

CHAPTER 5  
Preventing infection

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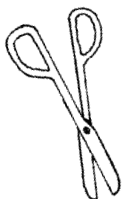
# Preventing infection

CHAPTER

5

## Preventing infection saves lives

Infection makes people sick and can even kill them. It is one of the most common causes of death after childbirth. Procedures that involve putting medical tools inside a woman's womb, like inserting an intrauterine device (IUD) or doing manual vacuum aspiration (MVA), can also cause infection. Much of the work of a midwife, and any procedure inside the womb (invasive procedure), can only be safe if you are able to follow the steps we outline in this chapter to prevent infection.



Germ can live on tools, even tools that look clean.

This chapter explains how to avoid infection by killing or controlling harmful germs. Germs are organisms that carry sickness. Germs are everywhere, but they are so small that they can only be seen with a microscope. The dangerous germs in blood, stool, body fluids (like semen and amniotic waters), and dirt can cause serious sickness when they get into someone's body.



Germ can live in body fluids, like blood.

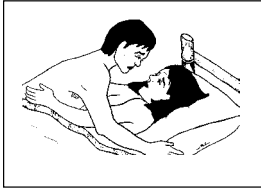
## Infection is caused by germs

Some sicknesses, like arthritis, diabetes, asthma, and epilepsy, are not caused by germs. They cannot be passed from one person to another.

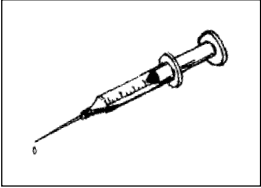
Other sicknesses, like measles, hepatitis, tetanus, womb infection, HIV, and the flu, are called infections and are caused by germs. People get sick when the germs that cause these infections get inside their bodies.

## How germs get into the body

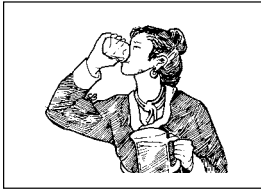
Germs can get inside the body in different ways.



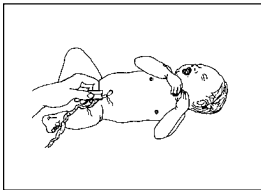
**Some germs pass through semen or vaginal mucus** (body fluids) when people have sex. HIV and other sexually transmitted infections like chlamydia and gonorrhea can spread this way.



**Some germs pass through blood** when the blood or body fluid of an infected person get into a cut or through the skin — like with a needle that has been used for piercing or injections. HIV, hepatitis B, and hepatitis C can spread this way.



**Some germs live in dirty water** and pass when people drink it. Cholera and diarrheal diseases spread this way.



**Some germs live in dirt, on skin, or in the air**, and are not dangerous unless they get into a person's blood. These germs can get into the blood when an instrument that has germs on it is used inside a woman's womb, or to cut the skin or a baby's cord. Tetanus and womb infection can spread this way.



**Some germs pass through the air** when a sick person coughs or sneezes. Colds, flu, and tuberculosis can spread this way.

### ***Keep sick people away from births***

One simple thing midwives can do to prevent infection is to keep sick people away from women who are pregnant or giving birth. Keep anyone who has a sore throat, cough, fever, or other illness that passes through germs away from births. And do not let anyone with a sore on his or her hands or face touch a new baby.





If you are sick but you must go to a birth, you can cover your mouth and nose with a scarf, a folded cloth or a mask. Wash your hands often and cover your mouth when you sneeze or cough. Be sure to wash your hands after each time you sneeze or cough. Try not to touch the new baby too much.

### Anyone may carry germs that cause sickness

People do not always know that they have an infection. And there is no way to tell for sure what germs a person has just by looking at her. Some people have germs in their blood or other body fluids but do not seem sick.

To be safe, and to stop the spread of dangerous infections like hepatitis and HIV, health workers must treat everyone as if they might have dangerous germs in their body fluids. Health workers can prevent germs from spreading:

- by wearing gloves and other protective clothing, to prevent blood and other body fluids that contain germs from getting on themselves or others.
- by cleaning and sterilizing the tools they use during births and other procedures.

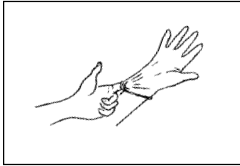


**Note:** Good general health can help avoid infection. Healthy eating, enough rest, and emotional and spiritual well-being are all important for staying healthy. Sometimes they are enough to help people fight germs that get inside the body so the person does not get sick.

But during birth and invasive medical procedures, a woman's body is more open and vulnerable to infection, and good general health is usually not enough. Germs that are usually kept out of the body can get into the womb. Any cut in the skin also makes a person more vulnerable to infection because the skin usually helps keep germs out of the body. Even an injection can cause an infection if the syringe has harmful germs on it.

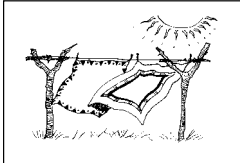
## Prevent infection by keeping germs away

Here are the basic rules to prevent infection.



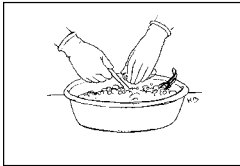
### Clean your hands and wear protective clothing.

