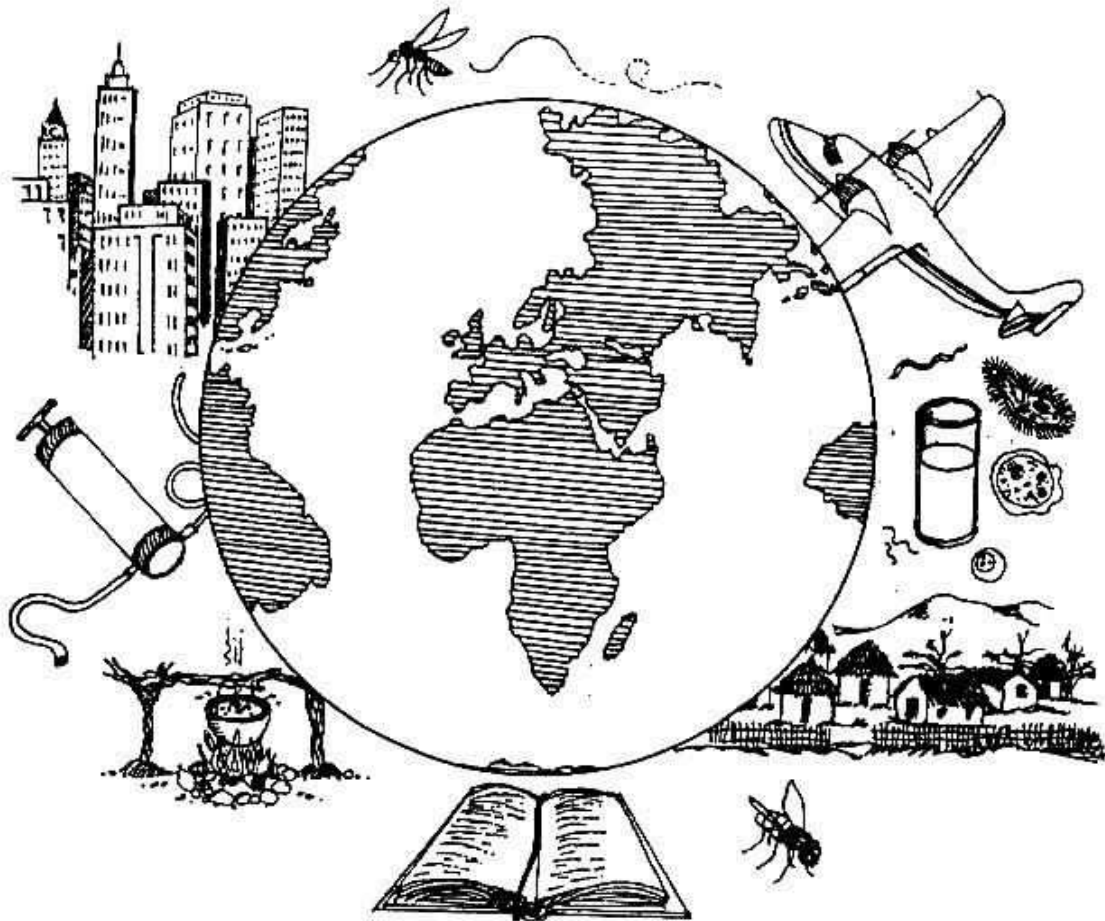


# Cleanliness & Disease

Preventative Healthcare



Training Pac

Missionary Training Series

## INSTRUCTIONS

This Training Pac has a text and a separate Workbook that contains the exercises for the text. Follow these steps:

1. Read through the entire text to obtain an overview of the text content.
2. Become familiar with the objectives at the beginning of each section.
3. Then reread the text while completing the exercises in the Workbook.

## Contents

	Page
Objectives .....	1
I. Cleanliness .....	2
II. Worms and Other Intestinal Parasites .....	6
III. Dehydration .....	16
IV. Diarrhea and Dysentery .....	19
V. Vomiting .....	28
VI. Conclusion .....	29
Sources of Information .....	29

## Objectives

When you have successfully completed this Training Pac, you will be able:

To learn the importance of personal hygiene and cleanliness in the home and village

To learn about the causes and prevention of many common sicknesses

To learn how to prevent and treat diarrhea, dehydration and vomiting

To understand the importance of these things in our homes and villages

An ounce of prevention is worth a pound of cure! If we all took more care to eat well, to keep ourselves, our homes, and our villages clean, we could stop most sicknesses before they start. (This Training Pac will be on cleanliness and disease prevention.)

## I. CLEANLINESS AND PROBLEMS THAT COME FROM LACK OF CLEANLINESS

Cleanliness is of great importance in the prevention of many kinds of infections -- infections of the gut, the skin, the eyes, the lungs, and the whole body. Personal cleanliness (or *hygiene*) and public cleanliness (or *sanitation*) are both important.

Many common infections of the gut are spread from one person to another because of poor hygiene and poor sanitation. Germs and worms (or their eggs) are passed by the thousands in the *stools* or *feces* of infected persons. These are carried from the feces of one person to the mouth of another by dirty fingers or *contaminated* food or water. Diseases that are spread or *transmitted* from *feces-to-mouth* in this way, include:

- Diarrhea and dysentery (caused by amoebas and bacteria)
- Intestinal worms (several types)
- Hepatitis, typhoid fever, and cholera
- Certain other diseases like polio, are sometimes spread this same way

The way these infections are transmitted can be very direct.

For example: A child who has worms and who forgot to wash his hands after his last bowel movement, offers his friend a cracker. His fingers, still dirty with his own stool, are covered with hundreds of tiny worm eggs (so small they cannot be seen). Some of these worm eggs stick to the cracker. When his friend eats the cracker, he swallows the worm eggs, too.

Soon the friend will also have worms. His mother may say this is because he ate sweets. But no, it is because he ate feces.

Many times pigs, dogs, chickens, and other animals spread intestinal disease and worm eggs. For example:

A man with diarrhea or worms has a bowel movement behind his house.



A pig eats his stool dirtying its nose and feet.



Then the pig goes into the house.



In the house a child is playing on the floor. In this way, a bit of the man's stool gets on the child too.



Later the child starts to cry, and the mother takes him in her arms.



Then the mother prepares food, forgetting to wash her hands after handling the child.



The family eats the food.



And soon, the whole family has diarrhea or worms.

Many kinds of infections, as well as worm eggs, are passed from one person to another in the way just shown.

If the family had taken any of the following precautions, the spread of sickness could have been prevented:

- If the man had used a latrine or out-house
- If the family had not let the pig come into the house,
- If they had not let the child play where the pig had been.
- If the mother had washed her hands after touching the child and before preparing food.

If there are many cases of diarrhea, worms, and other intestinal parasites in your village, people are not being careful enough about cleanliness. If many children die from diarrhea, it is likely that poor nutrition is also part of the problem. To prevent death from diarrhea, both cleanliness and good nutrition are important.

### Basic Guidelines of Cleanliness

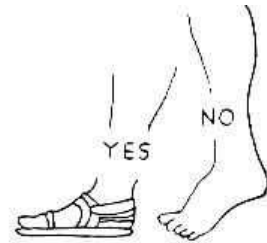
#### PERSONAL CLEANLINESS (HYGIENE)

1. Always wash your hands with soap when you get up in the morning, after having a bowel movement, and before eating.



2. Bathe often – every day when the weather is hot. Bathe after working hard or sweating. Frequent bathing helps prevent skin infections, dandruff, pimples, itching, and rashes. Sick persons, including babies, should be bathed daily.

3. In areas where hookworm is common, do not go barefoot or allow children to do so. Hookworm infection causes severe anemia. These worms enter the body through the soles of the feet.



