

Belly Pain, Diarrhea, and Worms

Everyone gets pain in the belly, nausea, vomiting, constipation, or diarrhea at one time or another. Most belly problems make you feel bad but are not dangerous. If pain or nausea is not severe, wait a few days and see if it gets better. It usually will.

Belly problems can be caused by many things. For example, someone may have a belly ache because of a cold or flu, because she ate bad food, or because she is worried about her children. Every cause requires a different kind of help. (Giving tablets for pain will do nothing to cure any of these causes!)

But the cause of diarrhea, belly pain, or nausea may not be clear. As with all health problems, understanding the cause of the problem is the key to treating it. Begin by asking questions about the general problem, such as diarrhea, and then ask questions to help you learn more.



⚠ Danger Signs

Some belly problems are dangerous and should not wait to be treated:

- Severe pain that gets worse and worse (page 8)
- Severe pain when you touch the outside of the person's belly (page 8)
- Diarrhea in small children or people who are malnourished (page 25)
- A very large amount of watery diarrhea (cholera, page 28)
- Diarrhea with blood (dysentery, page 30)
- Vomiting that goes on for more than 1 day and 1 night (page 24)
- Black stools that look like tar (caused by bleeding in the stomach or upper intestines, page 38)

Questions to ask if there is pain



➔ **Severe pain that gets worse is very dangerous!** This is called acute abdomen. Act fast. See page 8. You may need to go to a hospital.

➔ A woman with these signs could have a serious pelvic infection (see page 16) or an ectopic pregnancy (see page 10).

? Are there bowel movements?

➔ Severe pain with few or no stools is also a sign of acute abdomen. See page 8.

? Is there pain with nausea and vomiting?

➔ This may be from eating spoiled food. Drink plenty of fluids, like rehydration drink. See page 22.

? Does the pain come after eating? Is there a burning feeling in the chest or belly?

➔ This may be heartburn, or it may be an ulcer. See page 12.

➔ It could also be a gallbladder problem. See page 14.




? Is there pain on one side of the back? Does it “wrap” around the body to the groin?

➔ This could be a kidney stone. See page 17.

Questions to ask if there is diarrhea

Diarrhea is explained starting on page 25. The most important treatment for all diarrhea is drinking fluids. As soon as possible, the person should eat food too.

- ? Has there been a lot of watery, painless diarrhea in a short time? → A very large amount of watery diarrhea could be cholera. So much diarrhea can quickly weaken or kill a person. Helping him drink constantly and eat as soon as possible can save his life. See page 28.
- ? Is there blood in the diarrhea (called dysentery)? → Dysentery is treated by drinking fluids. Antibiotics can be of use too. See page 30. Other causes of red blood in the stool are explained on page 38.
- ? Is the diarrhea frothy and smelly?
Is the person farting a lot? → This could be giardia. Drink fluids. Antibiotics might be helpful. See page 31.
- ? For how long has the diarrhea been going on? → Certain germs, such as giardia or amebas, tend to cause long-lasting diarrhea. But diarrhea might also last a long time because the person has another health problem such as:
- Malnutrition – best treated by providing more foods with protein. See page 20 in Good Food Makes Good Health.
 - Problems digesting milk. See page 6 in Good Food Makes Good Health.
 - A long-lasting illness, especially HIV. See HIV and AIDS (in development).
- 
- ? Does the person have other signs of sickness – such as ear pain, fever, or a rash? → Diarrhea with fever and vomiting may be typhoid. See Some Serious Infectious Illnesses (in development). Diarrhea in children is sometimes caused by an infection in another part of the body and will go away when that infection heals. For:
- ear infection, see page 18 in Caring for Children .
 - malaria, see Some Serious Infectious Illnesses (in development).
 - measles, see page 22 in Caring for Children.

Questions to ask if there is diarrhea continue on next page →

Questions to ask if there is diarrhea (continued)

- ?** Is the person taking antibiotics? → Antibiotics cause diarrhea in many people and should be avoided unless necessary. See page 26.
- ?** Are a lot of people in the household or community sick with diarrhea at once? → When a lot of people have diarrhea, everyone must be more careful to prevent it spreading. You can do this by washing hands more, washing or peeling vegetables and fruits, making water safe to drink, and building toilets where there are none. See Water and Sanitation. Eat food quickly after preparing it and wash hands and surfaces used to prepare food. If everyone with diarrhea ate the same food, the food was probably bad.

Questions to ask if there might be worms

Worms are explained starting on page 31. Some worms are big enough to see in the stool. Some can only be seen with a microscope.

If worms are common in your area, treat children for worms regularly.

- ?** Have you seen worms in the stool? Are worms common where you live? → If someone has worms, give the correct worm medication. See page 31.
- ?** Is the belly swollen? → This can have many causes including:
- a big ball of roundworms. See page 32.
 - malnutrition. (A child can be malnourished and have roundworms at the same time.) See page 20 in Good Food Makes Good Health.
 - giardia. See page 31.
 - hepatitis. See page 17.
 - tuberculosis in the gut. See Problems with Breathing and Coughing (in development).
- ?** Is there burning, itching, or pain in the anus? → This is usually a hemorrhoid, or raw, torn skin from rough wiping after bowel movements. See pages 39 to 40.
- If a child scratches her anus, especially at night, it may be pinworm. See page 32.



Questions about other problems with the stool (feces)

- ? Is the stool whitish or much lighter in color than normal stool? → This is a sign of hepatitis (liver disease). See page 17.
- ? Is there red blood in the stool? → This is usually a hemorrhoid or another sore in the rectum. See page 39. It is usually not dangerous, but it could also be a sign of colon cancer (see Cancer - in development).
- Bloody diarrhea with mucus is called dysentery, see page 30.
- ? Is the stool black and sticky? → This is usually from blood higher up in the intestine or in the stomach. **This is dangerous.** See page 38.
-

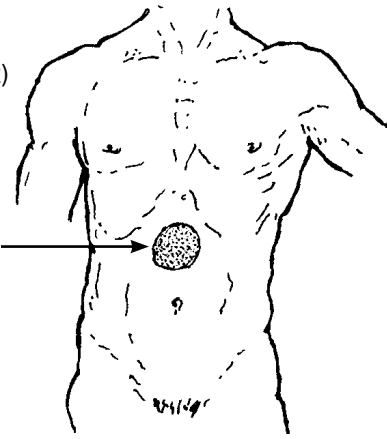
Pain in the Belly or Gut

If there is pain, ask the person to point to the exact spot where it hurts. The location of the pain in the gut can be a clue as to what is causing it. It is also important to know if the gut is working – moving and digesting food. If it is not, that can be sign of real danger.

1. **Ask:** has the person had any bowel movements or farted? Having normal bowel movements is a good sign. If the person has not had a bowel movement in a few days it could be constipation (page 37). If they have no bowel movements, cannot fart, and have pain, it might be obstruction (page 8).
2. **Listen:** are there any sounds from the gut? Sounds are a healthy sign of digestion and you will hear some sounds even when there is constipation. No sounds are another dangerous sign of obstruction.
3. **Feel:** is the belly hard, like a board? Is your touch very painful? These are signs of serious danger.

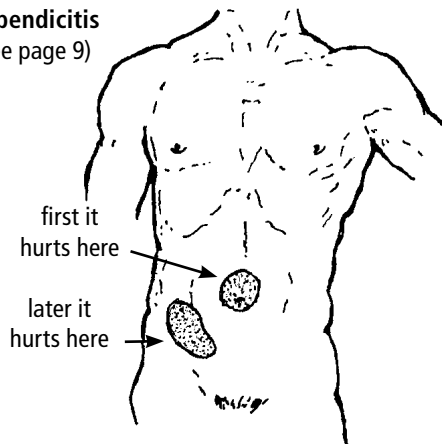
Ulcer
 (see page 12)

pain in the
 "pit of the
 stomach"



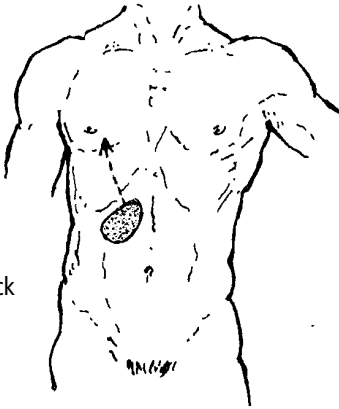
Appendicitis
 (see page 9)

first it
 hurts here
 later it
 hurts here



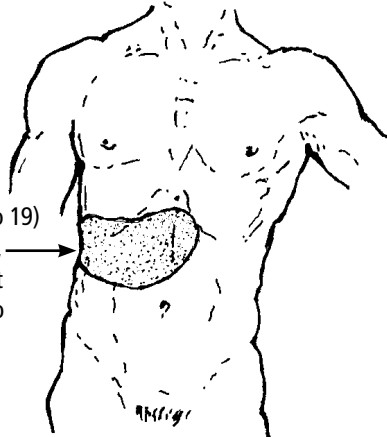
Gallbladder
 (see page 14)

the pain often
 reaches to the back



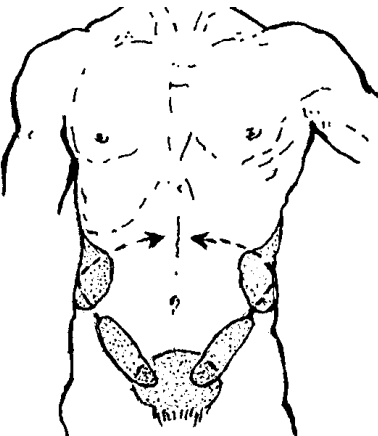
Liver
 (see pages 18 to 19)

pain here,
 at times it
 spreads to
 the chest



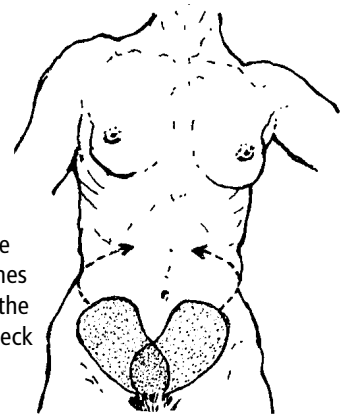
Urinary System

(see page 16)
 mid or low back
 pain, often goes
 around the waist
 to the lower part
 of the belly



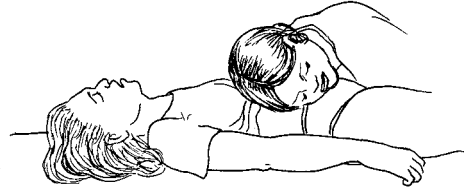
Ectopic pregnancy
 (see page 10)

pain on one
 side sometimes
 with pain in the
 shoulder or neck



How to listen

Listen to the belly with a stethoscope or your ear, to help find out if the person is in danger.



A healthy belly makes little gurgling sounds every few seconds. (If you are a health worker, practice listening to healthy people's bellies to get to know these normal belly sounds. It takes practice to hear these quiet sounds.)

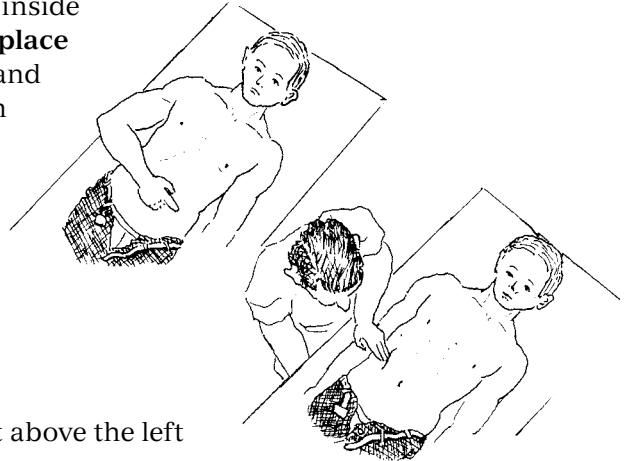
Lots of loud gurgles may mean food is moving very quickly through the bowels. Does the person have diarrhea?

High-pitched noises, or no belly sounds for 2 minutes, are signs of acute abdomen. Feel the abdomen. If it is hard and painful, get to a hospital quickly. See page 8.

How to feel

Ask the person to touch the place where it hurts.