Wash your hands often and wear protective clothing to prevent spreading germs from one person to another and to keep germs away from yourself (see page 53).



### Clean the space and bedding.

Clean the area where births and exams happen, to keep germs away (see page 57).



### Clean and sterilize tools.

Wash and sterilize tools to kill any germs on them (see page 59).



### Get rid of wastes safely.

Throw away waste products carefully to prevent people in the community from getting sick from the germs left on them (see page 67).

**Remember:** Infection can spread most easily when a health worker is caring for many people. For example, if her hands are not clean or her tools are not sterile, she will pass germs from one woman to another to another. For this reason, a woman giving birth at a hospital or maternity center with many other women has more risk of infection than a woman giving birth at home.

### Adapt this book to work for you

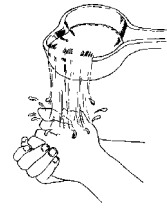
This chapter contains many detailed instructions for preventing infection. They are all important, but they may not all be possible. You will have to decide which you are able to do, or if there are ways you can adapt the instructions to work for you.



# Clean your hands and wear protective clothing

## Wash your hands often

Washing your hands is one of the most important things you can do to prevent infection. It prevents you from spreading germs to another person, and it helps protect you from germs, too. If you can do nothing else to prevent infection, you must wash your hands.



Wash your hands with soap and clean water. If you do not have soap, you can use ash (but not dirt!). Be sure to rinse all the soap or ash off. When you wash your hands, and especially when you rinse them, use clean water that is flowing, not water sitting in a bowl. When you wash your hands in a bowl, the germs that come off into the water will get back onto your hands again.

Wash your hands each time before you touch a woman's body. Wash after you touch her body, or after you touch anything that has her blood or fluid on it (like the placenta). Wash before you put on gloves and after you take gloves off. If you are helping more than one woman at once, like at a hospital, it is very important to wash between helping each person.

Normal hand washing removes most germs. But sometimes to remove more germs, you should wash your hands for a full 3 minutes, and scrub under your fingernails.

### How to do a 3-minute hand wash

Before you start, take off rings, bracelets, and other jewelry.

1



Wash your hands and arms with soap and clean water — all the way up to your elbows.

2



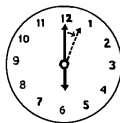
Make sure to scrub in between your fingers.

3



If you have a clean brush, scrub your fingernails.

4



Keep scrubbing, brushing, and washing your hands and arms for 3 minutes! Spend most of this time on your hands.

5



Rinse with clean, running water.

6



Dry your hands in the air instead of using a towel. Do not touch anything until your hands are dry.

## Always do a 3-minute hand wash

*before you:*

- touch the mother's vagina
- do a pelvic exam
- deliver the baby
- sew up a tear
- insert an IUD (see Chapter 21)
- do an MVA (see Chapter 23)



*after you:*

- clean up after the birth
- touch any blood or other body fluids
- urinate or pass stool

## Alcohol and glycerine hand cleaner

You can make a simple hand cleaner to use if you do not have water to wash your hands. When used correctly, this cleaner will kill most of the germs on your hands.

Mix 2 milliliters glycerine with 100 milliliters of ethyl or isopropyl alcohol 60% to 90%.

To clean your hands, rub about 5 milliliters (1 teaspoon) of the hand cleaner into your skin. Be sure to clean between your fingers and under your nails. Keep rubbing until your hands are dry. Do not rinse your hands or wipe them with a cloth.

### Clean water

Throughout this book we talk about how important it is to wash your hands and wash your tools. But the water you use must be clean to be of any use. If the water in your community may carry germs, be sure that water is boiled before using it to wash your hands or to wash tools before a birth.



## Wear gloves

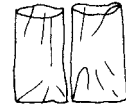
Latex and other plastic gloves protect women from any germs that may be hiding under your fingernails or on your skin. They also protect you from getting infections. Wear clean gloves whenever you touch the mother's genitals, or any blood or body fluid.

If you are doing invasive procedures, or if you are touching any tools that have been sterilized, you must wear sterile gloves.



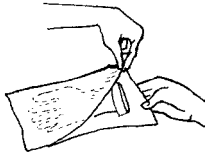
### Plastic bag gloves

If you do not have gloves, use plastic bags that have been washed in disinfectant soap instead. Bags are harder to use than gloves, but they are better than nothing. In the rest of this book, we will only mention gloves. But **be sure to use plastic bags if you do not have gloves.**



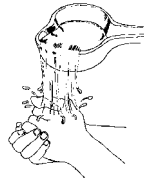
### How to put on sterile gloves

1



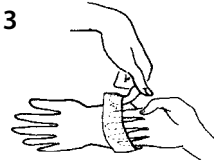
Open the package without touching the gloves. Do not touch the outside of a sterile glove with your hand or it will not be sterile anymore.

2



Carefully wash your hands. Let them dry in the air.

3



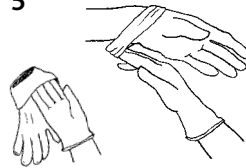
The gloves should be folded out at the cuff. Pick up one glove under the cuff on the inside of the glove and slip your hand into it. Do not touch the outside of the glove.