4. Brush your teeth every day and after each time you eat sweets. If you do not have a toothbrush and toothpaste, rub your teeth with salt and baking soda.

#### CLEANLINESS IN THE HOME

1. Do not let pigs or other animals come into the house or places where children play.
2. Do not let dogs lick children or climb up on beds. Dogs, too, can spread disease.
3. If children or animals have a bowel movement near the house, clean it up at once. Teach children to use a latrine or at least to go farther from the house.
4. Hang or spread sheets and blankets in the sun often. If there are bed bugs, pour boiling water on the cots and wash the sheets and blankets – all on the same day.

5. De-louse the whole family often. Lice and fleas carry many diseases. Dogs and other animals that carry fleas should not come into the house.
6. Do not spit on the floor. Spit can spread disease. When you cough or sneeze, cover your mouth with your hand or a cloth or handkerchief.
7. Clean the house often. Sweep and wash the floors, walls, and beneath furniture. Fill in cracks and holes in the floor or walls where roaches, bedbugs, and scorpions can hide.

### CLEANLINESS IN EATING AND DRINKING

1. Ideally all water does not come from a pure water system should be boiled, filtered, or purified before drinking. This is especially important for small children and at times when there is a lot of diarrhea or cases of typhoid, hepatitis, or cholera. However, to prevent disease, having enough water is more important than having pure water. Also, asking poor families to use a lot of time or money for firewood to boil drinking water may do more harm than good, especially if it means less food for the children or more destruction of forests.

A good, low-cost way to purify water is to put in a clear plastic bag or clear bottle and leave it in direct sunlight for a few hours. This will not kill all germs in the water.

2. Do not let flies or other insects land or crawl on food. These insects carry germs and spread disease. Do not leave food scraps or dirty dishes lying around, as these attract flies and breed germs. Protect food by keeping it covered or in boxes or cabinets with wire screens.
3. Before eating fruit that has fallen to the ground, wash it well. Do not let children pick up and eat food that has been dropped – wash it first.
4. Only eat meat and fish that is well cooked. Be careful that roasted meat, especially pork and fish, do not have raw parts inside. Raw pork carries dangerous diseases.
5. Chickens carry germs that can cause diarrhea. Wash your hands after preparing chicken before you touch other foods.
6. Do not eat food that is old or smells bad. It may be poisonous. Do not eat canned food if the can is swollen or squirts when opened. Be especially careful with canned fish. Also, be careful with chicken that has passed for several hours since it was cooked. Before eating leftover cooked foods, heat them again, very hot. If possible, give only foods that have been freshly prepared, especially to children, elderly people, and very sick people.

7. People with tuberculosis, flu, colds, or other infectious diseases should eat separately from others. Plates and utensils used by sick people should be boiled before being used by others.

## HOW TO PROTECT YOUR CHILDREN'S HEALTH

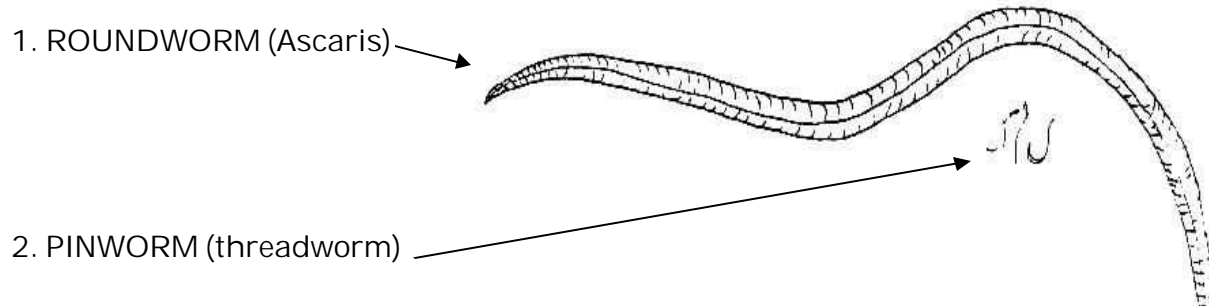
1. A sick child should sleep apart from children who are well. Sick children or children with sores, itchy skin, or lice should always sleep separately from those who are well. Children with infectious diseases like whooping cough, measles, or the common cold should sleep in separate rooms, if possible, and should not be allowed near babies or small children.
2. Protect children from tuberculosis. People with long-term coughing or other signs of tuberculosis should cover their mouths whenever they cough. They should never sleep in the same room with children. They should see a health worker and be treated as soon as possible.

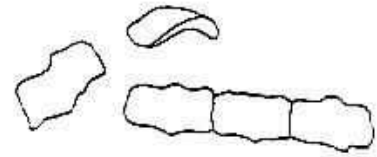
Children living with a person who has tuberculosis should be vaccinated against TB (B.C.G. vaccine).

3. Bathe children, change their clothes, and cut their fingernails often. Germs and worm eggs often hide beneath long fingernails.
4. Treat children who has infectious diseases as soon as possible, so that the diseases are not spread to others.
5. Follow all the guidelines of cleanliness mentioned in this section. Teach children to follow these guidelines and explain why they are important. Encourage children to help with projects that make the home or village a healthier place to live.
6. Be sure children get enough good food. Good nutrition helps protect the body against many infections. A well-nourished child will usually resist or fight off infections that can kill a poorly nourished child.

## II. WORMS AND INTESTINAL PARASITES

There are many types of worms and other tiny animals (parasites) that live in people's intestines and causes diseases. Those which are larger are sometimes seen in the stools (feces).





### 3. WHIPWORM (Trichuris)

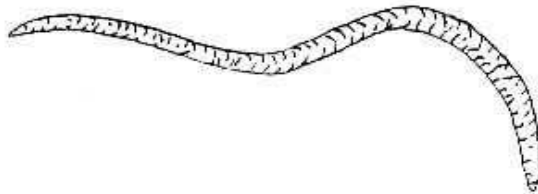
### 4. HOOKWORM

### 5. TAPEWORM

The only worms commonly seen in the stools are roundworms, pinworms, and tapeworms. Hookworms and whipworms may be present in the gut in large numbers without ever being seen in the stools.

Note on worm medicine: Many 'worm medicines' contain piperazine. These work only for roundworms and pinworms and should not be given to babies and small children. Mebendazole (Vermox) is safer and attacks many more kinds of worms, but they may be expensive. Thiabendazole attacks many kinds of worms, but causes dangerous side effects and should usually not be used.

#### Roundworms (Ascaris)



20 to 30 cm. Long. Color: pink or white.

#### How they are spread:

*Feces-to-mouth.* Through lack of cleanliness, the round worm eggs pass from one person's stools to another person's mouth.

#### Effect on Health:

Once the eggs are swallowed, young worms hatch and enter the bloodstream; this may cause general itching. The young worms then travel to the lungs, sometimes causing a dry cough or, at worst, pneumonia with coughing of blood. The young worms are coughed up, swallowed, and reach the intestines, where they grow to full size.

Many roundworms in the intestines may cause discomfort, indigestion, and weakness. Children with many roundworms often have large, swollen bellies. Rarely, roundworms may cause asthma, fits, or a dangerous obstruction or blockage in the gut. Especially when the child has a fever, the worms sometimes come out in the stools or crawl out through the mouth or nose. Occasionally, they crawl into the airway and cause gagging.

#### Prevention:

Use latrines, wash hands before eating or handling food, protect food from flies, and follow the guidelines of cleanliness described in the first part of this section.

## Treatment:

Mebendazole will usually get rid of roundworms.

*Warning!* Do not use Thiabendazole for roundworms. It often makes the worms move up to the nose or mouth and can cause gagging.

## Pinworm, Threadworm, Seatworm (Enterbius)

1 cm. Long. Color: white. Very thin and threadlike.