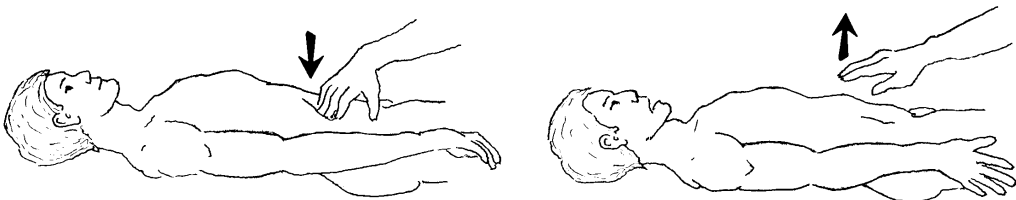
Beginning on the opposite side from the spot where he has pointed, press gently to try to learn which organ inside the body hurts. **(Save the most painful place for last.)** Use gentle, but firm pressure, and move in an organized pattern so you can feel each part of the belly.



Note also whether the belly is soft or hard, and whether the person can relax his stomach. If it is stiff like a board, he may have an obstruction. See page 8.

How to check for rebound pain

Slowly but forcefully press the belly, just above the left groin, until it hurts a little. Then quickly remove your hand. Sharp pain when you remove your hand – worse than the pain from the pressure of your hand – is called rebound pain. If there is no rebound pain on the left, try on the right. Rebound pain is a sign of appendicitis or peritonitis (page 9). Go to a hospital right away.



Severe, sharp pain in the gut (acute abdomen)

Sudden onset of severe pain in the gut, that keeps getting worse, with no diarrhea, is likely acute abdomen. Acute abdomen can be caused by obstruction (see below), appendicitis (page 9), ectopic pregnancy (page 10), or other dangerous problems. If you see these signs, you can save the person's life by helping her get to a hospital right away.



SIGNS

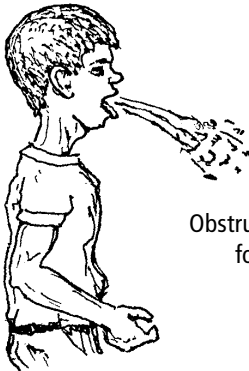
- Continuous, sharp pain – feels like a knife
- Vomiting
- Few or no bowel movements
- A hard, quiet belly
- Severely ill feeling

Usually the person with acute abdomen is writhing in pain, unable to get comfortable and protecting her belly with her arms.

Obstruction

When something blocks (obstructs) part of the gut, food and stool cannot pass. This can cause serious pain and infection.

Along with pain, the person may have constipation and vomiting. The belly can be silent, or can make a lot of high-pitched noises.



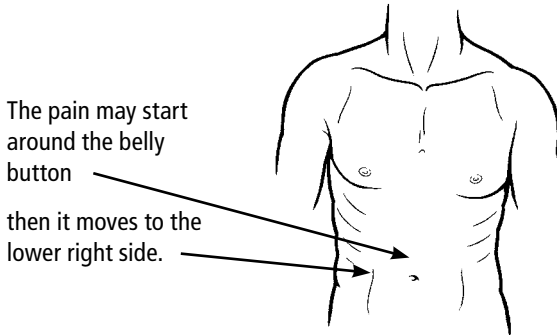
Obstruction can cause very forceful vomiting.

Obstruction may be caused by:

- a ball of roundworms (page 32).
- a hernia (see page 27 in *Caring for Children*).
- a loop of intestine twisting around an old scar. This can happen to someone who had an injury or surgery to the gut.
- cancer (see *Cancer - in development*).

If you think there may be obstruction, do two things:

1. **Get the person to a hospital right away.** Surgery may be needed.
2. If there are roundworms where you live, treat the person for roundworms on the way to the hospital, in case worms are causing the obstruction. See page 54 for worm medicines.



Appendicitis and peritonitis

Appendicitis is an infection of the appendix, a little sac attached to the large intestine in the lower right side of the belly. There is no way to prevent appendicitis. It just happens to some people.

The main sign of appendicitis is a sharp pain in the belly that gets worse and worse.

Someone with appendicitis usually does not want to eat. There usually will not be diarrhea. Fever is common, and walking or riding over bumps in the road hurts a lot. There is rebound pain (page 7).

Get medical help. If not treated, the infected appendix may burst, spreading germs inside the belly. This can cause a deadly infection called **peritonitis**.

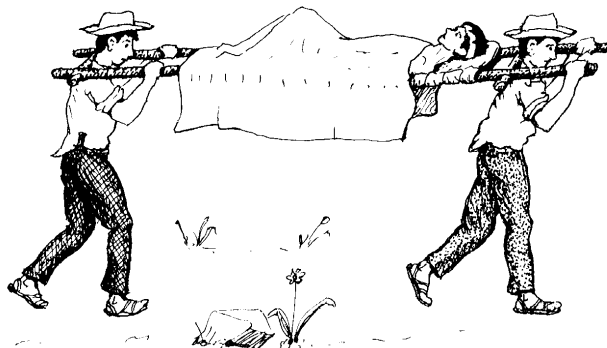
Peritonitis can also be caused by an injury to the gut – for example, being hit very hard or stabbed in the belly.

If the belly is quiet, hard, and painful all over, there is peritonitis.

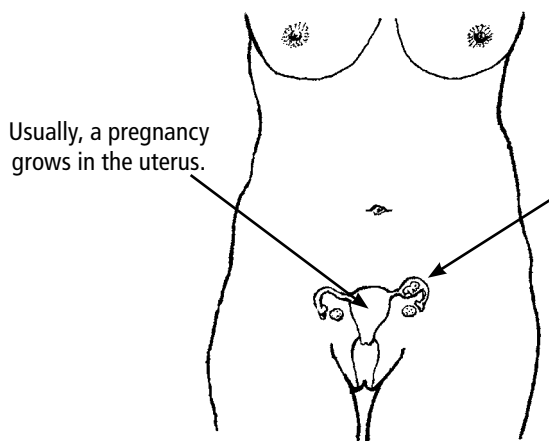
If you think the person has appendicitis or peritonitis:

- get him to a hospital.
- give 2 medicines: metronidazole AND ciprofloxacin OR ceftriaxone OR ampicillin. See page 50.
- do not give any food or drink except medicines and small sips of water.

Watch for signs of shock such as weak, rapid pulse; pale, cold skin; or confusion or loss of consciousness. See pages 10 to 11 of First Aid.



Ectopic pregnancy



An ectopic pregnancy grows in the tube – but it does not fit there. As the pregnancy grows, the tube stretches and can burst. This causes severe pain and bleeding inside the body.

As with a miscarriage, signs of an ectopic pregnancy happen early in pregnancy – often before the woman even knows she is pregnant. There is pain in the lower belly and some bleeding after having no menstruation for one or more months.

SIGNS

- Bleeding from the vagina is usually light – called spotting (bleeding from miscarriage is heavier).
- Pain may become stronger on one side.
- If the pregnancy breaks through the tube, the pain becomes severe.
- The woman may also have pain in her shoulder or neck.
- The woman may feel dizzy or light-headed because she is bleeding inside.

Severe pain in the lower belly can have many causes, including bladder infection, appendicitis, and others. If possible, ask the woman to take a pregnancy test. If the test is positive, or if you cannot test but think there may be an ectopic pregnancy, **get her to a hospital – you can save her life.** If the pregnancy test is negative, it is not an ectopic pregnancy.

On the way to the hospital, treat for signs of shock such as weak, rapid pulse; pale, cold skin; or confusion or loss of consciousness. See pages 10 to 11 of First Aid.



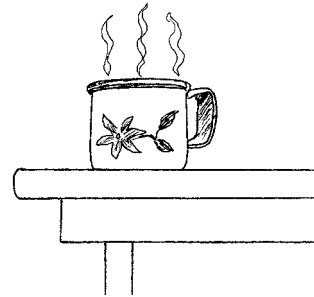
Stomach cramps

Most cramps are not very dangerous. They can be caused by:

- eating food that has been left out too long or spoiled.
- drinking water that has germs in it.
- worms.
- ulcers.
- stress or nervousness.
- hunger.
- menstruation.

Usually, stomach cramps will get better on their own in a day or two. To help:

- drink tea of boiled ginger, mint, chamomile, or another tea that calms the stomach.
- eat papaya. It helps break down food in your gut.
- take a hot bath, or use a warm compress on the belly, or simply rest in a dark, quiet place. See Care for Sick People (in development) to learn how to make a warm compress.
- avoid foods that can cause gas. Milk, cheese, cabbage, peppers, onions, or beans might be the problem.



You can prevent a lot of stomach cramps by cooking food thoroughly to kill germs, eating food while it is still hot, and washing your hands before cooking and eating. For more on preparing and storing food, see the information starting on page 5 of Water and Sanitation: Keys to Staying Healthy.



Gently massage the belly, or rub it in a slow, clockwise circle.

Problems digesting cow's milk

Many people are unable to digest milk from cows, a problem called lactose intolerance. For these people, drinking cow's milk and eating cheese or other milk products causes stomach cramps, diarrhea, and painful gas. This is due to the lack of an enzyme (a chemical) inside the body which helps digest milk. The majority of Asian, Native American, and African people, along with many people from other parts of the world, are lactose intolerant. The solution is to avoid most milk products. Yogurt and other fermented milks are often easier on the stomach than liquid milk and may even help prevent stomach aches and diarrhea.

Heartburn, acid reflux

Heartburn, acid indigestion, and reflux are all names for a burning feeling or pain in the middle of the chest or throat caused by stomach acid getting up into the food pipe. It can be very painful. It tends to happen when you lie down or after you eat – especially after eating a lot, or eating something fatty or spicy.

The name “heartburn” is confusing: it has nothing to do with the heart. (Real heart pain often feels “heavy” or “tight.” It may spread to the jaw, shoulder, or belly. See Heart Problems - in development.)

TREATMENT AND PREVENTION

- Do not eat for at least 3 hours before you go to sleep.
- Eat smaller meals, but eat more often.
- Avoid fatty and spicy foods.
- Avoid alcohol and smoking, which make heartburn worse.
- Try an antacid to ease the pain (pages 51 to 53).



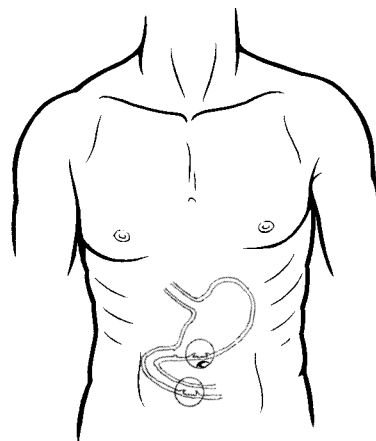
Heartburn causes burning or pain in the chest, and sometimes in the throat.



Sit upright after eating, and prop yourself up to sleep at night (or raise the head of your bed with a few blocks). This keeps the acid down in the stomach.

Ulcer

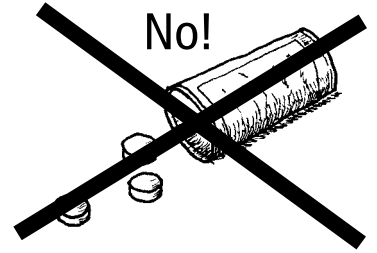
Stomach pain that comes again and again may be caused by an ulcer. Ulcer pain is usually burning or gnawing, like hunger, and is felt in the upper middle part of the belly. Often, an ulcer will cause pain for a few weeks, and then will go away for weeks or months before coming back again. The pain may lessen when the person eats or drinks. (Or eating may make the pain worse, depending on where the ulcer is.)



An ulcer is an open sore inside the stomach or intestine.

TREATMENT: TO LESSEN THE PAIN AND HELP THE ULCER HEAL

- Stop taking ibuprofen, aspirin, and other pain medicines (pages 39 to 40 in Caring for Children: Medicines). Taking these frequently hurts the stomach and is one of the main causes of ulcers. (Paracetamol is better for people with stomach pain because it does not harm the stomach, but it should also not be taken in large quantities or every day.)
- Do not smoke. People who smoke have more ulcers, and their ulcers take longer to heal.
- Eating smaller meals and drinking a lot of water throughout the day can help lessen the pain.
- You may find certain foods make the pain worse. Try avoiding acidic foods like lemon, vinegar, and coffee. Chili, fatty foods, and alcohol also worsen the pain for some people.
- Stress might be one reason people get ulcers, and stress tends to make them hurt more. Finding ways to be less anxious and upset may help. For ideas about relaxation, see Mental Health (in development).



If after a few weeks of making the changes above there is still a lot of pain, try a low-cost antacid. Pain may be reduced by calcium carbonate, 4 times a day for 1 week. A class of medicines called proton pump inhibitors (PPI), such as omeprazole (see page 53), work even better. They reduce acid in the stomach enough to relieve pain and often allow the ulcer to heal. However, if the pain comes back, you will need to cure the ulcer with antibiotics.

TREATMENT: TO CURE THE ULCER

For ulcers that keep coming back, you will need to give a combination of antibiotics, proton pump inhibitors, and antacids for 2 weeks. This is a lot of medicine, but if taken correctly the ulcers will usually stop coming back. See page 53.