4



Wiggle your hand in while you pull with your finger tucked inside the glove.

5



Pick up the second glove by slipping your gloved fingers into the fold of the cuff. Slide your hand into the glove.

6



Once the gloves are on, do not touch anything that is not sterile — or the gloves will not be sterile anymore!

Practice with the same pair of gloves over and over again until it feels easy.

#### Remember:



If you carefully wash your hands ...



and put on sterile gloves ...



and then scratch your head ...



your glove is not sterile anymore!

Of course, when you touch a woman you will get germs on your gloves, but do not move germs from one part of her body to another. For example, if you touch a woman's anus where there are many germs, do not put your fingers inside the vagina with the same gloves. Germs from the anus can make a woman sick if they get into the vagina or womb.

After you use a pair of gloves one time, throw them away, or sterilize them before you use them again (see page 66).



## Protect yourself from infection

Midwives must protect themselves from germs and infection. You will not be able to help women if you are sick. And if you are infected with dangerous germs, you can easily spread them to the women you are trying to help.

Some germs that cause serious illnesses, like AIDS and hepatitis B, only live in blood, urine, stool, the bag of waters, and other body fluids. That means you do not get these illnesses just by touching someone's skin. But the germs that cause AIDS and hepatitis B can infect you if an infected person's blood gets into a cut or opening in your skin — even a cut so small that you cannot see it (see page 99 for all the ways HIV can spread). Keep blood and other body fluids off your clothing and skin, and if they do get onto you, wash them off right away with soap and water.

### Wear protective clothing

You do not need expensive equipment to keep body fluids off your skin, out of cuts, and out of your mouth and eyes. You can wear an apron or an extra shirt to keep fluid off your body. Protect your eyes with eyeglasses or plastic goggles. Cover your feet so that you do not step into blood or other fluids.



If you do not have clothing made to protect you from blood and fluids, you can make it from what you already have.

Wash all your clothing after any blood, waters, or other body fluids gets on it. If you get body fluids in your eyes or mouth, rinse them for several minutes with clean water or saline (water with a little salt added).

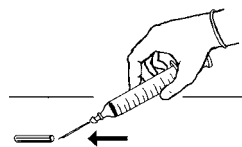
### Be careful with needles

If a syringe is used to give an injection, or a needle was used for sewing a vaginal tear, the needle has blood on it. If you accidentally stick yourself with that used needle, you will be exposed to germs. Carry needles carefully with the point away from your body. Do not leave needles lying around.

Use each needle only once and then throw it away in a box like the one on page 68. You may be able to get needles that can only be used once and do not need a cap. If you must reuse a needle, put the cap on very carefully and then put the needle in a bucket filled with bleach solution (see page 57) until you are ready to clean and sterilize it.

### How to avoid puncturing your skin with a needle

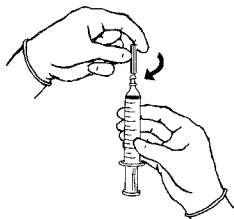
Do not use your hand to put the cap on the needle.



Instead, use the needle to pick up the cap.



Then close the cap all the way.



**Note:** If you do get stuck by a needle, immediately wash the area with soap and water or alcohol and dispose of the needle properly (see pages 67 and 68). Do not use it on another person.

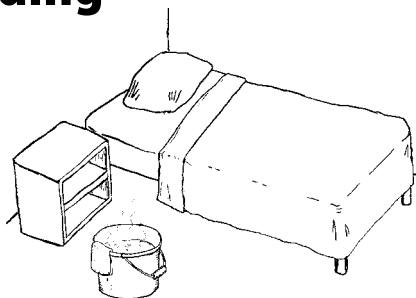
# Clean the space and bedding

## Clean the space

### At home

One reason that birth or medical procedures can happen as safely in a woman's home as in a medical center is that there are not as many germs in a clean house as in a hospital.

But the home should still be cleaned carefully — especially the area where the baby will be born or where procedures such as a pelvic exam or IUD insertion will be done.



Sweep these areas free of dust and dirt, and wash surfaces with soap and water. Put your tools or birth kit on a clean surface.

Move animals out of the house and do not do any medical procedures in places where animals sleep or pass stool, or where people urinate or pass stool. If the floor in the house is made of animal waste (dung), do not let the woman's body or any of your tools touch the floor. Dung has many germs in it that can easily spread to pregnant women. You can cover the floor with clean straw, cloth, or plastic.

### In a hospital, maternity center, or clinic

Be extra careful. Germs can easily be passed from one person to another.

After each birth, wash floors and surfaces. If possible, use a bleach (sodium hypochlorite) solution to wash the floor.

#### How to make a disinfecting solution of 5% bleach

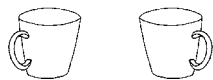
##### If your bleach says:

5% available chlorine



use undiluted,  
straight bleach

10% available chlorine



use 1 part  
bleach and 1 part  
water

15% available chlorine



use 1 part  
bleach and 2 parts  
water

Mix just enough solution for 1 day. **Do not use it again the next day.** It will not be strong enough to kill germs anymore.