## How they are transmitted:

These worms lay eggs just outside the anus. This causes itching, especially at night. When a child scratches, the eggs stick under his nails, and are carried to food and other objects. In this way, they reach his own mouth or the mouth of others, causing new infections of pinworms.

## Effect on Health:

These worms are not dangerous. Itching may disturb the child's sleep.

## Treatment & Prevention

- A child who has pinworms should wear tight diapers or pants while sleeping to keep him from scratching his anus.
- Wash the child's hands and buttocks (anal area) when he wakes up and after he has a bowel movement. Always wash his hands before he eats.
- Cut his fingernails very short.
- Change his clothes and bathe him often – wash the buttocks and nails especially well.
- Put *Petroleum Jelly* in and around his anus at bedtime to help stop itching.
- Give mebendazole worm medicine. Piperazine also works, but should not be used for children and babies. When one child is treated for these worms, it is wise to treat the whole family at the same time.
- Cleanliness is the best prevention for threadworms. Even if medicine gets rid of the worms, they will be picked up again if care is not taken with personal hygiene. Pinworms only live for about 6 weeks. By carefully following the guidelines of cleanliness, most of the worms will be gone within a few weeks, even without medicine.

Whipworm (Trichuris, Trichocephalus)



3 to 5 cm. long. Color: pink or gray.

This worm, like roundworm, is passed from the feces of one person to the mouth of another person. Usually this worm does little harm, but it may cause diarrhea. In children, it occasionally causes part of the intestines to come out of the anus (*prolapse of the rectum*).

Prevention:

The same as for roundworms.

Treatment:

If the worms cause problems, give mebendazole. For prolapse of the rectum, turn the child upside down and pour cool water on the intestine. This should make it pull back in.

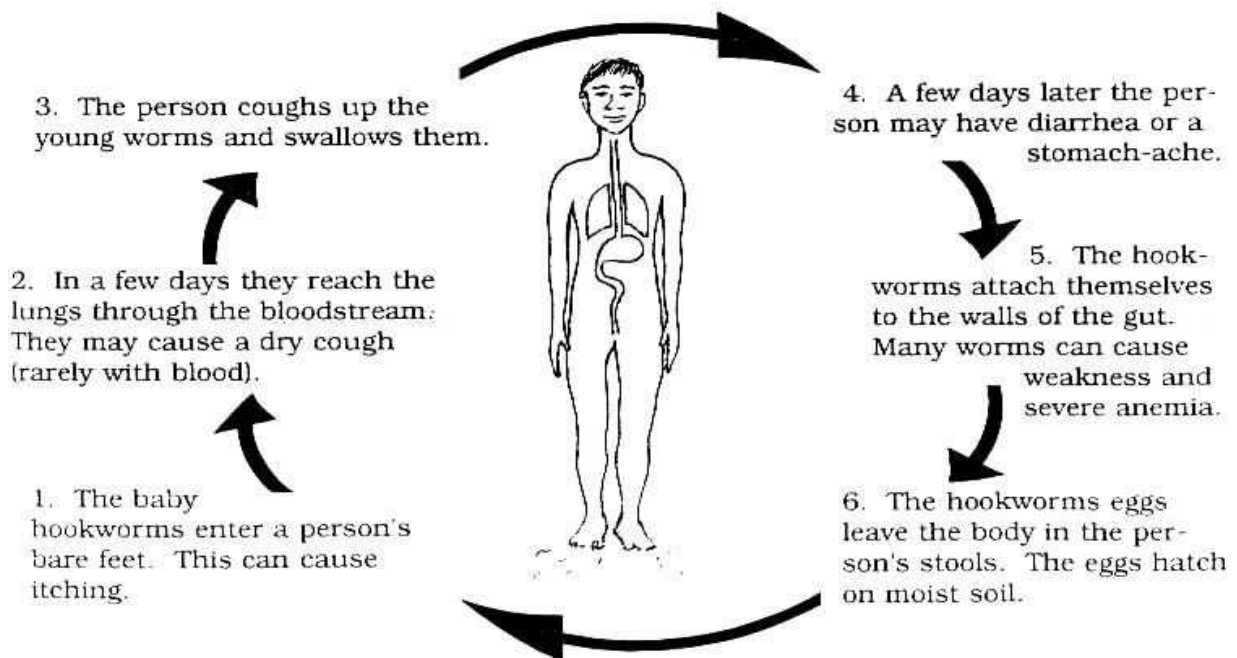
Hookworm



1 cm. long. Color: red.

Hookworm cannot usually be seen in the feces. A stool analysis is needed to prove that they are there.

How hookworms are spread:



Hookworm infection can be one of the most damaging diseases of childhood. Any child who is anemic, very pale, or eats dirt may have hookworms. If possible, his stools should be analyzed.

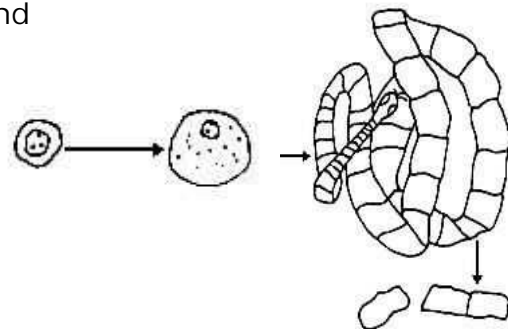
Treatment:

Use mebendazole. Treat anemia by eating foods rich in iron and if necessary by taking iron pills.

Prevent hookworm:  
Build and use latrines.  
Do not let children go barefoot.

Tapeworm

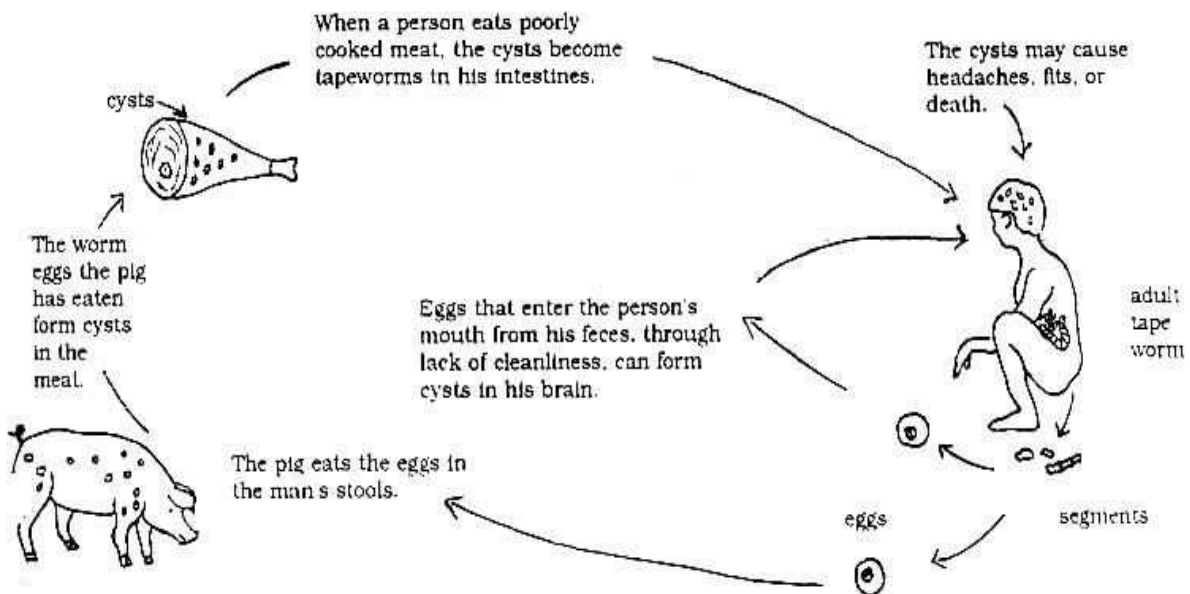
In the intestines tapeworms grow several meters long. But the small, flat, white pieces (segments) found in the feces are usually about 1 cm. long. Occasionally, a segment may crawl out by itself and be found in the underclothing.