If there is still stomach pain after this treatment, the problem is likely something else – not an ulcer. Get help.

DANGER SIGNS

Are there signs of **bleeding ulcers**? Watch for bloody or black, grainy vomit – like coffee grounds. Feces may be bloody or black – like tar or motor oil. This is an emergency. Get help.



Some people take sodium bicarbonate (baking soda) for belly aches. This works quickly, but causes the stomach to make more acid later, so do not use it often. Do not use sodium bicarbonate if you have heart problems or swollen legs, it can make these problems worse.

Gallbladder problems

The gallbladder is a small sac that collects bile, which helps digest fatty foods. The bile can harden, causing an obstruction in the gallbladder. This can cause pain that lasts several hours. Gallbladder problems are more common in women 40 years or older, people who are fat, and people with diabetes. But any adult can get this problem.

SIGNS

- Steady pain in the center or right edge of the rib cage. This pain may spread up to the right side upper back or the shoulder.



- Pain that gets worse and worse, then stays the same for a while, then after a few hours it slowly goes away.
- Pain that comes soon after eating fatty foods. It may wake the person in the night.
- Nausea and vomiting.
- Taking aspirin or paracetamol, changing positions, or farting does not make it feel better.

While these signs can help to identify a gallbladder problem, an ultrasound or x-ray is needed to know for sure.

TREATMENT

Gallbladder pain can be very uncomfortable, but if there is no fever or other danger signs listed below, it is not immediately dangerous. Ibuprofen may help relieve pain.

DANGER SIGNS

If a person has gallbladder problems, watch for these danger signs. The person will need surgery.

- Gallbladder pain that lasts more than 4 hours at one time.
- Gallbladder pain with fever.
- Gallbladder pain with jaundice (yellow skin or eyes).

PREVENTION

Avoid fatty meat, deep fried food, or other very fatty foods which often trigger gallbladder pain in someone who has this problem. (It is OK to eat a small amount of fat or oil in each meal and doing so helps the gallbladder empty itself. Vegetable oils are better than palm oil, butter, or lard.)

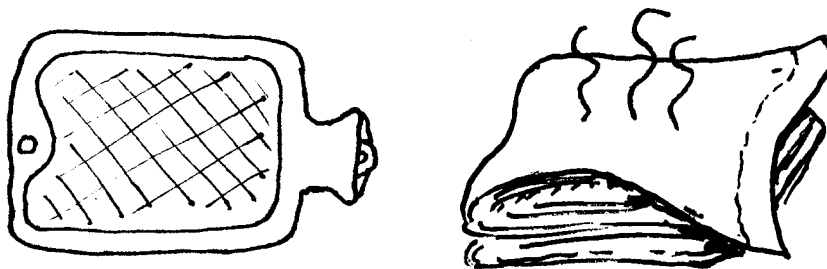
If you are fat, losing weight may help, but do so slowly by exercising often and eating smaller amounts. Losing a lot of weight very fast can cause gallstones.



People who exercise most days are less likely to get gallstones.

Menstrual cramps

Many women have cramps or pain in their lower bellies right before or during their monthly bleeding (menstruation). Rest, use gentle massage, or take a pain reliever such as ibuprofen. For more on menstruation and how to reduce pain, see Women's Menstrual Cycles (in development).



A hot water bottle or warm compress on the belly can help with the pain.

Pelvic infection

When a woman has pain in her lower belly, she might have an infection of the uterus called pelvic infection. There are 2 causes of pelvic infection, both dangerous. It can happen when harmful germs get inside a woman's body, either after childbirth or after the loss of a pregnancy (miscarriage or abortion), or when a sexually transmitted infection is left untreated and spreads into the uterus.

SIGNS

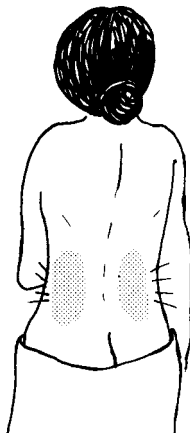
- Pain in the lower belly (pelvis) – it can be mild or severe.
- Pain or bleeding during sex.
- Tenderness when you press on the lower belly.
- Fever.
- Unusual bleeding or bad-smelling discharge from the vagina.

TREATMENT

Treat the infection with antibiotics right away to prevent serious illness, infertility or even death. If this infection came after a pregnancy or birth, see page 32 in Pregnancy and Birth. If the woman was not recently pregnant, she needs different medicines, listed in Genital Problems and Infections: Medicines (in development).

Bladder infection, kidney infection

A bladder infection (urinary tract infection, cystitis) causes pain or burning when urinating, or pain just behind or above the front of the pelvic bone. But if the infection spreads into the kidneys, the pain may be felt along the side or in the back. Bladder infections are especially common in women. For more about bladder and kidney infections, see Difficulties with Urinating (in development).



Pain when you tap on one side of the lower back could mean an infection or stone in the kidney.

Kidney stones

Kidney stones are tiny rocks that form inside the kidney, urine tube, or bladder and cause a lot of pain as they pass out with the urine. Usually the pain slowly gets worse and worse, and then stops. The pain lasts 20 minutes to an hour each time. It is often more on one side and might be felt anywhere from the back to the urethra (the tube urine travels through). In men, the pain can also be felt in the testicles. There may be blood in the urine. There is usually no fever and the belly is soft. The regular treatment is to take a pain medicine and drink a lot of water until the stone passes, but see Difficulties with Urinating (in development) for more information on how to prevent and treat this.

Hepatitis

Hepatitis is the name for inflammation of the liver. Hepatitis can be caused by a virus, drinking too much alcohol, or chemical poisoning. All types of hepatitis have similar signs. But a person gets the different kinds of hepatitis in different ways, and some are more dangerous or longer lasting than others. Hepatitis A and E usually go away within a few months. Hepatitis B and C can last for many years and can lead to liver cancer.



The liver cleans the blood. When the liver is not working well, toxins and wastes build up in the body, causing sickness.

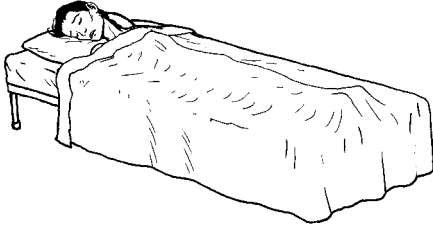
SIGNS

- Nausea and vomiting.
- Itching skin.
- Dark urine – the color of *Coca-Cola*.
- Light, whitish stools.
- Pain on the right side. Or sore muscles and joints all over.
- Weakness and exhaustion that can last for months.
- Yellow eyes and skin.

You may be able to feel the swollen liver from the outside, on the right side, just under the ribs.

TO HELP THE LIVER HEAL

There are now medicines that can help treat Hepatitis B and C, however they are not yet widely available. Check at your health center to see if you can get them where you live. Even without medicines, rest, plenty of fluids, and avoiding certain things that harm the liver can help it heal.



Hepatitis makes you very tired.
Listen to your body and rest.

- Drink throughout the day – 8 cups or more. Water, fruit juices, and soup broth are all healthy choices.
- Do not drink any alcohol for at least 6 months. Alcohol is very hard on the liver. If you need help to stop drinking alcohol, see Drugs, Alcohol, and Tobacco (in development).
- Avoid paracetamol because it can build up in the liver and cause problems. Take a different pain medicine if you need one.
- If you have tuberculosis, you may need to wait to start treatment until the liver heals. Get medical advice. (If you develop signs of hepatitis while taking tuberculosis medicines, stop treatment immediately and get medical help.)
- Be cautious about using medicines. Avoid medicines that are not essential. Many medicines harm the liver, especially when taken in large amounts or over a long period.



PREVENTION

Hepatitis A and E are spread because of poor sanitation and can be prevented by using toilets and washing hands.

Wash your hands many times each day to protect others from infection. Everyone who lives in your house should wash their hands more often too.

Hepatitis B and C are found in blood and sexual fluids. These forms of hepatitis spread during sex or when tools for scarring, tattooing, cutting, or injecting are used on more than one person without cleaning them each time. This allows blood, and the virus inside the blood, to pass from one person to the next. Hepatitis B and C can also pass from a mother to her baby during pregnancy, birth, or after birth.

In places where hepatitis B is very common, including many parts of Africa and Asia, it passes among children and within families even without sharing blood. This is more likely to happen when the family lives in a small, crowded home and are in very close contact most of the time.

Prevent hepatitis B and C:

- Avoid injections unless necessary. Always use a brand new needle and syringe for each injection. If you cannot get new ones, you must sterilize needles and syringes between each use. See Medicines, Tests, and Treatments (in development).
- Use condoms when you have sex.



Hepatitis A and B can be prevented with vaccines. Hepatitis B vaccine is especially important for those who live where the Hepatitis B virus or liver cancer are common.

*If you are caring for a person sick with hepatitis,
keep yourself healthy by washing your hands often and
protecting yourself from his blood and stool.*

Liver abscess

Liver abscess can be caused by an infection of amebas that has spread to the liver. This is much more common in men.

SIGNS

Tenderness or pain in the right upper belly with a fever. The pain may also go into the right chest. It is worse when the person walks. Compare this with hepatitis, cirrhosis (see Drugs, Alcohol, and Tobacco - in development) and gallbladder pain, page 14.

If someone with signs of liver abscess begins to cough up a brown liquid, the abscess is draining into his lung. This requires medical help.

TREATMENT

Treat as for amebic dysentery. See pages 47 and 49.

Dehydration

Dehydration means not enough fluid in the body. It is described in this chapter because the most common cause is diarrhea. Dehydration can also come from vomiting, getting too hot from the sun, overwork, or wearing too many layers of clothing. Especially in young children, dehydration can get worse quickly and become deadly.



No matter the cause, the treatment, which anyone can do at home, is rehydration (drinking fluids). You can save a person's life by helping her drink fluids when she is dehydrated.

SIGNS

- Thirst
- Dry mouth and tongue (when you touch the inside of the person's cheek, it feels dry)
- Urinating less often and the urine is dark-colored

Start treatment now, before the signs get any worse.

SIGNS THAT DEHYDRATION IS GETTING WORSE

- Lethargy: tired, low-energy
- Fast heart beat
- Deep breathing
- Sunken, tearless eyes
- Skin stays in a pinched shape



Lift the skin between two fingers, like this...
 If the skin does not fall right back to normal,
 the person may be dehydrated.

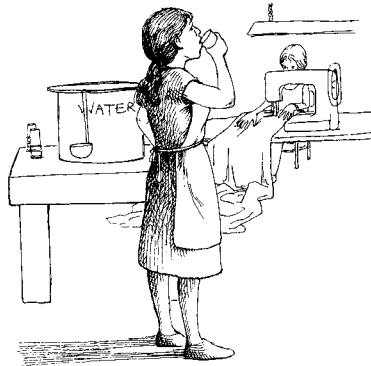


- In infants, a sunken "soft spot" on the head

TREATMENT AND PREVENTION

It is always safer and easier to prevent dehydration than to try to treat it once it starts. **Give fluids before signs of dehydration appear.**

Dehydration is prevented and treated in the same way – by drinking fluids.

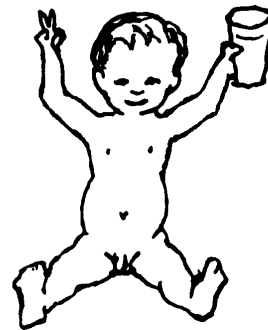


Do you believe that giving something to drink will make diarrhea worse? It is easy to think this as you watch liquid diarrhea come from a child. **But fluids do not cause diarrhea.**

Diarrhea happens because of infection with germs. It will continue whether the person drinks or not. But giving fluids helps a person to stay strong enough to recover from the infection. Someone with diarrhea who does not drink will dehydrate and may eventually die. **You can save a life by giving fluids to replace what was lost.**

Holding back fluids does not protect children from diarrhea. It puts them in danger.

Drinking fluids keeps you healthy when you have diarrhea, and helps you get well.



Rehydration drinks

Rehydration means replacing what we lose during dehydration. When we have diarrhea, when we vomit, and when we sweat, we lose water. So rehydration drinks must include water. We also lose nutrients that we get from food, mainly salt and energy (that we get from eating sugar or grain or protein). To rehydrate, we must replace these nutrients too. Water + a little salt + energy food (sugar or rice or corn meal) = rehydration drink.

Give as much rehydration drink as the person will drink, one or more drinks after each stool. Each drink should be at least one cup for a small child, a cup or more for an older child or adult.

Keep giving rehydration drink until diarrhea has stopped and signs of dehydration are gone.