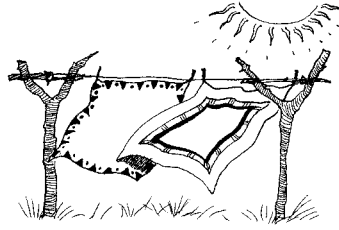
If you do not have bleach, you can wash the floor with:

- ethanol (medical alcohol) 70%
- isopropyl alcohol 70%
- hydrogen peroxide 6%
- soapy water
- ammonia (But do not ever mix bleach with ammonia — when mixed they make a poison.)

## Clean or sterilize the bedding

### At home

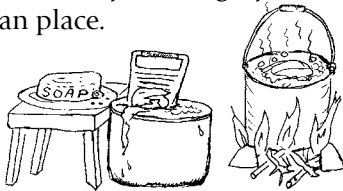
Wash cloth for covering the bed (bedding) in soap and water, and dry it thoroughly by hanging it in the sun or ironing it. Do not dry bedding on the ground; it will pick up germs.



### In a hospital, maternity center, or clinic

Bedding must be sterilized after each birth. Use one of these methods to kill the germs:

- Wash the bedding with soap and water. Then boil for 30 minutes. Dry thoroughly in a clean place.
- or
- Wash bedding with soap and water. Then use a hot iron to dry it.



If neither of these methods is possible, wash the bedding in soap and water and hang it in the sun until it is fully dried. Turn the bedding so the sun shines on both sides, and take care to keep it clean.

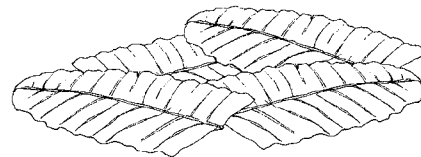
## Store bedding to keep germs away

If you are not going to use the bedding right away, keep it clean and dry until you are ready to use it. Put it in a clean bag or wrap it in clean paper and store it in a clean, dry place.

—● **Note:** Do not store bedding that is damp or wet. Germs will come back!

## Other kinds of underpadding

Sometimes there is no bed or bedding. The birth or procedure happens on the floor. In these cases, it is useful to have some kind of underpadding. This protects the baby and the mother from the germs and dirt that are on the floor. Find a way to clean the underpadding before it is used. For example, banana leaves can be washed with a disinfectant solution, and then smoked or dried in the sun. Cloth rags or sacks can be boiled and then dried.



# Clean and sterilize tools

All the tools used at a birth, exam, or procedure must be cleaned and sterilized. Cleaning and sterilizing the tools gets rid of germs. This protects women from getting sick.

## 1. Soak your tools

Tools that have been used must be soaked for at least 20 minutes in bleach solution (see page 57).

## 2. Clean your tools

All tools and equipment you use at a birth or a procedure must be clean. Wash them well after each birth, using a brush to remove any blood or dirt in the hinges or rough edges of your tools. Clean off any rust, and get rid of tools that are dull or damaged. To protect yourself, wear heavy gloves when you clean your tools.

After everything is washed, any tools that you use inside a woman's body must also be sterilized to kill germs.



Carefully wash all the dirt off your tools.

## 3. Sterilize your tools

To sterilize means to kill all the germs on something. If your tools are sterilized, they will not spread germs to women when you use them. This will protect women from getting infections.

### What do we mean when we say "sterile"?

**Sterilize** means kill **all** the germs that cause infections. To sterilize a tool you must use baking or pressure steaming.

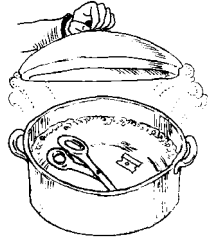
**Disinfect** means to kill **most** of the germs that cause infections. Some soaps and cleaning products are called "disinfectant." But to disinfect medical tools or instruments you cannot simply clean something with a disinfectant soap — you must boil, steam, or soak the tool in disinfectant chemicals. This kind of disinfection is called High Level Disinfection (HLD).

All the procedures in this book can be done safely with tools that are either sterile or HLD. To be simple, we only use the word "sterilize" or "sterile" throughout the book. But any time we say that a tool should be sterile, we really mean it can be sterile **or** HLD.

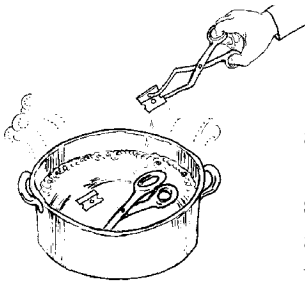
Sterilize everything that will go inside a woman's body, will cut her skin, or will be used to cut the cord at birth.

**Sterilize these items:**

- syringes and needles
- scissors or razor blade for cutting the cord
- materials for sewing tears
- clamps or hemostats
- gloves
- gauze
- compress cloths
- bulb syringe or mucus trap
- MVA cannula (see page 420)
- speculums, in some cases



**Note:** You do not need to sterilize tools that are used only on the outside of the body. Stethoscopes, measuring tape, and blood pressure cuffs must be clean but do not need to be sterile.