People get tapeworms from eating pork (pig meat), beef (cow meat) or other meat or fish that is not well cooked.

Prevention:

Be careful that all meat is well cooked, especially pork. Make sure no parts in the center of roasted meat or cooked fish are still raw.



### Effect on health:

Tapeworms in the intestines sometimes cause mild stomach aches, but few other problems.

The greatest danger exists when the *cysts* (small sacs containing baby worms) get into the person's brain. This happens when the eggs pass from his stools to his mouth. For this reason, anyone with tapeworms must follow the guidelines of cleanliness carefully – and get treatment as soon as possible.

### Treatment:

Take niclosamide (*Yomesan*), or praziquantel. Follow instructions carefully:

### *Trichinosis*

These worms are never seen in stools. They burrow through the person's intestines and get into the muscles. People get these worms, like tapeworms, from eating infected pork or other meat that is not well cooked.

### Effect on health:

Depending on the amount of infected meat eaten, the person may feel no effects, or she may become very sick or die. From a few hours to 5 days after eating the infected pork, the person may develop diarrhea and feel sick to her stomach.

In serious cases the person may have:

- Fever with chills
- Muscle pain
- Swelling around the eyes and sometimes swelling of the feet
- Small bruises (black or blue spots) on the skin
- Bleeding in the whites of the eyes

Severe cases may last 3 or 4 weeks.

### Treatment:

Seek medical help at once. Thiabendazole or mebendazole may help. (Corticosteroids may help, but should be given by a health worker or doctor).

*Important: If several people who ate meat from the same pig get sick afterward, suspect trichinosis. This can be dangerous; seek medical attention.*

### Prevention of Trichinosis:

- Only eat pork and other meat that has been well cooked.
- Do not feed scraps of meat or leftovers from butchering to pigs unless the meat has first been cooked.

### Amoebas

These are not worms, but tiny animals – or parasites – that can be seen only with a *microscope* (an instrument that makes things look much bigger).

### How they are transmitted:



The stools of infected people contain millions of these tiny parasites. Because of poor sanitation, they get into the source of drinking water or into food, and other people become infected.

### Signs of infection with amoebas:

Many healthy people have amoebas without becoming sick. However, amoebas are a common cause of severe diarrhea or *dysentery* (diarrhea with blood) – especially in persons already weakened by other sickness or poor nutrition. Less commonly, amoebas cause painful, dangerous abscesses in the liver.

### Typical Amoebic Dysentery consists of:

- Diarrhea that comes and goes – sometimes alternating with constipation
- Cramps in the belly and a need to have frequent bowel movements, even when little or nothing – or just mucus – comes out
- Many loose (but usually not watery) stools with lots of mucus, sometimes stained with blood
- In severe cases, much blood; the person may be very weak and ill
- Usually there is no fever

Diarrhea with blood may be caused by either amoebas or bacteria. However, bacterial dysentery (*Shigella*) begins more suddenly, the stools are more watery, and there is almost always fever. As a general rule:

Diarrhea + blood + fever = bacterial infection (*Shigella*)

Diarrhea + blood + no fever = amoebas

Occasionally, bloody diarrhea has other causes. To be sure of the cause a *stool analysis* may be necessary.

Sometimes amoebas get into the liver and form an abscess or pocket of pus. This causes tenderness or pain in the right upper belly. Pain may extend into the right chest and is worse when the person walks. If the person with these signs begins to cough up a brown liquid, an amoebic abscess is draining into his lung.

#### Treatment:

- If possible, get medical help and a stool analysis.
- Amoebic dysentery can be treated with metronidazole, if possible together with diloxanide furoate or tetracycline.
- For amoebic abscess, treat as for amoebic dysentery, and then take chloroquine for 10 days.

#### Prevention:

Make and use latrines, protect the source of drinking water, and follow the guidelines of cleanliness. Eating well and avoiding fatigue and drunkenness are also important in preventing amoebic dysentery.

#### Giardia



The Giardia, like the amoeba, is a microscopic parasite that lives in the gut and is a common cause of diarrhea, especially in children. The diarrhea may be *chronic* or intermittent (may come and go).

A person has yellow, bad-smelling diarrhea that is frothy (full of bubbles) but without blood or mucus, probably has giardia. The belly is swollen with gas and uncomfortable, there are mild intestinal cramps, and the person passes gas and burps a lot. The burps have a bad taste, like sulfur. There is usually no fever.

Giardia infections sometimes clear up by themselves. Good nutrition helps. Severe cases are best treated with metronidazole. Atabrine is cheaper and often works well, but causes worse side effects.

#### Blood Flukes (schistosomiasis, Bilharzia)

The infection is caused by a kind of worm that gets into the bloodstream. Different types of blood flukes are found in different parts of the world. One kind, common in Africa and in the Middle East, causes blood in the urine. Other types, which cause bloody diarrhea, occur in Africa, South America and Asia. In areas where these diseases are known to occur, any person who has blood in his urine or stools should have a sample of it tested for fluke eggs.

### Signs:

- The most common sign is blood in the urine (especially when passing the last drops) – or for other kinds of flukes, bloody diarrhea.
- Pain may occur in the lower belly and between the legs; it is usually worst at the end of urinating. Low fever, weakness, and itching may occur.
- After months or years, the kidneys or liver maybe badly damaged, which can eventually cause death.
- Sometimes there are no early signs. In areas where schistosomiasis is very common, persons with only mild signs or belly pain should be tested.

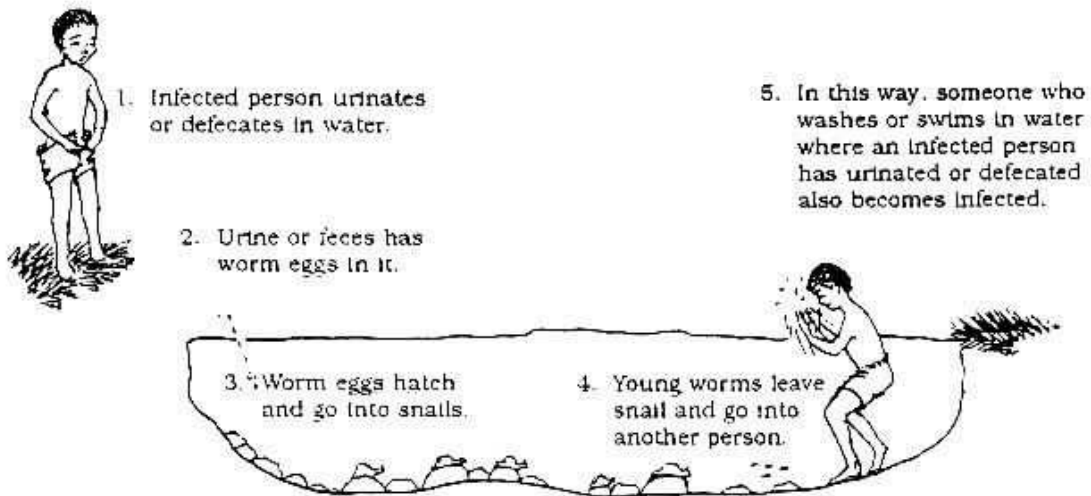
### Treatment:

Praziquantel works for all types of blood flukes. Metrifonate and oxamniquine works for some kinds of blood flukes. Medicines should be given under the direction of an experienced health worker.

### Prevention:

Blood flukes are not spread directly from person to person. Part of their life they must live inside a certain kind of small water snail.