What are some good rehydration drinks? **Almost any fluid that you can easily prepare at home is a good rehydration drink!**

Salt and sugar drink

At home or at a clinic you can make a simple rehydration drink. It is just as good as the ORS (oral rehydration salts) packets you can buy, but costs much less.

1) In 1 liter clean water

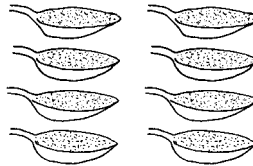
2) Mix $\frac{1}{2}$ teaspoon salt



Taste this mixture. It should be less salty than tears.

3) Then mix in 8 flat teaspoons sugar

OR, instead of sugar, mix in 8 rounded teaspoons of cereal, such as ground rice cereal or maize meal. If you use cereal, cook the mixture for a few minutes before serving it.



To mix a single serving of rehydration drink:



1 glass water

+



1 pinch of salt

+



2 or 3 teaspoons
of sugar or cooked
grain cereal



Rice water

Rice water works as well as salt and sugar solution for rehydration. Cook some rice in twice as much water as you would normally use. Add some salt to the water. (About ½ teaspoon salt per liter of water, or a big pinch in a glass of it). You can add a little sugar if you like. Drink as much as you can. You can eat the rice too.

Other home cereals

If you usually make porridge or gruel to eat or feed to young children, these can be watered-down for rehydration drink. Ground corn, dal, potato, or cassava will all help rehydrate someone (if they are well cooked and watered down to a thin liquid, and a little salt is added).

A thinned porridge like this does not replace food. If you thin down porridge for a rehydration drink, you can also give regular, thick porridge to eat. To recover from dehydration, give food as well as fluids.

Yogurt or fermented milk drinks

These are good rehydration drinks and provide needed protein too. If the yogurt drink is very thick, mix in some water. Add a pinch of salt per glass.

Breast milk

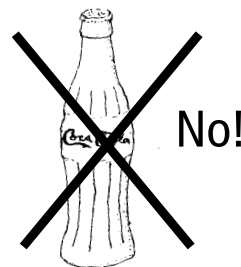
If you are breastfeeding a child who has diarrhea, continue to do so. Breastfeed the child more often – at least after every bowel movement. Let him breastfeed for as long as he wants. A child who has any signs of dehydration should also get some salt and sugar drink after each time he breastfeeds.



Avoid drinks that make dehydration worse

Very sugary drinks, drinks with caffeine, and alcohol worsen dehydration. So avoid:

- Sodas (*Coke, Fanta, Pepsi*) and sugary fruit drinks.
- Coffee and strong tea.
- Beer, wine and other alcohol.



What about plain water?

When you are dehydrated, plain water is not as good as the rehydration drinks above because it lacks the nutrients your body needs. When you are very dehydrated, drinking plain water can make you sick because you also need salt and energy. But it is better to give plain water than nothing at all – for a little while. Give water while you wait for rice water or cereal drink to cook.

Must the water be boiled first?

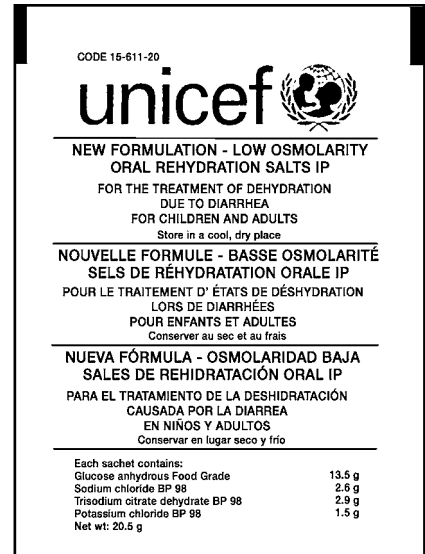
Water that has been boiled or otherwise cleaned of germs (disinfected) is best. To make water safer to drink, see Water and Sanitation.

But if you do not have firewood for boiling water, or have trouble getting clean water, use the water you do have until you can make your water safe.

Pre-packaged ORS

Pre-made packets of Oral Rehydration Salts (ORS, ORT) may be available from your pharmacy, clinic, or market. Like homemade rehydration drink, these contain a mix of salt and sugar in the right amounts for treating dehydration. They also contain potassium, citrate, and zinc – which are helpful nutrients for people with diarrhea. Where these packets are available for free, they are a convenient way to make rehydration drink. Be sure to add the right amount of water – usually 1 liter of water per packet. (But check the instructions on the packet because adding too little or too much water can make sickness worse.)

If ORS packets are not free, it is better to make your own rehydration drink – it is much less expensive. Spend your money on vegetables, beans, eggs, or other healthy foods. Your homemade rehydration drink is just as good as the packet, and healthy food will help you recover faster.



Vomiting

Vomiting once or twice is usually not dangerous and goes away on its own. For simple vomiting with a cold or stomach problems:

- Give small but frequent sips of rehydration drink (page 22). Some people like bubbly drinks such as soda for nausea. If you are throwing everything up, drink one small spoonful. Wait 15 minutes and drink another. If those stay down, have another spoonful in 5 minutes. The idea is to drink more as soon as you can without triggering more vomiting.
- To lessen nausea, make tea by boiling ginger root. Mint or chamomile tea might help too, or you may know another local plant medicine that works.
- When you start to feel better, eat a little at a time, and keep drinking fluids to replace what you have lost.



DANGER SIGNS

- Vomiting that causes dehydration (see page 20).
- Vomiting for more than 24 hours, or vomiting that keeps getting worse.
- Violent vomiting with a dark green or brown color, or with the smell of feces (see obstruction, page 8).
- Vomiting blood or vomit like ground coffee (see ulcer, page 12 and cirrhosis, in Drugs, Alcohol, and Tobacco - in development).
- Vomiting with fever and pain that lasts more than 24 hours (see acute abdomen, page 8).

Diarrhea

Passing loose, watery stools several times a day is called diarrhea.

When a person has diarrhea, he loses fluids and nutrients very quickly. A healthy adult may have diarrhea for a day or two, and will quickly recover. But losing so much fluid and nutrition is dangerous for children, old people, and people already weak from malnutrition or another sickness.



Care for children with diarrhea is explained in Chapter 28: Caring for Children. If you are helping a baby or a child with diarrhea, or you live somewhere where children die of diarrhea, please read the section below, and then read the section starting on page 7 of Caring for Children.

DANGER SIGNS

- A lot of watery diarrhea in a short time. This could be cholera (page 28). No matter the cause, a lot of diarrhea in a short time quickly leads to dehydration.
- Diarrhea with blood and mucus – called dysentery (page 30).
- Diarrhea that goes on for weeks. This kind of long-lasting diarrhea drains the body of nutrients and weakens the gut. It is usually caused by malnutrition or a long-lasting illness (see page 20 in Good Food Makes Good Health).

TREATMENT

- 1. Treat dehydration.** Dehydration is the real danger of diarrhea, and the reason people with diarrhea can die. So the most important step in caring for people who have diarrhea is drinking fluids. You can make rehydration drink at home to replace the nutrients you need. See page 22. **Drinking fluids does not worsen diarrhea. On the contrary, drinking fluids can save your life.**
- 2. Give food.** At first, if the person feels nauseous, you may need to give only little bites of something mild. Yogurt and bananas are especially helpful and may help diarrhea end sooner. Give more food as the person can eat more. Children especially must eat.
- 3. Decide if medicines will help** (usually, they do not). To help you decide, see page 28.



What causes diarrhea?

Diarrhea has many causes. The most common are:

- **A germ (virus, bacteria, or parasite) spread by poor sanitation.** Prevent diarrhea by using toilets, washing hands, and cooking food well and eating it soon after cooking (instead of letting it sit for hours). When you buy food made on the street, ask for it to be heated again. See *Water and Sanitation: Keys to Staying Healthy* for more advice on improving sanitation – the best way to prevent diarrhea.
- **Another infection in the body.** Ear infection, bladder infection, malaria, or HIV can all cause diarrhea. The diarrhea will get better once you treat the main infection.
- **Malnutrition.** Malnutrition weakens the gut, making it less able to absorb food and liquid, which pass quickly through the intestine and cause diarrhea. Better food, every day, is needed to treat malnutrition. For ideas on how to eat well with little money, see page 12 in *Good Food Makes Good Health*.
- **Antibiotics.** Antibiotics can cause diarrhea and stomach aches. They are used much more than they are needed and many sicknesses will get better without antibiotics. They do nothing for the common cold or other diseases caused by viruses, for example. In general, avoid antibiotics for common infections and only use them when you are fairly certain the disease you are treating requires these medicines.

All I do is treat kids with diarrhea. Maybe it would be a better use of my time to work on getting a clean water system for the community.





You can prevent many cases of diarrhea by washing your hands often with soap and water.

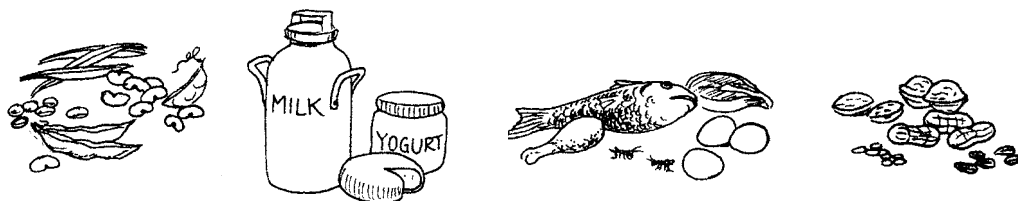
Eating and diarrhea

A person with diarrhea should start eating again as soon as possible. For someone who is vomiting, or feels too sick to eat much, offer small amounts of food many times a day. If there is a lot of diarrhea, offer a little every hour or two to replace all the lost nutrition. Try soups or gruels of rice, maize, or potatoes. Include a little well-cooked meat, eggs, or vegetables if the person can keep that down. Fermented milk drinks or yogurts provide protein. Fried foods and raw fruit are not as good for a person with diarrhea.

For diarrhea that lasts 2 weeks or more – chronic diarrhea – eating is especially important. Chronic diarrhea is usually caused by malnutrition or a long-lasting illness, such as HIV. In either case, more food is needed to replace what was lost from diarrhea and to help the gut better absorb the food that is eaten.

*Malnutrition worsens diarrhea.
Diarrhea worsens malnutrition.
Food breaks the cycle.*

A malnourished child must eat more often – 6 times a day or more. Every day, she needs protein and fat, to replace lost strength and energy. Vegetables and fruits protect the body and help her fight infections – including the infections that lead to diarrhea. See page 20 in *Good Food Makes Good Health* for how to treat malnutrition.



Children with chronic diarrhea need protein foods.

Medicines

For most diarrhea, using medicines will not fight the infection that caused it. They are just a waste of money and may even be dangerous.

For certain causes of diarrhea, antibiotics can be of use. Antibiotics are helpful for dysentery and certain cases of cholera. But even for dysentery and cholera, drinking fluids is the most important treatment. Never give a laxative to someone with diarrhea.

“Anti-diarrhea medicines” such as bismuth or loperamide slow or stop up the bowel but do not prevent dehydration, which is the real danger of diarrhea. Even though the fluid is not leaving the body, it is leaving all the organs that need it to function. While these medicines may occasionally be useful, for example, if you will be on a bus for a long time, they slow the body’s ability to get rid of bacteria and make diarrhea last longer. Avoid these drugs when the person has fever, bloody diarrhea (dysentery), or constant liquid diarrhea (cholera). Loperamide is not safe for children.



Anti-diarrhea medicines act like a plug. They keep the infection inside, instead of letting it come out.



Cholera

Large amounts of diarrhea that looks like rice water may be cholera. Cholera spreads very rapidly to affect many people in a community at once. Cholera quickly leads to severe dehydration that can cause death. You can save the life of a person with cholera by giving fluids.

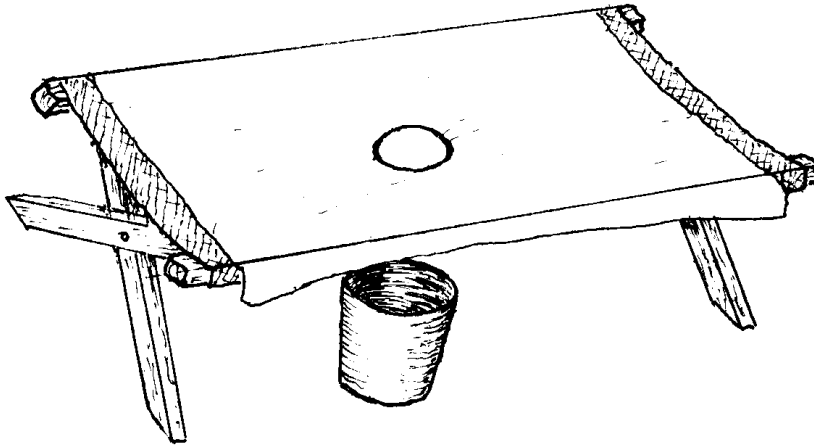
TREATMENT

Treat the dehydration continuously with rehydration drink. Have the person drink as much as he can, not stopping until the diarrhea has stopped and there are no more signs of dehydration. Even though the person is likely to vomit, he must continue to drink.