When you sterilize a tool, the germs on it are killed and it is safe to use. But if that tool touches anything (including the bed, a table, or you!) it is no longer sterile. Germs from whatever it touched are on it, and those germs can cause an infection when the tool is used.

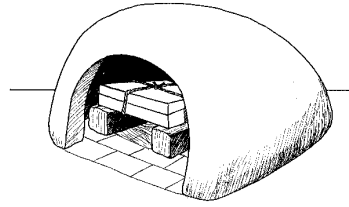
The next few pages explain 5 different ways to sterilize your tools: baking, pressure steaming, boiling, steaming, and soaking in chemicals. Baking and pressure steaming are best — they kill the most germs. If you cannot use either of those methods, boiling, steaming, or using disinfectant chemicals is fine. Use the ways that work best for you.



**WARNING!** If you cannot sterilize your tools, then do not use them. Unsterilized tools will do more harm than good.

## Baking

Use baking to sterilize metal tools, and string for tying the cord. Do not bake rubber or plastic. It will melt.



Wash and rinse all the tools well, then put them into 4 layers of clean cloth or heavy paper. Wrap the cloth up around the instruments and tie it shut.



Put the packet of tools or string into a container or on a pan.

Bake on a medium-high heat (170°C or 340°F) for 1 hour.

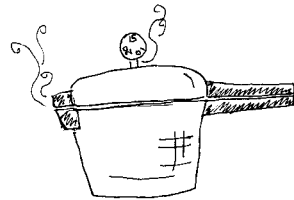
This is a little longer than it takes to bake a big potato or yam. If you cannot make your oven hot enough, bake items longer.

Let the packet cool, then store it in a clean, dry place.

## Pressure steaming

Use pressure steaming to sterilize metal tools or rubber or plastic equipment.

Some clinics and hospitals have a machine for sterilizing called an autoclave. Autoclaves sterilize instruments using pressure and steam. If you have a pressure cooking pot, you can sterilize your tools in the same way that an autoclave does.

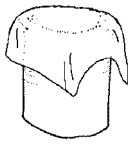


Put a steamer basket and water in the pressure cooking pot. Put your tools into the steamer, close the lid on the pot, and put the pot on a flame to boil.

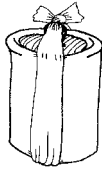
After it comes to a boil, cook at 15 or 20 pounds of pressure for 20 minutes.

After sterilizing tools, let them dry. Do not touch them, or they will not be sterile anymore!

Use sterilized tongs, chopsticks, or spoons to pick the tools out of the pot. Move them directly to a sterilized container. Remember, if the tool touches anything, including your hands, it is no longer sterile.



Let the tools dry in the sterilized container. Cover the container with a sterilized cloth or paper to keep dust out.



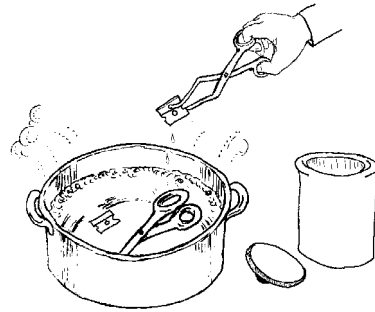
When the tools are all dry, put the lid on the container and seal it with tape or some other material to keep the germs out.

## Boiling

Use boiling to sterilize metal tools, rubber or plastic equipment (like mucus bulbs), and cloth.

After you wash and rinse your tools, cover with water and boil for 20 minutes.

Start counting the 20 minutes when the water starts boiling.



Use sterilized tongs, chopsticks, or spoons to pick the tools out of the pot. Move them directly to a sterilized container. Remember, anything you touch is no longer sterile.

## Steaming

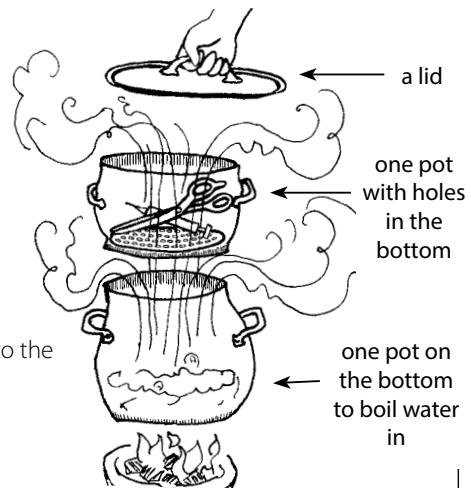
Use steaming to sterilize metal tools, gloves, plastic equipment, and other tools.

A steaming pot has 3 parts that fit together tightly: one pot on the bottom to boil water in, one pot in the middle that has holes in its bottom, and a lid.

Boil a little water in the bottom pot. Put the tools into the steamer pot with the holes. Cover with the lid.

Steam over boiling water for at least 20 minutes.

Start counting the 20 minutes when the water starts boiling.



steaming pot method



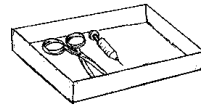
Wait for the tools to dry, and then use sterilized tongs to move the tools from the steamer into a sterilized container, and seal the container.

