Selected food(s):

1. _____
2. _____

Notes:

1. Use the table to summarize information for the entire country or a specified part of the country.
2. Consider for selection only foods for which the answer to "Available?" and "Acceptable?" is "yes".
3. Among these, select one or two foods that are most acceptable. Give preference to any food(s) that are given to young children with diarrhoea by some mothers.

National policy on home therapy of diarrhoea

As a final step, the fluids and foods selected in the four worksheets should be included in the *Outline of National Policy on Home Therapy of Diarrhoea* found on the next page. This is done to show how these items, which are selected to prevent dehydration, fit into a policy that covers all aspects of

home therapy of diarrhoea. It should be noted, however, that this outline is only an example of a national policy. Your national policy may differ. It may also provide more details, especially with regard to feeding during and after diarrhoea, and when a child with diarrhoea should be taken to a health worker.

Outline of national policy on home therapy of diarrhoea

1. Give the child more fluids than usual

- Start giving extra fluid as soon as diarrhoea begins.¹
- For infants below 6 months of age who do not take solid food, give:
 - ORS solution, or
 - clean water.
- For all others, give the following:
 - A fluid that contains salt:
 - _____ , or
 - _____
 - Fluids that do not contain salt:
 - CLEAN WATER
 - _____
 - _____
 - _____
- Do not give the following fluids:
 - _____
 - _____
- Continue to give extra fluid until diarrhoea stops.

2. Continue to feed the child ²

- Breastfeed frequently, as often and as long as the child wants.
- Give the recommended diet for age, including the child's usual milk.
- For children who take solid foods:
 - Give a food that contains some salt, such as:
 - _____ , or
 - Give small meals frequently, at least 6 times a day. Encourage the child to eat.
 - After diarrhoea stops, give the child an extra meal each day for two weeks.

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

- Many watery stools
- Repeated vomiting
- Marked thirst
- Eating or drinking poorly
- Fever
- Blood in the stool

Footnotes:

¹ Give as much fluid as the child will take, or follow standard guidelines for how much fluid to give after each loose stool.

² This summary includes only the most essential guidelines on feeding during and after diarrhoea. More details may be added. For examples see feeding guidelines in Treatment Plan A of WHO/CDD chart: *Management of the Patient with Diarrhoea*.

ANNEX

**SOME QUESTIONS FOR INVESTIGATION CONCERNING
FLUIDS AND FOODS FOR HOME THERAPY****ORS**

Are ORS packets readily available to families for home use? Do families perceive them to be readily available?

What effort and expense would be required to make ORS more widely available for home use?

Would families purchase ORS for home use in preference to using other home fluids?

Do mothers know how to mix and give ORS solution? Are containers available in homes for measuring the required amount of water?

Would it be possible to teach most mothers to use ORS for home therapy and to reinforce this teaching at regular intervals?

Home fluids

Which commonly prepared home fluids are considered acceptable for an infant or child with diarrhoea? Which are not?

Which of the "acceptable" fluids are already used by mothers for children with diarrhoea?

Which of the "acceptable" fluids would a mother be willing to give in greater than usual amounts to a child with diarrhoea?

Which of the "acceptable" fluids are usually prepared with salt?

Which of the "acceptable" fluids have ingredients available throughout the year, and especially during the "diarrhoea season"? Which are least costly?

What sweet drinks (such as soft drinks, sweetened fruit drinks, sweetened tea) are often given to children with diarrhoea?

Are stimulants such as coffee, or medicinal teas or infusions that have a diuretic or purgative effect, often given to children with diarrhoea?

Foods that contain salt

What foods, if any, that are given to infants or children are usually prepared with salt?

Which of these would be considered acceptable for a child with diarrhoea?

Which, if any, of the "acceptable" foods with salt are often given to children with diarrhoea?

Are any "special" foods that contain salt prepared for children with diarrhoea?