Blood Flukes spread like this:

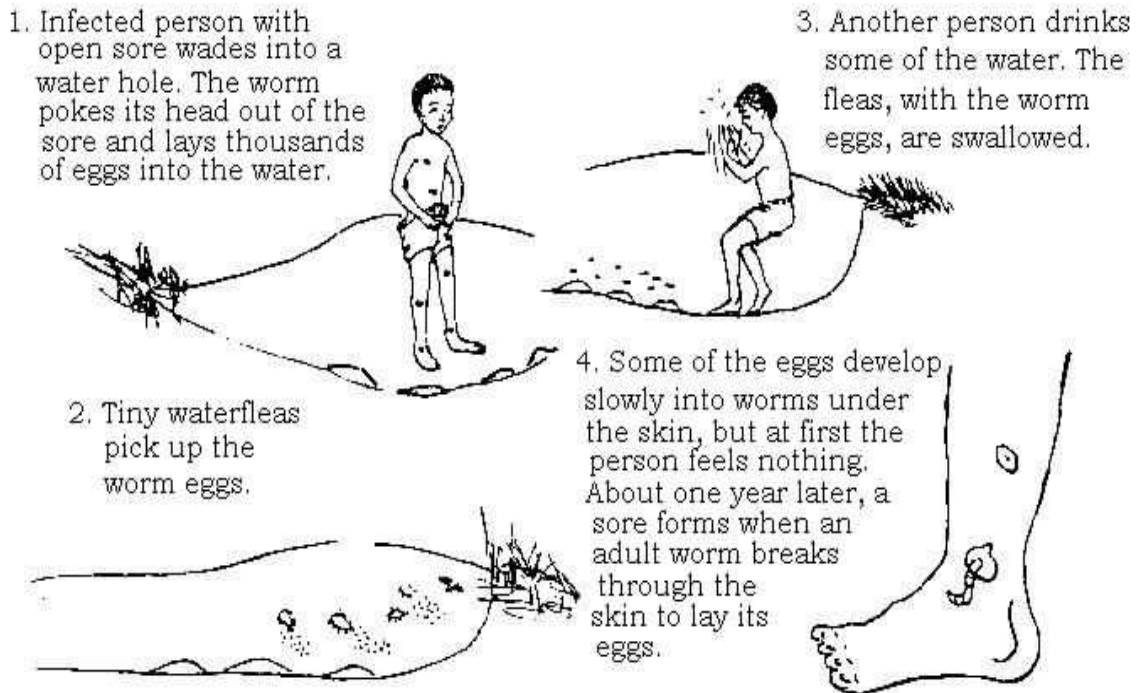


To prevent schistosomiasis, cooperate with programs to kill snails and treat infected persons. But most important: Everyone should learn to use latrines and NEVER URINATE OR DEFECATE IN OR NEAR WATER.

## Guinea Worm

Guinea worm is a long, thin worm that lives under the skin and makes a painful sore on the ankle, leg, or elsewhere on the body. The worm, which looks like a white thread, can be over a meter long. Guinea worm is found in parts of Africa, India, and the Middle East.

Guinea worm is spread from person to person, like this:

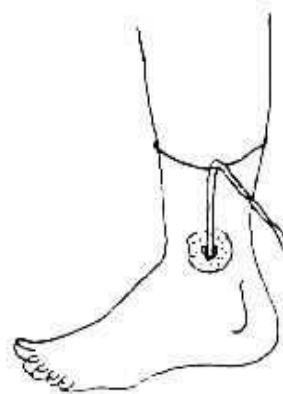


### Signs:

- A painful swelling develops in the ankle, leg, testicles or elsewhere on the body.
- After a week, a blister forms, which soon bursts open forming a sore. This often happens when standing in water, or bathing. The end of a white thread-like Guinea worm can be seen poking out of the sore.
- If the sore gets dirty and infected, the pain and swelling spread, and walking becomes impossible. Sometimes tetanus occurs.

### Treatment:

- Keep the sore clean. Soak the sore in cold water until the worm's head pokes out.
- Attach a thread to the worm, or roll it around a thin stick, and pull gently, a little more each day. This may take a week or more. The worm can be more than a meter long! Try not to break it, because this can cause severe infection.



- Give metronidazole or thiabendazole to help reduce discomfort and make it easier to slowly pull out the worm. (The medicines do not kill the worms.)
- Give anti-tetanus vaccination.
- If sores become infected (spreading pain, redness, swelling, and fever), give penicillin or dicloxicillin or a similar antibiotic.

Prevention:

- Use tap water for drinking, if available. If water hole is the only supply, then do not drink from it directly. Pour the water into a special drinking water pot, through a clean cloth tied over the top. The cloth will filter out the infected water-fleas.
- If the community can build stone steps into the water hole, people can scoop water from the last dry step without getting wet.
- Or turn the water hole into a well, so that people can draw water with a rope and bucket.

If nobody wades or bathes in water used for drinking, the infection cannot be passed on, and will eventually disappear from the area.

### III. DEHYDRATION

Most children who die from diarrhea die because they do not have enough water left in their bodies. This lack of water is called dehydration.

Dehydration results when the body loses more liquid than it takes in. This can happen with severe diarrhea, especially when there is vomiting too. It can also happen in very serious illness, when a person is too sick to take much food or liquid.

People of any age can become dehydrated, but dehydration develops more quickly and is almost dangerous in small children.

Any child with watery diarrhea is in danger of dehydration.
---

It is important that everyone – especially mothers – know the signs of dehydration and how to prevent and treat it.

Signs of Dehydration:

- Thirst is often a first, early sign of dehydration.

- Little or no urine; the urine is dark yellow
- Sudden weight loss
- Dry mouth
- Sunken, tearless eyes
- Sagging of the 'soft spot' in infants
- Loss of elasticity or stretchiness of the skin

Lift the skin between two fingers, like this ...



If the skin fold does not fall right back to normal, the child is dehydrated.



Very severe dehydration may cause rapid, weak pulse, fast deep breathing, fever, or fits.

When a person has watery diarrhea, or diarrhea and vomiting, do not wait for signs of dehydration. Act quickly!

#### To Prevent or Treat Dehydration:

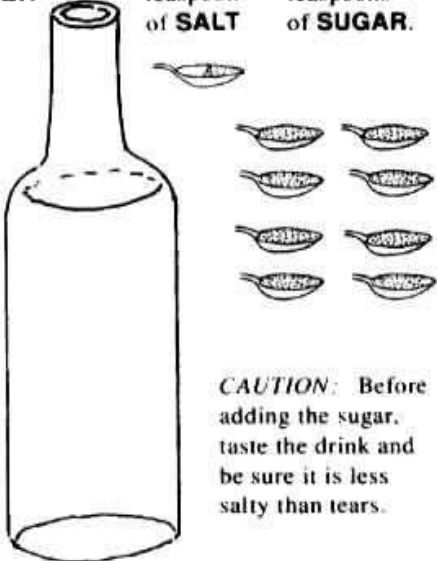
- Give lots of liquids to drink: Re-hydration Drink is best. Or give a thin cereal porridge or gruel, teas, soups, or even plain water.
- Keep giving food. As soon as the sick child (or adult) will accept food, give frequent feedings of foods he likes and accepts.
- To babies, keep giving breast milk often – and before other drinks.

A special Re-hydration Drink helps prevent or treat dehydration especially in cases of severe watery diarrhea.

**2 WAYS TO MAKE 'HOME MIX' REHYDRATION DRINK**

**1. WITH SUGAR AND SALT** (Raw sugar or molasses can be used instead of sugar.)

In 1 liter of clean **WATER** put half of a level teaspoon of **SALT** and 8 level teaspoons of **SUGAR**.