Antibiotics may help for certain cases of cholera. Which antibiotic to use depends on drug resistance in your area. Check with your local health authority and see page 42.

Cholera is everyone's problem

An outbreak of cholera is an emergency for the entire community. The bacteria that cause this disease are spread through the water supply and quick action must be taken to stop it.



A "cholera bed" can allow people to rest and stay fairly clean.

- Be sure everyone knows the most important treatment for cholera: **drinking as much fluid as possible**. Share the recipe for rehydration drink on the radio, by telling your neighbors, and by posting notices.
- Wash your hands often and help everyone understand the need for good hygiene to stop the spread of the infection.
- Get people who need it to medical help. There may be a "field clinic" or somewhere to take people for IV fluids. Sometimes antibiotics help and these may be available at a clinic.
- Organize to make the water safe. See *Water and Sanitation: Keys to Staying Healthy*.
- Future outbreaks can be prevented by building toilets and improving sanitation for everyone. As long as people do not have safe toilets to defecate in, or sources of drinking water get contaminated with human waste, everyone will be in danger of cholera and other illness. See *Water and Sanitation: Keys to Staying Healthy* for how to build safe toilets.
- There are vaccines that can help prevent cholera. They work best when a whole community is given the vaccine to prevent the spread of an outbreak.

Diarrhea with blood (dysentery)

Dysentery is usually caused by a bacteria called shigella, or by parasites in the intestine called amebas.

SIGNS

- Many loose stools with a lot of mucus and usually blood.
- Cramps in the belly and the feeling of needing to pass stool, even when nothing, or only mucus, comes out.
- Pain in the anus.
- Diarrhea alternating with constipation.

How to know the cause of dysentery

If someone has bloody diarrhea, it is best to test the stool to learn the cause. If you cannot get a lab test, these signs can help determine the cause.

Shigella, called **bacterial dysentery**, usually causes fever. It often starts suddenly, and causes painful cramps and watery stools with mucus or blood.

Diarrhea + mucus or blood + fever = shigella (bacterial dysentery)

Amebas, called **amebic dysentery**, can cause heavy bleeding. Fever is not common.

Diarrhea + blood + no fever = amebas (amebic dysentery)

TREATMENT

It is best to treat dysentery with antibiotics, especially young children or people who are already weak or sick.

For shigella

Shigella quickly becomes resistant to medications, so there is no one medicine that is best everywhere in the world. See Medicines, Tests, and Treatment (in development) to learn more about drug resistance. In most cases, ciprofloxacin will work, but check with your local health authority to learn the best treatment. See page 48 for doses.

For amebas

For amebas, give metronidazole. See page 47.

Giardia

Giardia is a tiny parasite that lives in the gut and is a common cause of diarrhea, especially in children.

SIGNS

- A lot of gas. This causes a swollen, uncomfortable belly, cramps, nausea, and a lot of farts and burps. The burps have a bad taste, like sulfur or rotten eggs.
- Bad-smelling, yellow, and frothy (full of bubbles) diarrhea, without blood or mucus.
- There is usually no fever.
- It can last for weeks, causing weight loss and weakness.

A mild giardia infection is uncomfortable, but will usually get better on its own within about 6 weeks. Good nutrition helps. A long-lasting case, especially in a child, is best treated with metronidazole (see page 47). Quinacrine (see page 50) is cheaper and often works well, but causes worse side effects.

Worms

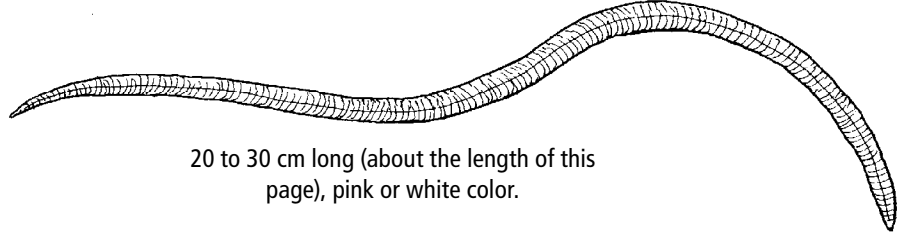
Worms inside our intestines live off our food and blood. They cause belly aches or diarrhea, and drain us of nutrition and energy. A child with a very bad worm infection may develop anemia (lack of iron) or vitamin A deficiency. Often she will have trouble in school and working around the home, because the infection hurts her ability to concentrate.

Different worms get in our bodies in different ways, live different amounts of time, cause different problems, and may require different medicines. Try to learn how the worms where you live are best prevented and treated. (And if you adapt this book for use in another language or specific place, include details about the particular worms common to your community.) But generally, worm infections can be prevented:

- Use toilets to improve sanitation.
- Wash hands. Keep fingernails short so dirt does not get trapped under them.
- Cook meat well before eating. Do not feed raw meat or feces to livestock.
- Wear shoes or sandals.
- De-worm children over 1 year old every 3 to 6 months with albendazole or mebendazole. See pages 54 to 55.

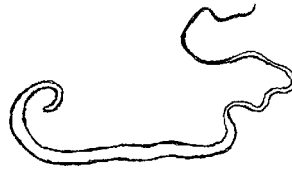
Worms that spread from feces to the mouth: roundworm, whipworm, pinworm

**Roundworm
 (Ascaris)**



20 to 30 cm long (about the length of this page), pink or white color.

**Whipworm
 (Trichuris, Trichocephalus)**



3 to 5 cm long, pink or grey.

**Pinworm, threadworm, seatworm
 (Enterobius)**



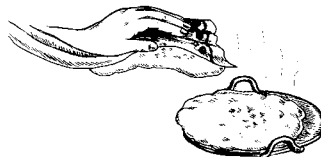
1 cm long, white, very thin and thread-like.

How these worms spread

Tiny amounts of feces are left on the hands when cleaning the anus after passing stool, or when someone scratches an itchy bottom. Or stool left on the ground is tracked into the house by animals, children, or on people's feet. Then worms, or their eggs that are in the stool, get under the nails or on the skin. These worms or eggs get into the mouth when:



A child puts his hands in his mouth.



Someone cooks for the family.



Anyone touches her own or someone else's mouth.

*Worm eggs are too small to see -
that is why they spread so easily.*

TREATMENT

To treat roundworm, whipworm, hookworm, or pinworm, give mebendazole for 3 days. In places where these worms are common, repeat treatment every 3 to 6 months. See page 54.

Avoid thiabendazole for roundworms. It can make roundworms move up to the nose or mouth and can cause choking and difficulty breathing.

You may be able to treat these worms with home remedies. Eating a little raw garlic or ground papaya seeds each day can help to kill worms.

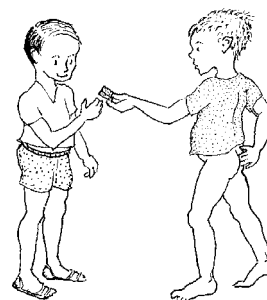
PREVENTION

For worms, prevention is the best and most important treatment. Without prevention and cleanliness, a person will just get worms again and again.

Toilets: Build a clean, private place to pass stool, away from the house and drinking water. Then children and animals will not track stool into the house. See how to build simple, safe toilets in *Water and Sanitation: Keys to Staying Healthy*.



Wash your hands, and help children wash their hands too: Wash often and well with soap and water, or with ashes. Wash before preparing food and before eating, and after every time you pass stool. Help children to wash hands even more often – since they touch everything and frequently put their fingers in their mouths.



If a child is scratching his anus because of worms, he will easily re-infect himself or others. To prevent this:

- Cut the nails short, so feces and worm eggs do not stick under them.
- Wash the child's hands well each morning, before he eats, and after he passes stool.
- Have the child wear pants during the day. Put him in a snug diaper or pants before bed – so he cannot scratch his anus in his sleep.
- Prevent itching with a little *Vaseline* on the anus before bed.

Wash after you handle other people's stool: If you are caring for babies or an ill adult, dispose of their stool into a toilet. Wash their bottoms after they pass stool. And carefully wash your hands after. For more ideas on how to prevent worms and other diseases, see *Water and Sanitation: Keys to Staying Healthy*.

Other problems caused by these worms

Roundworm: A severe, untreated roundworm infection can cause problems in the gut or with breathing. Young worms dig into the lungs, causing wheeze, a dry cough, or pneumonia with coughing of blood. This person needs medical help.

When a person has a fever, or when she starts taking worm medicine, the worms may come out in the stools or crawl out through the mouth or nose. Occasionally this causes the person to choke.

Rarely, roundworms cause an obstruction of the gut (see page 8). Get medical help. Give mebendazole or albendazole on the way.

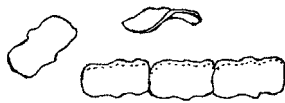
Whipworm: Whipworm can cause diarrhea, sometimes with blood. In severe infections, this leads to anemia (lack of iron in the blood, see page 8 in *Good Food Makes Good Health*).

Whipworm can also cause a child to push too hard when passing stool, which may cause a child's intestine to come part-way out of the anus. This is called rectal prolapse. Pour some cold water on it and it should pull back inside. If not, gently press it back in.



Children with a lot of worms may have hard, swollen bellies.

Worms spread by eating undercooked meat: tapeworm and trichina worm



Tapeworm (cestode), and tapeworm pieces (segments). These worms are white or yellow and up to several meters long. Depending on the type of tapeworm, you may see these segments in the stool.

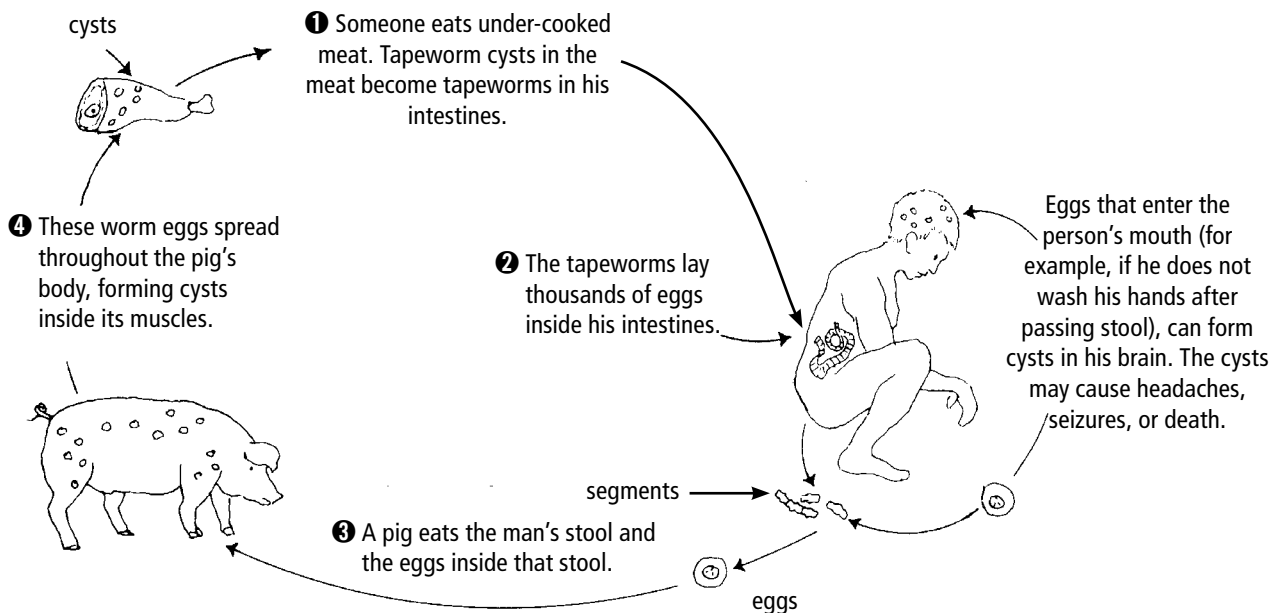


The trichina worm cannot be seen in the stool, but this is how it would look if you could see it burrowed into someone's muscle.

Tapeworms and trichina worms are spread by eating undercooked meat – usually pork. Fish, cows, and carnivores (animals that eat other animals) can also carry different types of these worms.