Steaming uses less water than boiling, and tools that are steamed do not get dull or broken as quickly as tools that are boiled.

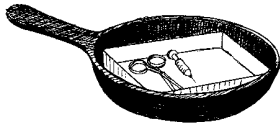
### ***A method from the Philippines***

The Medical Mission Sisters in the Philippines have developed a method to sterilize tools with steam:

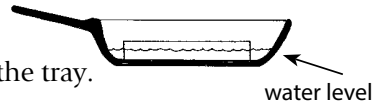
1. Put your clean tools into a metal tray.



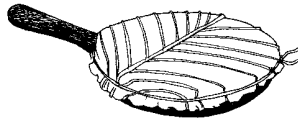
2. Place the tray in a cooking pan.



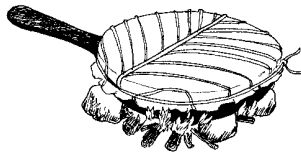
3. Fill the pan with water until it reaches halfway up the tray.



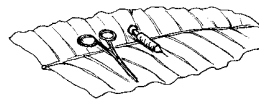
4. Cover the pan with 8 layers of clean green banana leaves. Bind the leaves tightly in place with strips of banana leaf or bark. Be careful not to spill water into the tray when you do this.



5. Put the pan on a low fire and boil for about 1 hour.



6. Throw away the top layer of the leaves. You can use one of the inner layers to put your instruments on.



### **Using chemicals**

Some people use chemicals to sterilize metal, rubber, or plastic tools and equipment. We do not recommend using chemicals to sterilize.

Most chemicals used to sterilize are poisonous. They poison the ground and the water when they are thrown away. They are poisonous to the people who work in factories making them, and they are poisonous to the people who use them to clean tools.

But some tools can only be sterilized with chemicals. Thermometers and some kinds of gloves cannot be baked, boiled, or steamed.





**If you do need to use chemicals:**

- mix up the bleach solution on page 57.

**or** If you do not have bleach, use one of the following chemicals:

- ethanol (medical alcohol) 70%
- isopropyl alcohol 70%
- hydrogen peroxide 6%

**or** If you cannot get any of these chemicals, you can use:

- strong drinking alcohol like gin, or a strong local brew.



Be sure that all of your tools are very clean before sterilizing them with chemicals. Even a little blood or body fluid left on the tool can stop the chemicals from working. Do not use chemicals to sterilize tools that will go inside the womb.

Soak in bleach or disinfecting chemicals for at least 20 minutes.

**or**

Soak in strong drinking alcohol for a whole day.

After soaking, pour the chemicals off and let the tools dry.

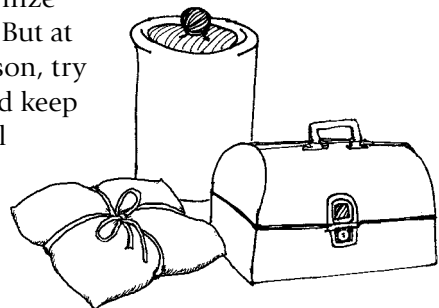


**WARNING!** Glutaraldehydes and formaldehyde are chemicals that we think are too dangerous to ever use. Many clinics and hospitals use these to sterilize, but they are very toxic. Formaldehyde, for example, causes cancer. Try to find a different way to sterilize.

If you use chemicals, keep them off your skin, and wear gloves when you use them. Get rid of chemicals carefully. You may have to dump bleach or other chemicals into a latrine to be sure animals and children do not drink it.

**Storing tools and supplies**

At some births there will be plenty of time to sterilize your tools and equipment at the mother's house. But at other births, you may not have time. For this reason, try to sterilize your tools and equipment at home and keep them in a sterilized container in your kit. A metal box or pot with a tight-fitting lid is best. Use any of the above methods to sterilize a container and tools to move equipment. Do not touch the inside of the container.



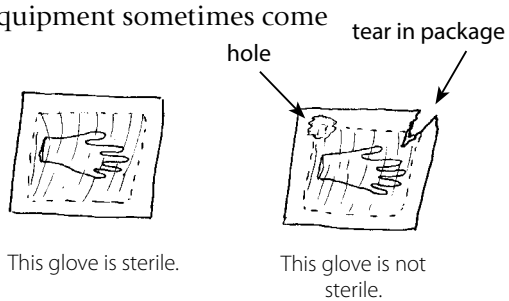
If you cannot get such a container, wrap the tools and equipment in 4 layers of cloth or heavy paper before sterilizing them. Then keep the sterilized tools wrapped up until you are ready to use them. (You can only use cloth or heavy paper to wrap your tools if you are sterilizing by baking.)

Remember that germs grow in moisture, and they will come back if the instruments are put away while they are wet. But if you are going to use the tools right away, it is OK to use them when they are wet. Germs need time to grow.

## Some equipment needs special care

### *Sterile packets*

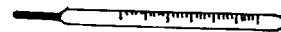
Gauze, compresses, gloves, and other equipment sometimes come in sterile packets. Because the inside of the packet is sterile too, you can use this equipment directly out of the packet. But remember: once you take something out of its sterile packet and use it, or if the packet gets wet or gets holes in it, the equipment is not sterile anymore.