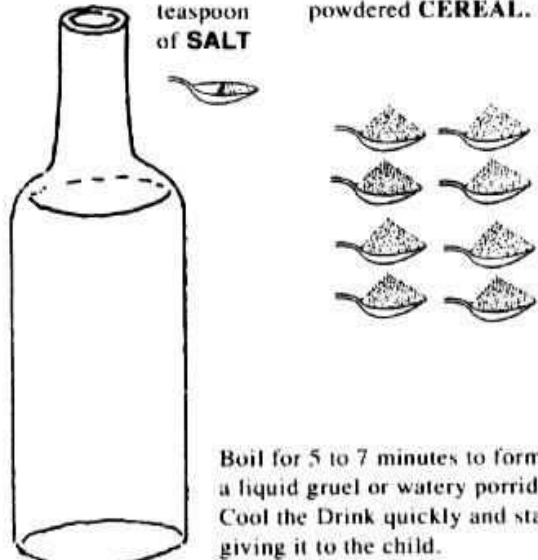


**CAUTION:** Before adding the sugar, taste the drink and be sure it is less salty than tears.

To either Drink add half a cup of fruit juice, coconut water, or mashed ripe banana, if available. This provides potassium which may help the child accept more food and drink.

**2. WITH POWDERED CEREAL AND SALT**  
(Powdered rice is best. Or use finely ground maize, wheat flour, sorghum, or cooked and mashed potatoes.)

In 1 liter of **WATER** put half a teaspoon of **SALT** and 8 heaping teaspoons (or 2 handfuls) of powdered **CEREAL**.



Boil for 5 to 7 minutes to form a liquid gruel or watery porridge. Cool the Drink quickly and start giving it to the child.

**CAUTION:** Taste the Drink each time before you give it to be sure it is not spoiled. Cereal drinks can spoil in a few hours in hot weather.

**IMPORTANT:** Adapt the Drink to your area. If liter containers or teaspoons are not in most homes, adjust quantities to local forms of measurement. Where people traditionally give cereal gruels to young children, add enough water to make it liquid, and use that. Look for an easy and simple way.

Give the dehydrated person sips of this Drink every 5 minutes, day and night, until he begins to urinate normally. A large person needs 3 or more liters a day. A small child usually needs at least 1 liter a day, or 1 glass for each watery stool. Keep giving the Drink often in small sips, even if the person vomits. Not all of the Drink will be vomited.

**WARNING:** If dehydration gets worse or other danger signs appear, go for medical help. It may be necessary to give liquid in a vein.

**NOTE:** In some countries, packers of Oral Re-hydration Salts (ORS) are available for mixing with water. These contain a simple sugar, salt, soda, and potassium. However, homemade drinks – especially cereal drinks – when correctly prepared are often cheaper, safer, and more effective than ORS packets.

#### IV. DIARRHEA AND DYSENTERY

When a person has loose or very watery stools, he has *diarrhea*. If mucus and blood can be seen in the stools, he has *dysentery*.

Diarrhea can be mild or serious. It can be acute (sudden and severe) or *chronic* lasting many days.

Diarrhea is more common and more dangerous in small children, especially those who are poorly nourished.

Diarrhea has many causes. Usually no medicines are needed, and the child gets well in a few days if you give him lots of Re-hydration Drink and food. (If he does not eat much, give him a little food many times a day.) Occasionally, special treatment is needed. However, most diarrhea can be treated successfully in the home, even if you are not sure of the exact cause or causes.

##### *The Main Causes of Diarrhea:*

- Poor nutrition weakens the child and makes diarrhea from other causes more frequent and worse.
- Shortage of water and unclean conditions (no latrines) spread germs that cause diarrhea.
- An infection of the gut caused by bacteria, amoebas, or giardia.
- Worm infections (most worm infections do not cause diarrhea).
- Infections outside the gut (ear infections, tonsillitis, measles, urinary infections).
- Malaria (falciparum type – in parts of Africa, Asia, and the Pacific).
- Food poisoning (spoiled food).
- AIDS (long-lasting diarrhea may be an early sign).
- Inability to digest milk (mainly in severely malnourished children and certain adults).
- Difficulty babies have digesting foods that are new to them.
- Allergies to certain foods (seafood, crayfish, etc.): occasionally babies are allergic to cow's milk or other milk.
- Side effects produced by certain medicines, such as ampicillin or tetracycline.
- Laxatives, purges, irritating or poisonous plants, certain poisons.
- Eating too much unripe fruit or heavy, greasy food.

## Preventing Diarrhea

Although diarrhea has many different causes, the most common are infection and poor nutrition. With good hygiene and good food, most diarrhea could be prevented. And if treated correctly by giving lots of drink and food, few children who get diarrhea would die.

Children who are poorly nourished get diarrhea and die from it far more often than those who are well nourished. Yet diarrhea itself can be part of the cause of malnutrition. And if malnutrition already exists, diarrhea rapidly makes it worse.

Malnutrition causes diarrhea.

Diarrhea causes malnutrition.

This results in a vicious circle, in which each makes the other worse. For this reason, good nutrition is important in both the prevention and treatment of diarrhea.

Prevent diarrhea by preventing malnutrition.

Prevent malnutrition by preventing diarrhea.

The prevention of diarrhea depends both on good nutrition and cleanliness. Some suggestions for personal and public cleanliness include the use of latrines, the importance of clean water, and the protection of foods from dirt and flies.

Here are some other important suggestions for preventing diarrhea in babies:

- Breast feed rather than bottle feed babies. Give only breast milk for the first 4 to 6 months. Breast milk helps babies resist the infections that cause diarrhea. If it is not possible to breast feed a baby, feed her with a cup and spoon. Do not use a baby bottle because it is harder to keep clean and more likely to cause an infection.
- When you begin to give the baby new or solid food, start by giving her just a little, mashing it well, and mixing it with a little breast milk. The baby has to learn how to digest new foods. If she starts with too much at one time, she may get diarrhea. Do not stop giving breast milk suddenly. Start with other foods while the baby is still breast feeding.

- Keep the baby clean – and in a clean place. Try to keep her from putting dirty things in her mouth.
- Do not give babies unnecessary medicines.

### Treatment of Diarrhea:

For most cases of diarrhea no medicine is needed. If the diarrhea is severe, the biggest danger is dehydration. If the diarrhea lasts a long time, the biggest danger is malnutrition. So the most important part of treatment is giving enough liquids and enough food. No matter what the cause of diarrhea, always take care with the following:

1. PREVENT OR CONTROL DEHYDRATION. A person with diarrhea must drink lots of liquids. If diarrhea is severe or there are signs of dehydration, give him Re-hydration Drink. Even if he does not want to drink, gently insist that he do so. Have him take several swallows every few minutes.
  2. MEET NUTRITIONAL NEEDS. A person with diarrhea needs food as soon as he will eat. This is especially important in small children or persons who are already poorly nourished. Also, when a person has diarrhea, food passes through the gut very quickly and is not all used. So give the person food many times a day – especially if he only takes a little at a time.
- A baby with diarrhea should go on breast feeding.
  - And underweight child should get plenty of energy foods and some body-building foods (proteins) all the time he has diarrhea – and extra when he gets well. If he stops eating because he feels too sick or is vomiting, he should eat again as soon as he can. Giving Re-hydration Drink will help the child be able to eat. Although giving food may cause more frequent stools at first, it can save his life.
  - If a child who is underweight has diarrhea that lasts for many days or keeps coming back, give him more food more often – at least 5 or 6 meals each day. Often no other treatment is needed.