Tapeworm

The tapeworm lifecycle:



If you find a small, flat, white piece (segment) of tapeworm in the stool or underclothing, treat for tapeworm.

TREATMENT

Give niclosamide or praziquantel, see pages 55 to 56. If there are seizures, get medical help. The person will need anti-seizure and steroid medicines.



Trichinosis (trichina worm infection)

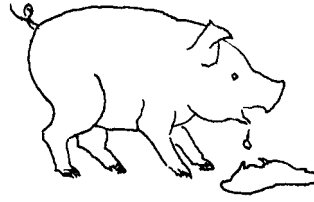
Within a week of eating infected meat, someone with trichinosis may get a stomach ache, nausea, and diarrhea. If everyone who ate the same pork has a stomach ache within a week of eating it, get treatment for trichinosis.

After a week the infection can spread to the muscles or brain causing:

- fever and chills.
- muscle pain or pain in the joints.
- swelling around the eyes or of the feet.
- bleeding in the whites of the eyes, pain in the eyes, or vision problems.
- small bruises.

TREATMENT

Give albendazole or mebendazole (see pages 54 to 55). Steroid medicines might be needed too.



PREVENTION FOR TAPEWORM AND TRICHINOSIS

- Pen pigs away from the house – so their stool is not tracked into the home or touched by children.
- Do not feed raw meat or feces to pigs – infection will follow.
- Cook meat well, especially pork. Cooking will kill tapeworm cysts.
- Wash hands after passing stool and before cooking or eating.

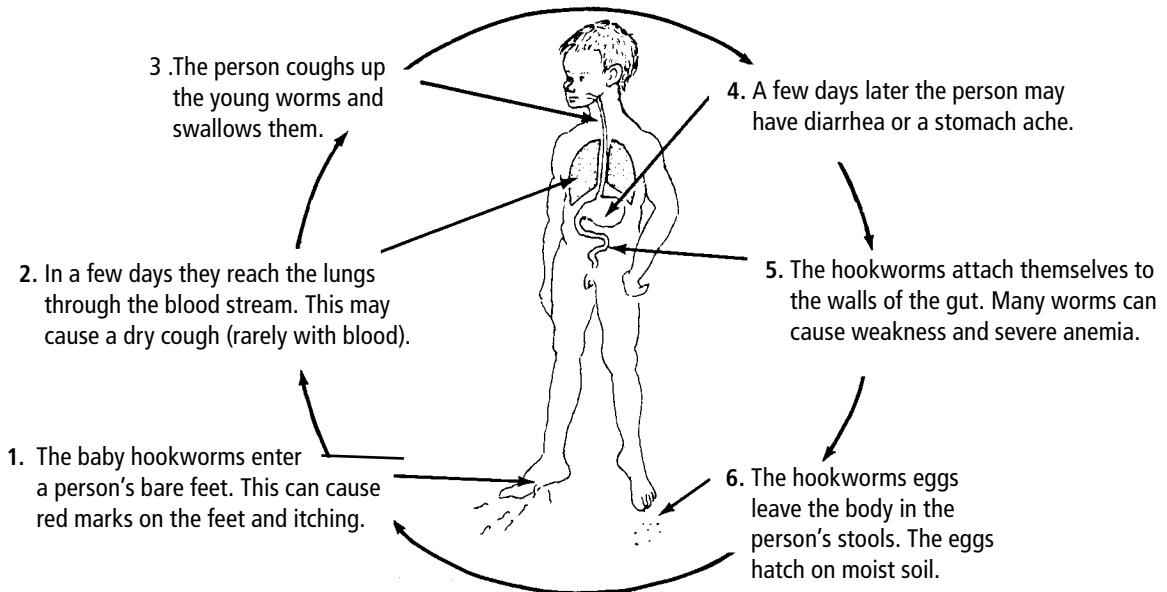
Hookworm



1 cm long, red

Hookworms can be one of the most dangerous diseases of childhood, because they feed off the child's blood and can cause anemia. A child who is anemic, pale, or eats dirt may have hookworms. If possible, his stools should be tested for hookworm.

How hookworms spread (start with number 1 below)



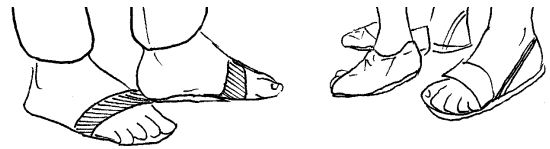
TREATMENT

Give mebendazole to treat hookworm. See page 54.

Treat anemia by eating foods rich in iron and taking iron tablets. See page 8 in Good Food Makes Good Health.



Protect children from hookworm: Build latrines and wear sandals or shoes.




Other Problems with the Bowels

Constipation

Hard, dry, or infrequent stool is called constipation. There may be pain in the belly. Most constipation is easily treated.

TREATMENT AND PREVENTION

- Do not take laxatives or purges. They can be dangerous – especially for children.
- Eat fruit every day. 
- Eat whole grains – such as brown rice or whole wheat flour – instead of white processed grains.
- Squat to pass stool.
- Walk, move, and exercise more. People who are old, weak, or sick need to move more too. You may need to help them. No one should lie in one position all day.
- Drink more water. Try to drink 8 cups or more each day.

If there is still constipation after a few days of drinking more water and eating more fruit and grains, try mixing 2 to 6 spoonfuls of wheat bran or psyllium husk powder, or a tablespoon of ground flax seed, with food or water. (If you mix with food, be sure to drink a glass of water too. If not, these foods full of fiber may cause more constipation.)

If dry stool is painfully blocking the rectum, you may need to remove it. Put a little oil, *Vaseline*, or soap on a gloved finger and gently remove the stool by hand.

Constipation is a common side effect of iron tablets and strong pain medicines like morphine and codeine. Follow the same recommendations listed above. As your body adjusts to the medicine, the constipation will usually get less.



Stool from the vagina

If stool “leaks” from the vagina, there is a hole between the intestine and the vagina, called a fistula. This is often caused by a long and difficult birth when the baby's head presses for too long against one part of the vagina. Fistula can also be caused by rape. More often, the hole will form between the vagina and the bladder, causing leaking urine, so fistula is described in detail with other problems of the urine system in Difficulties with Urinating (in development).

Blood from the anus

Bright red blood from the anus is most often a hemorrhoid. Get help if there is a lot of blood, if there are blood clots coming from the anus, or if there is pain.

Any blood from the anus (red, dark red, or black) can also be a sign of cancer, see Cancer (in development).

DANGER SIGNS

- Stool that is black and looks like tar.
- Vomit with blood or that looks like coffee grounds.

Either of these signs means there is bleeding higher up in the intestine or in the stomach. This is always dangerous and requires medical help.

Itching or Painful Anus

Hemorrhoids, piles

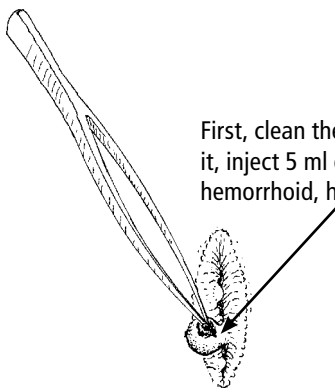
Hemorrhoids, also called piles, are swollen veins of the anus. They look puffy and feel like a lump near the anus. They may itch, burn, or hurt, especially during a bowel movement. Sometimes a hemorrhoid tears, causing a little bright red blood on the stool.

Hemorrhoids are common in pregnancy and in people who sit or carry heavy loads all day, but anyone can get them. They are made worse by constipation, because straining to pass stool stresses the veins in the anus.

TREATMENT

- Avoid constipation and hemorrhoids by drinking more water, and eating plenty of fresh fruit and whole grains.
- Certain bitter plant juices (such as witch hazel or cactus) dabbed on hemorrhoids helps shrink them.
- Sit in a shallow bath of warm water to clean the hemorrhoid and relieve the discomfort.

Sometimes a hemorrhoid gets clogged with a clot of blood. You will feel a tender, firm mass inside the swollen vein. This can be so painful that the person cannot sit. Relieve the pain by taking out the clot:



First, clean the anus with soap and water. If you have it, inject 5 ml of 1 percent lidocaine at the base of the hemorrhoid, here.

Use a sterilized blade to cut a small opening in the hemorrhoid. Use sterilized tweezers to pull out the clot. Put pressure on the cut with a clean cloth or gauze for a few minutes until the bleeding stops.

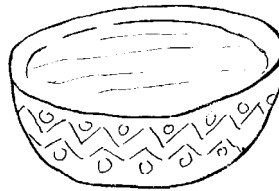
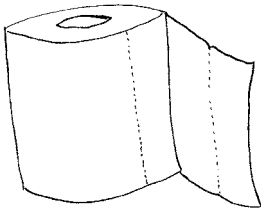
Do not cut hemorrhoids off. This can cause severe bleeding.

Raw or torn skin on the anus

An itching, stinging, or bleeding anus may be caused by a small tear in the skin. This can easily be confused with hemorrhoids or worms. Usually an adult with an itching anus does not have worms.

These tears are usually caused by rough wiping after passing stool. They are made worse by not cleaning the anus well.

- Do not wipe the anus with corn cobs, newspaper, or other rough materials.
- Instead, use toilet paper or a bowl of water to clean the anus after passing stool. Afterwards, wash hands well.



- Bathe regularly and clean the anus during bathing.
- Put Petroleum jelly (*Vaseline*) or ointment for diaper rash on the anus after cleaning it to help heal it. You can try a hydrocortisone cream, but do not use it for more than a week or it will weaken the skin.

Pain in the anus

Sometimes people get a swollen, red, painful lump next to the anus. It is filled with pus and is a kind of abscess. An abscess can lead to a hole between the anus and the skin and should be drained right away. Drain it as close to the opening of the anus as possible. See Skin, Nail, and Hair Problems (in development) for how to drain an abscess.

Most Belly Problems Can Be Avoided

You can prevent most belly problems by improving sanitation in the home and community, and by eating healthy food.

Water and Sanitation: Keys to Staying Healthy shows ways to make water safer to drink and to manage human waste to keep people healthy. If your family or neighbors often get stomach aches, diarrhea, or worms, read that chapter. **Good Food Makes Good Health** is about nutrition and how to eat for good health, which prevents stomach aches, nausea, and other belly problems.

Some other ways to prevent and treat these problems without medicines:

- Drink plenty of water, at least 8 cups every day and more when you are working or sweating a lot. This prevents constipation.
- Eat vegetables, fruits, and whole grains every day. This may prevent constipation and is important for general



health.

- Fatty, spicy, or acidic foods can cause belly aches. If your belly hurts, avoid these foods for a few weeks, to see if you feel better.
- Some people have painful gas or diarrhea when they eat milk or cheese. Try avoiding milk-based foods. (If avoiding a food does not help within a week or two, do not continue to avoid it.)
- Avoid cigarettes and alcohol. They cause stomach problems.
- Are you taking any medicines? Aspirin, ibuprofen, many antibiotics, and other medicines can hurt the stomach. For a few diseases, such as HIV, it is important to take a strong medicine for a long time. But for many illnesses, there is usually a different medicine you can take if the one you use causes belly problems. Maybe you do not need a medicine at all.
- Worry and stress give a lot of people belly aches. Mental Health (in development) gives ideas for how to stay calm when life is difficult.

Belly Pain, Diarrhea, and Worms: Medicines

Medicines for Diarrhea

Rehydration is the most important treatment for diarrhea no matter what is causing it. In many cases, rehydration and food are all that is needed. When there is giardia, dysentery (amebas or shigella), or cholera, especially in young children and old people, antibiotics and other medicines may also be helpful.

Giardia

Metronidazole (page 47) works best; give for 5 to 7 days. Quinacrine (page 50) can also be used and may be cheaper.

Amebic dysentery

Use metronidazole (page 47) for 7 to 10 days. Also use diloxanide (page 49).

Shigella

Shigella is resistant to several antibiotics, so it is very important to find out what medicines still work in your area. Try to find out what your local health authority recommends. You may be able to use ampicillin (page 43), or cotrimoxazole (see page 39 in *Good Food Makes Good Health*). But in many places there is resistance to these medicines, and ceftriaxone (page 48) should be used instead. Ciprofloxacin (page 48) can be used by adults, but avoid giving it to children. Whatever medicine you use, if there is no improvement after 2 days, change to a different antibiotic.

Cholera

Rehydration is essential to save the life of someone with cholera. Give rehydration drink constantly until the diarrhea has stopped and there are no more signs of dehydration. Then continue to give a cup of rehydration drink after every stool. Rehydration drink made with rice or maize meal may make it even more effective. See the recipe on page 22.

People with cholera or other severe cases of diarrhea should also be given zinc supplements. See page 50.