Things in sterile packets are often meant to be used only once and then thrown away (disposable). But some of these things can be used again if they are carefully cleaned and sterilized before each use. Gloves can be boiled or steamed. Gauze and compresses can be washed and then boiled or baked.

### *Thermometers*

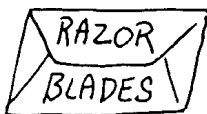
Wash the thermometer in soap and rinse with cool, clean water before and after you use it. Do not use hot water because the thermometer may break.



After washing, it is best to soak the thermometer in alcohol for 20 minutes. You can use ethyl, isopropyl, or medical alcohol (ethanol). Do not reuse the alcohol. Rinse the thermometer in clean water before you use it again.

### *Razor blades*

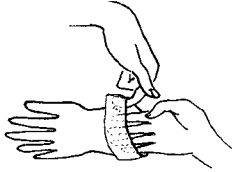
Razor blades for cutting cords often come inside of a sterile packet. To keep the packet sterile, wrap it in clean paper or cloth, or keep it in a clean dry box. If the packet gets wet or dirty, it is not safe to use the razor blade unless you sterilize it again.



Try not to reuse razor blades — but if you do, they must be sterilized first. Razor blades can be sterilized by any method.

## Gloves

Most plastic gloves can be boiled or steamed, but some will fall apart in the water. Get strong gloves that can be boiled and reused a few times.



Only touch the inside of the glove.

Before boiling or steaming gloves, turn the cuff inside out. After sterilizing a glove, touch only the inside part of it. If you touch the outside, it will not be sterile anymore.

If the gloves you have cannot be boiled, wash them carefully and soak them in bleach or medical alcohol. Then rinse them in clean water before using them again.

## Mucus bulb (bulb syringe)

When you wash out a mucus bulb, make sure to fill it with soapy water and then squeeze the water out. Do this several times. Then rinse it out well.



If you sterilize the mucus bulb by boiling, make sure to let water into the inside of the bulb before boiling and then squeeze out all the water afterward.

## Needles

Many people get sick with serious illnesses like hepatitis or HIV from using unsterilized needles.

## Reusable syringes and disposable syringes

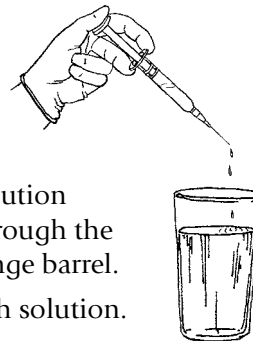
Reusable syringes can be used again and again. Reusable syringes make less waste and can save money, but they must be washed very carefully and sterilized after every use.

Disposable syringes are made to be thrown out after one use. Some disposable syringes can be taken apart, boiled or steamed, and reused several times. But we do not recommend this, because needles that are not completely sterilized can spread disease.

**Never reuse a needle or syringe without cleaning and sterilizing it first!**

### How to wash and sterilize a syringe and needle for reuse:

1. Put on a pair of heavy gloves to protect your hands from germs.
2. Draw 5% bleach solution (see page 57) up through the needle into the syringe barrel.
3. Squirt out the bleach solution.
4. Repeat several times. Rinse everything several times with clean water.
5. Take the syringe and needle apart and boil or steam them. (See page 62.)

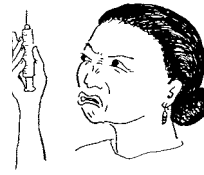


**Remember:**

If you take a sterile syringe out of boiling water...



and put it in your pocket...

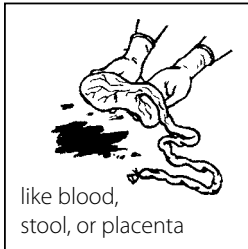


it is not sterile anymore. Instead, it is dangerous!

## Get rid of wastes safely

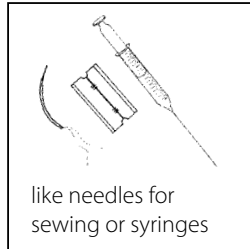
There are three different kinds of waste after a birth or procedure:

### body wastes



like blood, stool, or placenta

### sharp wastes



like needles for sewing or syringes

### other wastes



like used plastic gloves

These wastes carry germs and can spread infections to you and to people in the family and community. Wear gloves when you touch wastes, and get rid of them carefully.

### Body wastes

The simplest way to dispose of body wastes is to put them in a latrine or to bury them deep in the ground.

In many communities, families bury the placenta, sometimes with other special objects. Burying the placenta is an important ritual for many people, and is also a way to protect the community from germs that may grow in the placenta.

### Sharp wastes

Sharp wastes must be put into a container so they will not injure anyone who finds them. A container made of metal or heavy plastic, with a lid or tape to close it, works well.

When the container is half full, add bleach if possible, then seal it closed and bury it deep in the ground (see page 68).