FOODS FOR A PERSON WITH DIARRHEA		
When a person is vomiting or feels too sick to eat, he should drink:	As soon as the person is able to eat, in addition to giving the drinks listed at the left, he should eat a balanced selection of the following foods or similar ones:	
Watery mush or broth of rice, maize powder, or potato	<u>energy foods</u>	<u>body-building foods</u>
Rice water (with some mashed rice)	ripe or cooked bananas crackers rice, oatmeal, or other well-cooked grain fresh maize (well-cooked and mashed)	chicken (boiled or roasted) eggs (boiled) meat (well-cooked, without much fat or grease) beans, lentils, or peas (well-cooked and mashed) fish (well-cooked)
Chicken meat, egg, or bean broth	potatoes applesauce (cooked) papaya	milk (sometimes this causes problems)
Kool-Aid or similar sweetened drinks	(It helps to add little sugar or vegetable oil to cereal foods.)	
RE-HYDRATION DRINK		
Breast milk		
DO NOT EAT OR DRINK		
fatty or greasy foods most raw fruits	any kind of laxative or purge	highly seasoned food alcoholic drinks

### Diarrhea and Milk

Breast milk is the best foods for babies. It helps prevent and combat diarrhea. Keep giving breast milk when the baby has diarrhea.

Cow's milk, powdered milk, or canned milk can be good sources of energy and protein. Keep on giving them to a child with diarrhea. In very few children these milk may cause more diarrhea. If this happens, try giving less milk and mixing it with other foods. But remember: a poorly nourished child with diarrhea must have enough energy foods and protein. If less milk is given, well-cooked and mashed foods such as chicken, egg yolk, meat, fish, or beans should be added. Beans are easier to digest if their skins have been taken off and they are boiled and mashed.

As the child gets better, he will usually be able to drink more milk without getting diarrhea.

### Medicines for Diarrhea:

For most cases of diarrhea, no medicine are needed. But in certain cases, using the right medicine can be important. However, many of the medicines commonly used for diarrhea do little or no good. Some are actually harmful.

#### GENERALLY IT IS BETTER NOT TO USE THE FOLLOWING MEDICINES IN THE TREATMENT OF DIARRHEA:

'Anti-diarrhea' medicine with kaolin and pectin make diarrhea thicker and less frequent. But they do not correct dehydration or control infection. Some anti-diarrhea medicines, like loperamide (*Imodium*) or diphenoxylate (*Lomotil*) may even cause harm or make infections last longer.

'ANTI-DIARRHEA MEDICINES' ACT LIKE PLUGS. THEY KEEP IN THE INFECTED MATERIAL THAT NEEDS TO COME OUT.

'Anti-diarrhea' mixtures containing neomycin or streptomycin should not be used. They irritate the gut and often do more harm than good.

Antibiotics like ampicillin and tetracycline are useful only in some cases of diarrhea. But they themselves sometimes cause diarrhea, especially in small children. If, after taking these antibiotics for more than 2 or 3 days, diarrhea gets worse rather than better, stop taking them – the antibiotics may be the cause.

Chloramphenicol has certain dangers in its use and should never be used for mild diarrhea or given to babies less than 1 month old.

Laxatives and purges should never be given to persons with diarrhea. They will make it worse and increase the danger of dehydration.

### Special Treatment in Different Cases of Diarrhea:

While most cases of diarrhea are best treated by giving plenty of liquids and food, and no medicine, sometimes special treatment is needed.

In considering treatment, keep in mind that some cases of diarrhea, especially in small children, are caused by infections outside the gut. Always check for infections of the ears, the throat, and the urinary system. If found, these infections should be treated. Also look for signs of measles.

If the child has mild diarrhea together with signs of a cold, the diarrhea is probably caused by a virus, or 'intestinal flu', and no special treatment is called for. Give lots of liquids and all the food the child will accept.

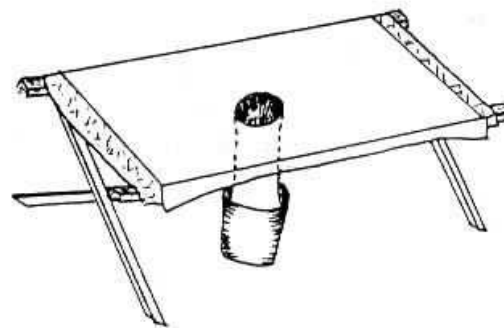
In certain difficult cases of diarrhea, analysis of the stools or other tests may be needed to know how to treat it correctly. But usually you can learn enough from asking specific questions, seeing the stools, and looking for certain signs.

Here are some guidelines for treatment according to signs:

1. Sudden, mild diarrhea. No fever. (Upset stomach? 'Intestinal flu'?)
  - Drink lots of liquids. Usually no special treatment is needed. It is usually best no to use 'diarrhea plug' medicines such as kaolin with pectin (*Kaopectate*) or diphenoxylate (*Lomotil*). They are never necessary and do not help either to correct dehydration or get rid of infection – so why waste money buying them? Never give them to persons who are very ill, or to small children.
2. Diarrhea with vomiting. (Many causes)
  - If a person with diarrhea is also vomiting, the danger of dehydration is greater, especially in small children. It is very important to give the Re-hydration Drink, tea, a cola drink, or whatever liquids he will take. Keep giving the Drink, even if the person vomits it out again. Some will stay inside. Give sips every 5 to 10 minutes. If vomiting does not stop soon, you can use medicines like promethazine or phenobarbital.
  - If you cannot control the vomiting or if the dehydration gets worse, seek medical help fast.
3. Diarrhea with mucus and blood. Often chronic. No fever. There may be diarrhea some days and constipation other days. (Possibly amoebic dysentery.)
  - Use metronidazole or diloxanide furoate. Take the medicine according to recommended doze. If the diarrhea continues after treatment, seek medical advice.
4. Acute diarrhea with fever, with or without blood. (Bacterial dysentery? Typhoid? Malaria?)
  - If the person with diarrhea has fever lasting more than 6 hours after beginning treatment for dehydration, and seems very ill, give ampicillin or co-trimoxazole.
  - If the person is severely ill or he is not improving with ampicillin or co-trimoxazole, seek medical help. If there are signs of typhoid fever, give chloramphenicol in the recommended dose.
  - In areas where the *falciparum* type of malaria is common, it is a good idea that person with diarrhea and fever also be treated with malaria medicines, especially if they have a large spleen.
5. Yellow, bad-smelling diarrhea with bubbles or froth, without blood or mucus. Often a lot of gas in the belly, and burps that taste bad, like sulfur. (Giardia?)

- This may be caused by microscopic parasites called giardia or perhaps by malnutrition. In either case, plenty of liquid, nutritious food, and rest are often the only treatment needed. Severe giardia infections can be treated with metronidazole. Quinacrine (*Atabrine*) is cheaper, but has worst side effects.
6. Chronic diarrhea (diarrhea that lasts a long time or keeps coming back).
- This can be in part caused by malnutrition, or by a chronic infection such as that caused by amoebas or giardia. See that the child eats more nutritious food more times a DAY. If diarrhea still continues, seek medical help.
7. Diarrhea like rice water. (Cholera?)
- 'Rice water' stools in very large quantities may be a sign of cholera. In countries where this dangerous disease occurs, cholera often comes in *epidemics* (striking many people at once) and is usually worse in older children and adults. Severe dehydration can develop quickly, especially if there is vomiting also. Treat the dehydration continuously and give tetracycline, co-trimoxazole, or chloramphenicol. Cholera should be reported to the health authorities. Seek medical help.

A 'cholera bed' like this can be made for persons with very severe diarrhea. Watch how much liquid the person is losing and be sure he drinks larger amounts of Re-hydration Drink. Give him the drink almost continuously, and have him drink as much as he can.



### Care of Babies with Diarrhea

Diarrhea is especially dangerous in babies and small children. Often no medication is needed, but special care must be taken because a baby can die quickly of dehydration.