Antibiotics are not the most effective treatment for cholera, and in most places cholera is resistant to several antibiotics. Only give antibiotics when you know which ones work against cholera in your area. Start antibiotics by mouth after the person stops vomiting. Antibiotics that may be helpful include doxycycline, tetracycline, cotrimoxazole, ciprofloxacin, and erythromycin. Erythromycin is the safest for pregnant women and children.

There are vaccines that can help prevent cholera. They work best when a whole community is given the vaccine to prevent the spread of an outbreak. Ask your local health authority to distribute this.

Antibiotics

Antibiotics are medicines that fight infection from bacteria. They do not help against viral infections like chicken pox, rubella, flu, or the common cold. Not all antibiotics will fight all infections from bacteria. Antibiotics that share the same chemical make-up are said to be from the same family. It is important to know about the families of antibiotics for 2 reasons:

1. Antibiotics from the same family can often treat the same problems. This means you can use a different medicine from the same family.
2. If you are allergic to an antibiotic of one family, you will also be allergic to the other members of the same family of antibiotics. This means you will have to take a medicine from another family instead.

Antibiotics must be given for their full “course.” Stopping before you have finished all the days of treatment, even if you feel better, can make the infection return in a form that is even harder to stop.

Ampicillin and Amoxicillin

Ampicillin and amoxicillin are broad-spectrum penicillins, which means they kill a wide-range of bacteria. The two are often interchangeable. When you see a recommendation for ampicillin in this book, you will often be able to use amoxicillin in its place, in the correct dose (see the next page).

Ampicillin and amoxicillin are very safe and are especially useful for babies and small children. When combined with other medicines, ampicillin is useful for ulcers and for peritonitis.

Side effects

Both these medicines, but especially ampicillin, tend to cause nausea and diarrhea. Avoid giving them to people who already have diarrhea, if you can give another antibiotic instead.

The other common side effect is rash. Raised, itchy bumps that come and go in a few hours are probably a sign of penicillin allergy. Stop giving the medicine right away and do not give the person a penicillin medicine again. Future allergic reactions may be more severe and even life-threatening. For some problems erythromycin can be used instead, see page 45. A flat rash that looks like measles, and usually starts a week after starting the medicine and takes days to go away, is not necessarily an allergy. But it is impossible to know for sure if the rash is from allergy or not, so it is usually better to stop the medicine.

Important

Resistance to these medicines is growing more common. Depending on where you live, they may not work any more against staphylococcus, shigella, or other infections.

How to use

Below we list doses to give amoxicillin orally, and ampicillin orally and by injection. When possible, give amoxicillin by mouth. Use ampicillin by injection for severe illnesses, or when someone is vomiting or cannot swallow.

As with other antibiotics, how long to give them can vary for many reasons. The general rule is to continue the medicine until all signs of infection (including fever) have been gone for at least 24 hours. For people with HIV, give the medicine for the full number of days listed. Likewise there is a range for how much to give. In general, give the lower amount for a thinner person or for less severe infection, and the higher amount for a fatter person or more severe infection.

AMOXICILLIN (ORAL)

- ➔ Give 45 to 50 mg per kg each day, divided into 2 doses a day. If you cannot weigh the person, dose by age:
 - Under 3 months:** give 125 mg, 2 times a day for 7 to 10 days.
 - 3 months to 3 years:** give 250 mg, 2 times a day for 7 to 10 days.
 - 4 to 7 years:** give 375 mg, 2 times a day for 7 to 10 days.
 - 8 to 12 years:** give 500 mg, 2 times a day for 7 to 10 days.
 - Over 12 years:** give 500 to 875 mg, 2 times a day for 7 to 10 days.

Continue giving amoxicillin until all signs have been gone for at least 24 hours.

AMPICILLIN (ORAL)

- ➔ Give 50 to 100 mg per kg each day, divided into 4 doses a day. If you cannot weigh the person, dose by age:
 - Under 1 year:** give 100 mg, 4 times a day for 7 days.
 - 1 to 3 years:** give 125 mg, 4 times a day for 7 days.
 - 4 to 7 years:** give 250 mg, 4 times a day for 7 days.
 - 8 to 12 years:** give 375 mg, 4 times a day for 7 days.
 - Over 12 years:** give 500 mg, 4 times a day for 7 days.

Continue giving ampicillin until all signs have been gone for at least 24 hours.

AMPICILLIN (INJECTION)

Ampicillin can also be given by injection, but should be injected only for severe illnesses, or when someone is vomiting or cannot swallow.

- ➔ Inject 100 to 200 mg per kg each day, divided into 4 doses a day. If you cannot weigh the person, dose by age:
 - Under 1 year:** inject 100 mg, 4 times a day for 7 days.
 - 1 to 5 years:** inject 300 mg, 4 times a day for 7 days.
 - 6 to 12 years:** inject 625 mg, 4 times a day for 7 days.
 - Over 12 years:** inject 875 mg, 4 times a day for 7 days.

Erythromycin

Erythromycin works against many of the same infections as penicillin or tetracycline, and it can be used by those who are allergic to penicillins.

Side effects

Erythromycin often causes nausea and diarrhea, especially in children. Do not use for more than 2 weeks as it may cause jaundice.

How to use

- ➔ Give 30 to 50 mg per kg each day, divided into 2 to 4 doses a day. Give for 7 to 10 days, or until 24 hours after all signs of infection are gone. If you cannot weigh the person, dose by age:

Newborns: give 65 mg, 2 times a day for 7 to 10 days.

Under 3 years: give 125 mg, 3 times a day for 7 to 10 days.

3 to 7 years: give 250 mg, 3 times a day for 7 to 10 days.

Over 8 years: give 250 to 500 mg, 4 times a day for 7 to 10 days.

For severe infections, double the doses above.

For cholera (where erythromycin works for cholera)

- ➔ Give the same doses listed above, but only for 3 days.

Tetracycline and Doxycycline

Tetracycline and doxycycline are broad-spectrum antibiotics that fight many different kinds of bacteria. They work well when given by mouth (and are very painful when injected, so they should not be given that way). There is a lot of resistance to these medicines, but they are still useful for fighting some infections.

Doxycycline and tetracycline can be used interchangeably. But doxycycline is usually a better choice because less is needed each day and it has fewer side effects.

Side effects

Heartburn, stomach cramps, diarrhea, and yeast infections are common.

Important

- Pregnant women should not take these medicines because they can damage or stain the baby's teeth and bones. For the same reason, children under 8 years old should take them only when there is no other effective antibiotic and for short periods only. You can usually use erythromycin instead.
- Do not use tetracycline or doxycycline that is 'old' or past its expiration date.
- Some people may sunburn quickly or get a skin rash after spending time in the sun while taking these medicines, so stay out of the sun or wear a large hat.
- These medicines may make birth control pills less effective. If possible use another method (such as condoms) while taking these medicines.

How to use

TETRACYCLINE

Avoid milk, iron pills, and antacids for 2 hours before or after taking tetracycline. They will make the medicine less effective.

Take tetracycline on an empty stomach with plenty of water at least 1 hour before or 2 hours after meals.

For most infections

- Give 25 to 50 mg per kg each day, divided into 4 doses a day. Or dose by age:
8 to 12 years: give 125 mg, 4 times a day for 7 to 10 days.
Over 12 years: give 250 mg, 4 times a day for 7 to 10 days.

For cholera (where tetracycline works against cholera)

- **8 to 12 years:** give 250 mg, 4 times a day for 3 days.
Over 12 years: give 500 mg, 4 times a day for 3 days.

DOXYCYCLINE

Avoid milk, iron pills, and antacids for 2 hours before or after taking doxycycline. They will make the medicine less effective.

Take doxycycline on an empty stomach with plenty of water at least 1 hour before or 2 hours after meals.

Doxycycline is taken once or twice a day (instead of 4 times a day like tetracycline). For more severe infections, give twice a day. But for most infections, give the first dose of doxycycline, then 12 hours later give a second dose. After that, give a double dose only one time each day. For example, if you give the first dose Monday night, then give the second dose Tuesday morning. Give a double dose Wednesday morning, and again on Thursday morning, and so on.

- Give 2 mg per kg in each dose, but do not give more than 100 mg per dose or 200 mg a day. Or dose by age:
8 to 12 years: give 50 mg per dose for 7 to 10 days.
Over 12 years: give 100 mg per dose for 7 to 10 days.

For cholera (where doxycycline works against cholera)

- Give 6 mg per kg, one time only. Or dose by age:
8 to 12 years: give 150 mg, one time only.
Over 12 years: give 300 mg, one time only.

Metronidazole

Metronidazole is used to treat gut infections caused by amebas, giardia, and certain bacteria.

Side effects

Nausea, cramps, and diarrhea are common. Taking with food may help. Sometimes it causes a metallic taste in the mouth or a headache.

Important

Do not give in the first 3 months of pregnancy. It may cause birth defects. Also avoid giving metronidazole later in pregnancy, and while breastfeeding unless it is the only effective medicine and is definitely needed. Do not drink alcohol while taking metronidazole or until 2 days after you finish taking it. Drinking alcohol while taking metronidazole causes severe nausea. Do not use metronidazole if you have liver problems.

How to use

For many problems, you can give a high dose of this medicine for 3 days, or a lower dose for 5 to 10 days. Pregnant women should avoid the high dose treatments.

For giardia

- ➔ Give 15 mg per kg each day, divided into 2 or 3 doses a day, for 5 to 7 days. Or dose by age:
 - Under 3 years:** give 62 mg (¼ of a 250 mg tablet), 2 times a day for 5 days.
 - 3 to 7 years:** give 62 mg, 3 times a day for 5 days.
 - 8 to 12 years:** give 125 mg, 3 times a day for 5 to 7 days.
 - Over 12 years:** give 250 mg, 3 times a day for 5 to 7 days. **OR** Give 2 grams, once a day for 3 days.

For amebic dysentery

- ➔ Use 30 mg per kg each day, divided into 3 doses a day, for 8 to 10 days. Or dose by age:
 - Under 3 years:** give 62 mg (¼ of a 250 mg tablet), 3 times a day for 8 to 10 days.
 - 3 to 7 years:** give 125 mg, 3 times a day for 8 to 10 days.
 - 8 to 12 years:** give 250 mg, 3 times a day for 8 to 10 days.
 - Over 12 years:** give 500 to 750 mg, 3 times a day for 8 to 10 days.

After the last dose of metronidazole, take **diloxanide furoate** (see page 49).

For peritonitis or appendicitis

- ➔ Give along with other antibiotics. See page 51 for instructions.

For ulcers

- ➔ Give metronidazole with omeprazole and amoxicillin. See page 53.

Ciprofloxacin

Ciprofloxacin is a broad spectrum antibiotic of the quinolone family. It works against a lot of different infections of the skin, bones, digestive tract, and urinary tract (bladder). But there is resistance to ciprofloxacin in many parts of the world, so use it only against the infections for which it is specifically recommended in your area. It is not a good antibiotic for children.

Side effects

Nausea, diarrhea, vomiting, headache, dizziness, rash, or yeast infections.

Important

Do not use if you are pregnant or breastfeeding. Do not take with dairy products.

Rarely, ciprofloxacin damages the tendons. Except for a few specific situations, it should not be given to children under 16 because their tendons are still developing. If you have pain in your calves when taking this medicine, stop taking it immediately.

How to use

For most infections

→ Give 250 to 750 mg, two times a day until 24 hours after signs of infection are gone.

For shigella

→ Give 500 mg, 2 times a day for 3 days.

For cholera (where ciprofloxacin works against cholera)

→ Give 1 gram (1000 mg), one time only.

For appendicitis or peritonitis

→ Give ciprofloxacin with other antibiotics. See page 50.

Ceftriaxone

Ceftriaxone is a strong antibiotic used against serious infections and for infections resistant to penicillin. Only use ceftriaxone to treat the specific infections for which it is recommended in your area. This will help prevent resistance and keep this drug useful.

Side effects

Can be painful to inject. Mix with 1% lidocaine if you know how.

Important

Do not give to a baby less than 1 week old. Do not use if there is jaundice.

How to use

Ceftriaxone cannot be taken by mouth. When injecting, put the needle deep in the muscle.

For severe infection

The doses are different depending on the infection, but in general you can give 50 to 100 mg per kg in children, and 1 to 4 grams in adults, once or twice a day.

For shigella

- ➔ Inject 50 mg per kg, once a day for 5 days. Or if you cannot weigh the person, dose by age:
 - 1 week to 3 years:** inject 250 mg, once a day for 5 days.
 - 3 to 7 years:** inject 500 mg, once a day for 5 days.
 - 8 to 12 years:** inject 1000 mg, once a day for 5 days.
 - Over 12 years:** inject 1 to 2 grams, once a day for 5 days.