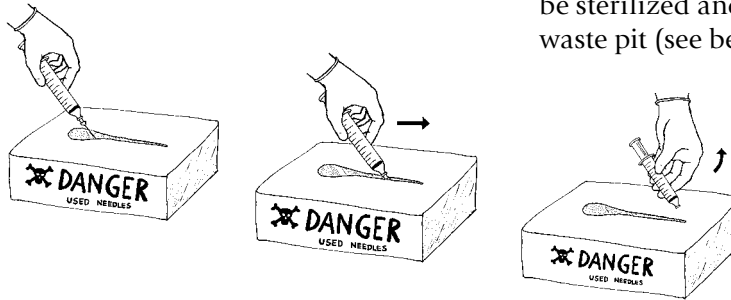
### Make a box to dispose of needles safely

Find a metal or hard plastic box. Make a long hole in the lid of the box that is wide on one side and gets narrower on the other side.

When you have finished using a disposable syringe, put the needle into the box and slide it down to the narrowest point.



Then pull up on the syringe and the needle will fall off into the box. The plastic syringe can be sterilized and thrown into a waste pit (see below).



When the box is half full, pour 5% bleach solution into the box, seal it closed, and then bury it deep in the ground.

### Other wastes

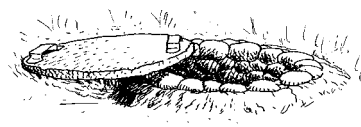
Other wastes, like plastic gloves, syringe barrels, or cloth soaked in blood, should be sterilized and then buried deep in the ground. You can sterilize them by soaking them in bleach for 20 minutes.



**WARNING!** Do not burn plastic gloves, syringes, or any other plastics. Burning plastic wastes is dangerous — when plastic burns, it makes smoke and ash that is very poisonous.

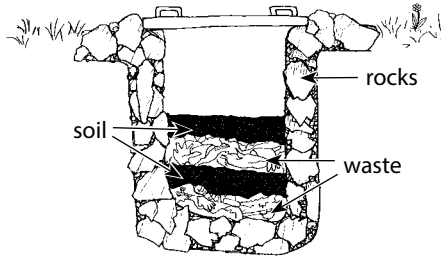
### Burying wastes

Find a place away from where people get their drinking water and away from where children play. Dig a safe waste pit to bury wastes.



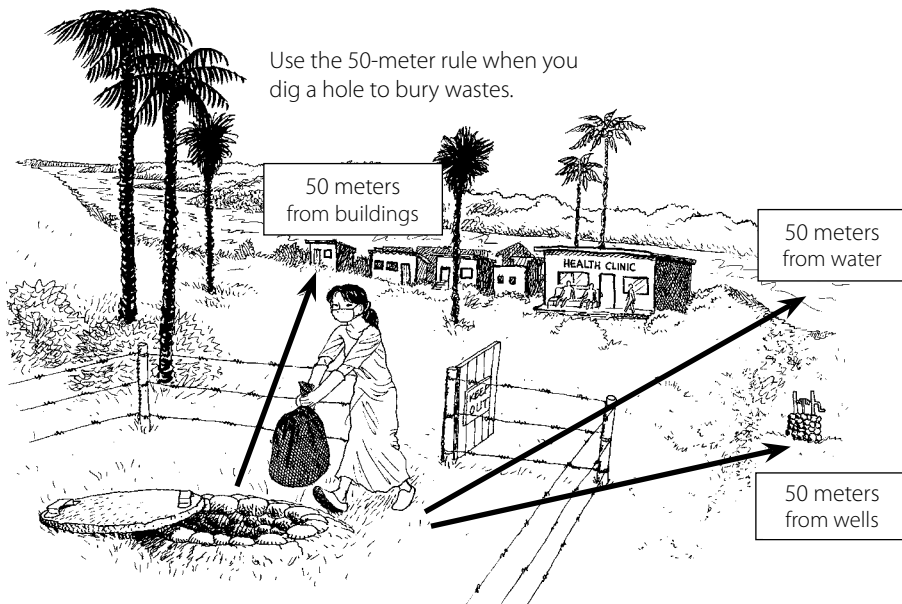
### A safe waste pit

1. Dig a pit 1 to 2 meters wide and 2 to 5 meters deep. The bottom of the pit should be at least 1 meters above the water table.
2. Line the inside of the pit with a layer of clay or rocks at least 10 centimeters thick.
3. Build up a ridge of earth around the top of the pit to prevent surface water from running in.
4. Build a fence around the area where the pit is located to keep animals out.



Each time waste is put in the pit, cover the waste with 10 centimeters of soil, or a mix of soil and lime. Lime helps disinfect the waste, and will also keep animals away while the pit is in use.

When the waste rises to  $\frac{1}{2}$  meter from the surface, cover it with  $\frac{1}{2}$  meter of soil and seal it with a layer of concrete at least 90 centimeters thick. If the pit is used only for medical waste and not for regular garbage, it will not fill up too quickly.



### Garbage dumps

When wastes are sent to a garbage dump, they can spread infections there. In many places, people pick through garbage to find things to sell, like used syringes. This is dangerous for the people picking through the garbage, and for the people who buy the syringes to use them again.

When a syringe is not usable anymore, dispose of it safely. If you must send needles to the garbage dump, sterilize them first, and seal them in a box or tin.