- Continue breast feeding and also give sips of Re-hydration Drink.

- If vomiting is a problem, give breast milk often, but only a little at a time. Also give Re-hydration Drink in small sips every 5 to 10 minutes.
- If there is no breast milk, try giving frequent small feedings of some other milk or milk substitute (like milk made from soybeans) mixed to half normal strength with boiled water. If milk seems to make diarrhea worse, give some other protein (mashed chicken, eggs, lean meat, or skinned mashed beans, mixed with sugar or well-cooked rice or another carbohydrate, and boiled water).
- If the child is younger than 1 month, try to find a health worker before giving any medicine. If there is no health worker and the child is very sick, give him an 'infant syrup' that contains ampicillin: half a teaspoon 4 times daily. It is better not to use other antibiotics.

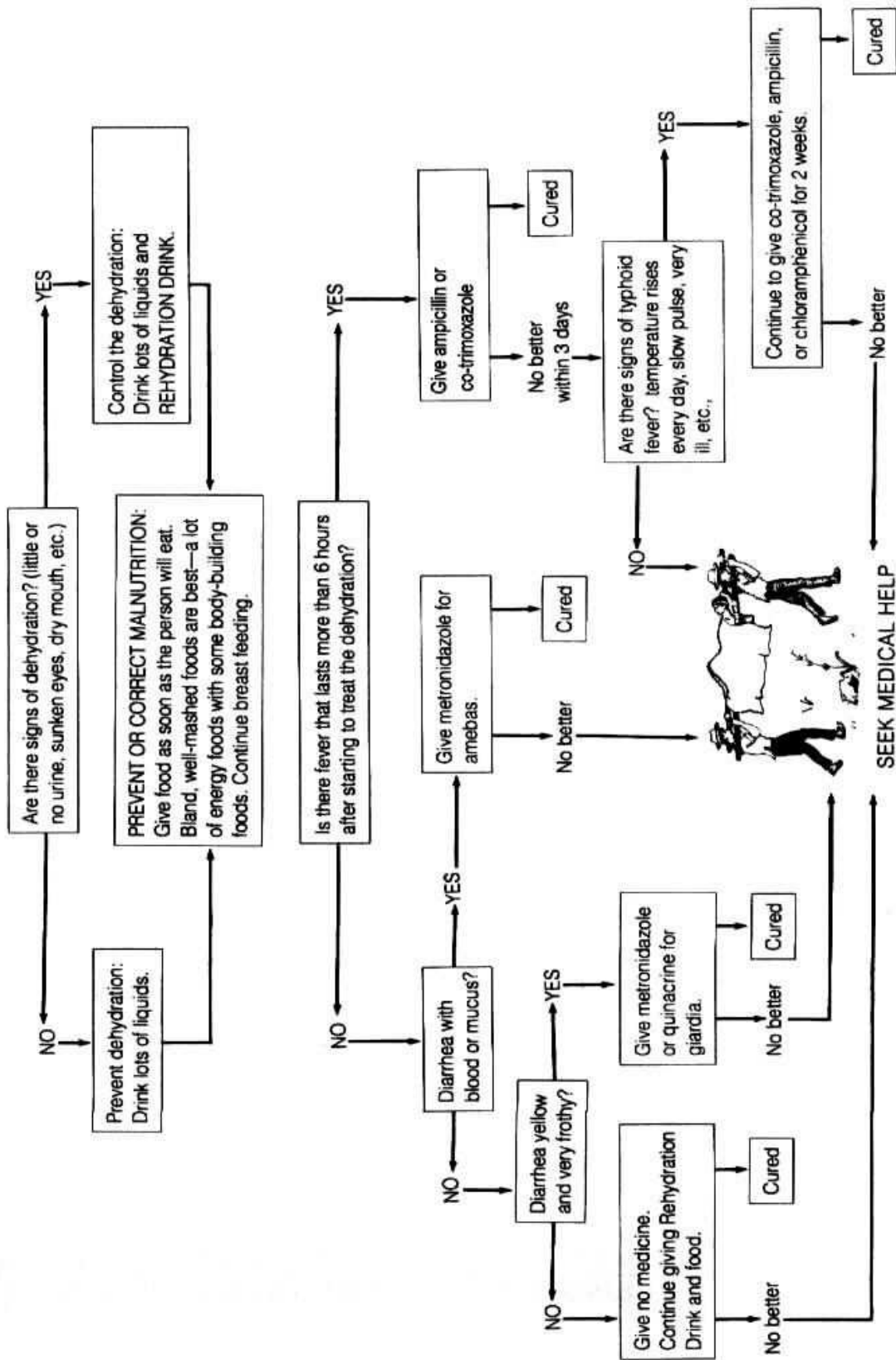
*When to Seek Medical Help in Cases of Diarrhea:*

Diarrhea and Dysentery can be very dangerous – especially in small children. In the following situations you should get medical help:

- If diarrhea lasts more than 4 days and is not getting better – or more than 1 day in a small child with severe diarrhea.
- If the person shows signs of dehydration and is getting worse.
- If the child vomits everything he drinks, or he drinks nothing, or if frequent vomiting continues for more than 3 hours after beginning Re-hydration Drink.
- If the child begins to have fits, or if the feet and face swell.
- If the person was very sick, weak, or malnourished before the diarrhea began (especially a little child or a very old person)
- If there is much blood in the stools. This can be dangerous even if there is only very little diarrhea.

# THE CARE OF A PERSON WITH ACUTE DIARRHEA

## DIARRHEA



## V. VOMITING

Many people, especially children, have an occasional 'stomach upset' with vomiting. Often no cause can be found. There may be mild stomach or gut ache or fever. This kind of simple vomiting usually is not serious and clears up by itself.

Vomiting is one of the signs of many different problems, some minor and some quite serious, so it is important to examine the person carefully. Vomiting often comes from a problem in the stomach or guts, such as: an infection, poisoning from spoiled food, or 'acute abdomen' (for example, appendicitis or something blocking the gut). Also, almost any sickness with high fever or severe pain may cause vomiting, especially malaria, hepatitis, tonsillitis, earache, meningitis, urinary infection, gallbladder pain, or migraine headache.

### Danger signs with vomiting – seek medical help quickly!

- Dehydration that increases and that you cannot control
- Severe vomiting that lasts more than 24 hours
- Violent vomiting, especially if vomit is dark-green, brown, or smells like feces (signs of obstruction)
- Constant pain in the gut, especially if the person cannot defecate or if you cannot hear gurgles when you put your ear to the belly
- Vomiting of blood

### To help control simple vomiting:

- Eat nothing while vomiting is severe.
- Sip a cola drink or ginger ale. Some herbal teas, like chamomile, may also help.
- For re-hydration give small frequent sips of cola, tea, or Re-hydration Drink
- If vomiting does not stop soon, use a vomit-control medicine like promethazine or diphenhydramine.

Most of these come in pills, syrups, injections, and suppositories (soft pills you push up the *anus*). Tablets or syrups can also be put in the anus. Grind up the tablet in a little water. Put it in with an enema set or syringe without needle.

When taken by mouth, the medicine should be swallowed with very little water and nothing else should be swallowed for 5 minutes. Never give more than the recommended dose. Do not give a second dose until dehydration has been corrected and the person has begun to urinate. If severe vomiting and diarrhea make medication by mouth or anus impossible, give an injection of one of the vomit-control medicines. Promethazine may work best. Take care not to give too much.

## VI. CONCLUSION

Cleanliness is the most important part of the prevention of common sicknesses. Following these few simple guidelines you learned in this Training Pac will make our homes and villages cleaner, healthier and more enjoyable places to live. All of these things must become a normal part of our daily lives.

## SOURCES OF INFORMATION

Where There Is No Doctor – David Werner