Other Medicines for Diarrhea

Diloxanide furoate

Diloxanide is used in combination with antibiotics to treat amebas. If you cannot get this medicine, try paromomycin or iodoquinol instead.

Side effects 

Occasionally causes gas, stomach pain, or nausea. Take with food.

Important 

Do not use diloxanide during the first 3 months of pregnancy. Avoid this medicine while breastfeeding.

How to use 

After completing metronidazole or another treatment for amebas, begin taking diloxanide.

- ➔ Use 20 mg per kg each day, divided into 3 doses a day for 10 days. If you cannot weigh the person, dose by age.
 - Under 3 years:** give 62 mg ($\frac{1}{8}$ of a 500 mg tablet), 3 times a day for 10 days.
 - 3 to 7 years:** give 125 mg, 3 times a day for 10 days.
 - 8 to 12 years:** give 250 mg, 3 times a day for 10 days.
 - Over 12 years:** give 500 mg, 3 times a day for 10 days.

Quinacrine

Quinacrine works well for treating giardia, but makes people feel very sick. It is used because it is inexpensive.

Side effects

Headaches, dizziness, and vomiting are common.

How to use

For giardia

- **Under 10 years:** give 50 mg, 3 times a day for 1 week.
- **Over 10 years:** give 100 mg, 3 times a day for 1 week.

Zinc

Zinc helps people with diarrhea get better faster. It should be given along with rehydration drink.

How to use

For babies, tablets can be ground up and mixed with breast milk or a little water. You may be able to get a “dispersible tablet” which dissolves quickly and easily in liquid.

- **Newborn to 6 months:** give 10 mg, once a day for 10 to 14 days.
- **Over 6 months:** give 20 mg, once a day for 10 to 14 days.

For Peritonitis and Appendicitis

A number of different antibiotics can be used to treat peritonitis, but always use at least 2 antibiotics to kill as many different bacteria as possible. For peritonitis, it is best to inject antibiotics because the digestive system will not work well enough to use medicines taken by mouth. If you do give antibiotics by mouth, give only as much water as is needed to swallow the pills. The person should not eat or drink anything else.

Give these medicines until the person has reached the hospital:

METRONIDAZOLE 500 mg, 4 times a day

AND

CIPROFLOXACIN 500 mg, 2 times a day **OR**

CEFTRIAXONE 2 grams, once a day **OR**

AMPICILLIN 2 grams, 4 times a day **AND** GENTAMICIN 1.5 mg per kg, 3 times a day.

For Acid Indigestion, Heartburn, and Stomach Ulcers

First try treating heartburn and stomach upset with simple antacids. If they keep coming back, you will need stronger antacid medicines. If the stomach pain is caused by an ulcer, you will probably need to give a combination of antacid medicines and antibiotics to really cure the problem. For that combination of medicines, see page 53.

Antacids

Antacids cost little and offer short-term relief from stomach pain and heartburn. None of them works for long, but for occasional problems they can help. They are sold under many different brand names, come as liquids or chewable tablets, and are made of aluminum hydroxide, magnesium hydroxide, calcium carbonate, or bismuth.

Aluminum hydroxide, magnesium hydroxide, milk of magnesia, cream of magnesia

These antacids can be used occasionally for acid indigestion or heartburn, or as a regular part of treatment of a stomach (peptic) ulcer.

Important

These medicines interfere with tetracycline and a number of other medicines. If you are using another medicine, take it 2 hours before or after these antacids.

Side effects

Antacids with magnesium sometimes cause diarrhea, and those with aluminum may cause constipation.

How to use

Take an antacid when you have pain, often about an hour after meals. Or take before bedtime to prevent problems when you lie down. Chew 1 or 2 tablets, or drink 10 ml (about 2 teaspoons) syrup. It is OK to use these 4 or 5 times a day, but if you have to take this much for several days in a row, you probably need a different treatment.

Calcium carbonate

Calcium carbonate is effective for occasional acid indigestion or heartburn. Chew one 850 mg tablet or two 350 mg tablets when symptoms occur. If necessary, take another dose in 2 hours.

Sodium bicarbonate, bicarbonate of soda, baking soda

Sodium bicarbonate should be used only occasionally for stomach upset with heartburn or acid indigestion. Do not treat chronic indigestion or ulcers with it. Although it helps at first, sodium bicarbonate causes the stomach to produce more acid, which soon makes things worse. As an occasional antacid, mix ½ teaspoon of sodium bicarbonate with water and drink it.

Alka-Seltzer is a combination of sodium bicarbonate and aspirin. If you have an ulcer, the aspirin in it will make the ulcer worse.

Important

Persons with heart disease, or with swelling of the feet or face, should not use sodium bicarbonate or other products that contain sodium.

Bismuth

Bismuth usually comes as a pink liquid. It is used for heartburn, stomach ache, diarrhea, or gas (painful, bloated stomach and farting). It can be used in combination with other medicines to treat ulcer. See page 54.

Side effects

Sometimes this medicine turns the tongue or feces black. This is harmless and goes away when you stop taking the medicine.

Important

Do not give to children with fevers. Like aspirin, it may cause health problems in children with infections caused by viruses.

How to use

Do not give within 2 hours of tetracyclines. It will stop them from working well.

- ➔ Give 2 tablets or 30 ml of liquid, once an hour as needed. Do not give more than 16 tablets or 240 ml in 24 hours.

Stronger acid-reducing medicines

New medicines for heartburn and ulcer work better than the old antacids, but they can be expensive. There are two kinds of new antacids, called Histamine 2 Receptor Antagonists (H2 Blockers) and Proton Pump Inhibitors (PPIs). Of the two groups, PPIs work best but are more expensive. Medicines within each group usually work equally well, so choose the H2 Blocker or PPI that is least expensive.

Omeprazole

Omeprazole is a PPI. Like other PPIs, it can calm pain and help an ulcer heal. To treat an ulcer, try using omeprazole alone for 8 weeks. If the ulcer and pain come back, try using omeprazole again with a combination of antibiotics to cure the problem. See page 54 for the combined treatment.

If you do not have good results with omeprazole, try a different PPI instead.

How to use

→ Give 20 to 40 mg, once a day.

Start with 20 mg, and if pain does not improve, increase to 40 mg.

If the ulcer or pain comes back within 6 months after taking omeprazole, also use antibiotics to cure the ulcer.

Ranitidine

Ranitidine is an H2 blocker. Like other H2 blockers, it can calm pain and help an ulcer heal. But if the pain comes back within 6 months of taking ranitidine, also use antibiotics to cure the ulcer.

How to use

→ Give 150 mg twice a day, or 300 mg with the evening meal, for 4 to 8 weeks.

To cure an ulcer

Give a combination of antacid medicines and antibiotics. There are many combinations that will work. Most include one PPI and two antibiotics. Often bismuth is added as well. If you do not have a PPI, an H2 blocker may work instead.

Here is one combination:

Omeprazole 40 mg, (or another PPI) once a day for 1 or 2 weeks

AND

Metronidazole 500 mg, twice a day for 1 or 2 weeks

AND

Amoxicillin 500 mg, 3 times a day for 1 or 2 weeks.

Or, this is another option:

Omeprazole 40 mg, (or another PPI) once a day for 1 week

AND

Metronidazole 250 mg, 4 times a day for 1 week

AND

Tetracycline 500 mg, 4 times a day for 1 week

AND

Bismuth 525 mg, 4 times a day for 1 week.

Do not take tetracycline and bismuth at the same time. Wait 2 to 3 hours after taking one, and then take the other.

Medicines for Worms

Medicines by themselves are not enough to get rid of worm infections for very long. Personal and public cleanliness is also necessary. Worm infections can spread easily among family members, so when one person has worms it is wise to treat the whole family too.

Mebendazole

Mebendazole works against hookworm, whipworm, roundworm, and pinworm (threadworm). It also works well for infections of several different worms. It may do some good against trichinosis, but is not the best medicine for this. Although side effects are not common, there may be some gut pain or diarrhea if the person is infected with a lot of worms.

Important

Avoid mebendazole during the first 3 months of pregnancy when it can harm the developing baby. Do not give to children under 1 year old.

How to use

For pinworm

→ **1 year to adult:** give 100 mg, one time by mouth. Repeat in 2 weeks if necessary.

For roundworm (*Ascaris*), whipworm (*Trichuris*) and hookworm

→ **1 year to adult:** give 100 mg, 2 times a day for 3 days (6 tablets in all). **OR** give one 500 mg tablet, one time only.

To prevent roundworm where this infection is common

→ **1 year to adult:** give 500 mg, every 3 to 6 months.

For trichinosis

→ **1 year to adult:** give 200 to 400 mg, 3 times a day for 3 days. Then give 400 to 500 mg, 3 times a day for another 10 days. If there are pain or vision problems, also give a steroid, for example prednisolone, 40 to 60 mg, once a day for 10 to 15 days.

Albendazole

Albendazole is similar to mebendazole but often more expensive. It works against hookworm, whipworm, roundworm, pinworm, and trichinosis. Side effects are rare.

Important

Avoid albendazole during the first 3 months of pregnancy when it can harm the developing baby. Do not give to children under 1 year old.

How to use

For pinworm, roundworm (Ascaris), whipworm (Trichuris), and hookworm

→ **1 to 2 years:** give 200 mg, one time.

Over 2 years: give 400 mg, one time. Repeat in 2 weeks if needed.

For trichinosis

→ Give 400 mg, 2 times a day for 8 to 14 days. If there are pain or vision problems, also give a steroid, for example prednisolone, 40 to 60 mg, once a day for 10 to 15 days.

Pyrantel pamoate, pyrantel embonate

Pyrantel works for pinworm, hookworm, and roundworm (Ascaris), but it may be expensive. It occasionally causes vomiting, dizziness, or headache. Do not give it to someone also taking piperazine (another anti-worm medicine).

How to use

For hookworm and roundworm: give one dose only.

For pinworm: give one dose, wait 2 weeks, then give another dose.

→ Give 10 mg per kg. If you cannot weigh the person, dose by age:

Under 2 years: give 62 mg (¼ of a 250 mg tablet).

2 to 5 years: give 125 mg (½ of a 250 mg tablet).

6 to 9 years: give 250 mg (one 250 mg tablet).

10 to 14 years: give 500 mg (two 250 mg tablets).

Over 14 years: give 750 mg (three 250 mg tablets).

For Tapeworm

There are several types of tapeworm. Praziquantel or niclosamide both work for all types. If the tapeworm infection is in the brain or causes seizures, the person needs albendazole and anti-seizure medicines instead, and should get help.

Praziquantel

Side effects

Praziquantel may cause tiredness, dizziness, headache, loss of appetite, and nausea, but these side effects are rare at the low doses used to treat tapeworm.

How to use

For most kinds of tapeworm, including beef and pork tapeworm

→ Use 5 to 10 mg per kg, one time only. Or dose by age:

4 to 7 years: give 150 mg (¼ tablet), one time only.

8 to 12 years: give 300 mg, one time only.

Over 12 years: give 600 mg, one time only.

For dwarf tapeworm (*H. nana*)

- Use 25 mg per kg in one dose. Then repeat in 10 days. Or dose by age:
 - 4 to 7 years:** give 300 to 600 mg (½ to 1 tablet) per dose.
 - 8 to 12 years:** give 600 to 1200 mg per dose.
 - Over 12 years:** give 1500 mg per dose.

Niclosamide

Niclosamide works against tapeworm in the gut, but not against cysts outside the gut.

How to use 

Take niclosamide after a small morning meal. Tablets must be chewed well and swallowed. The dose may differ depending on the type of tapeworm, so your local health authority may have a good recommendation. If not, use the dose below.

Chew well and swallow the following doses. If a small child cannot yet chew, crush the tablet and mix with a little breast milk or food.

- **Under 2 years:** give 500 mg, one time only.
- 2 to 6 years:** give 1 gram (1000 mg), one time only.
- Over 6 years:** give 2 grams, one time only.

For Numbing

Lidocaine, Lignocaine

Lidocaine is an anesthetic that can be injected around the edges of a wound to make the area numb so it will not hurt. This is useful before draining an abscess or stitching up a wound. If you decide to remove a blood clot from a painful hemorrhoid, use lidocaine first.

How to use 

Inject both into and under the skin around where you are going to cut or sew, at points about 1 cm apart. First, clean the skin well, then slowly inject the lidocaine. Use about 1 ml of anesthetic for each 2 cm of skin. (Do not use more than 20 ml altogether.)

See Medicines, Tests, and Treatments (in development) for how to safely give injections.