

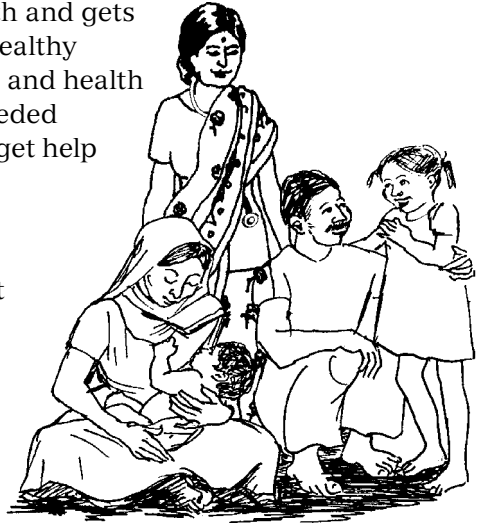
# Pregnancy and Birth

When a pregnant woman is in good health and gets the care she needs she will likely have a healthy pregnancy and baby. Mothers, midwives, and health workers can maintain the good health needed during pregnancy, and prevent, treat, or get help for problems if they arise.

## Signs of pregnancy

A woman usually guesses she is pregnant when she notices some of these signs:

- No menstrual bleeding
- Nausea
- Feeling tired
- Urinating more often
- Tender, growing breasts
- Weight gain



By about 4 ½ months of pregnancy, the mother can feel the baby move and a health worker can hear the baby's heartbeat with a fetoscope.

A blood or urine pregnancy test can tell for sure starting about 2 weeks after the woman becomes pregnant (a month after the start of the last menstruation).

## When will the baby be born?

Pregnancies last about 9 months (10 moon cycles, or 40 weeks). To figure out when the baby is likely to be born:

**Add 9 months plus 7 days** to the **first day** of the last normal menstrual bleeding. That is the due date. Most babies are born between 3 weeks before to 2 weeks after this date.

For example, suppose the woman's last period started February 10.

February 10th + 9 months = November 10th

November 10th + 7 days = November 17th

The baby's due date is November 17th.



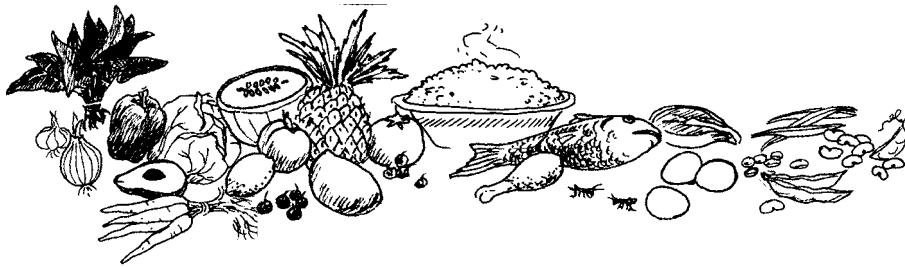
# How to Stay Healthy During Pregnancy

The mother and her baby can stay healthy with:

- enough nutritious food.
- plenty of rest each day.
- avoidance of chemicals, alcohol, smoke, and most medications.
- care from a midwife or other health worker who can treat, or get help to treat, any health problems that may occur.
- love and kindness.

## Eat enough nutritious foods

A mix of nutritious food will keep the woman strong and healthy, so she can have energy for the birth and to care for the baby. If a pregnant woman does not eat enough, it may be that she is saving food for others in the family, or that a well-meaning mother-in-law or friend has told her to avoid certain foods or that staying small will make the birth easier. Remember, a pregnant woman must eat enough for herself and for the baby, so she needs more food than other adults, not less. Pregnant women, like everyone, need a mix of protein, vegetables, fruits, and starches. And they should eat more often, snacking throughout the day. For advice on how to eat well, see *Good Food Makes Good Health*.



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*A variety of foods keeps the mother and baby healthy.*

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## Prevent anemia

Anemia (lack of iron in the blood) is common during pregnancy. It leads to a feeling of tiredness. Anemia is especially dangerous for pregnant women because blood is lost during birth. This can make the anemia so severe the woman can die. Prevent anemia by eating protein and iron-rich foods and taking iron tablets. See page 38 for more information about iron and iron supplements.

Malaria (see Some Serious Infectious Diseases – in development) and hookworm (see page 36 in Belly Pain, Diarrhea, and Worms) can cause anemia and should be treated right away.



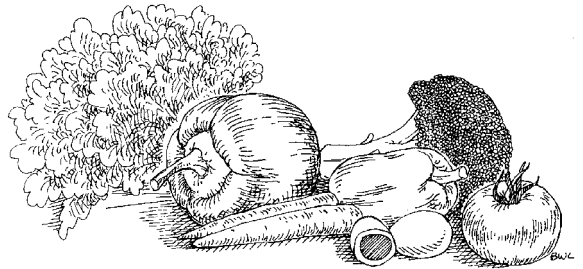
Pregnant women need iron-rich foods.

### Folic acid

Lack of folic acid (folate) can cause deformities and disabilities in the baby. Choose an iron supplement that includes folic acid, or take a separate folic acid supplement. Read more about folic acid on page 39.

### Vitamin A

Orange and green vegetables and fruits contain vitamin A, a nutrient needed to keep the eyes healthy. A pregnant woman needs extra green and orange vegetables and fruits because the vitamin A she eats goes to meet the baby's needs first. Lack of vitamin A can cause night blindness or blindness in general. See page 9 in the Good Food Makes Good Health chapter.



### Rest

Encourage family and neighbors to share the work and responsibilities of the pregnant woman. Remind her, especially as she gets farther along in her pregnancy, to rest and put her feet up a few times a day or to lie down in the afternoon. Growing a baby is work for the body and it needs rest.

## Avoid harmful substances

### Smoke and tobacco

Cigarettes and tobacco harm the mother's lungs and can cause cancer and death. Smoke can cause babies to be born early or small, or born dead. Mothers and babies can even be harmed by other people smoking nearby. Remind family and others to avoid smoking in the same room or car with a pregnant woman or children.



### Alcohol and drugs

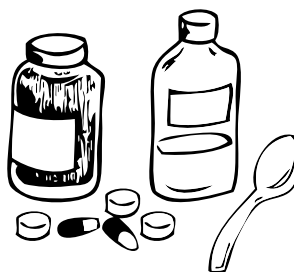
When a pregnant woman drinks alcohol it passes to her baby and can permanently damage the baby's brain and body. The more alcohol she drinks, the more harm is caused. Likewise, cocaine, methamphetamine, heroin, and other drugs are harmful to pregnant women and to their babies. See Drugs, Alcohol, and Tobacco (in development) for help with drugs and alcohol.

### Medicines

Most medicines, when taken by a pregnant woman, also pass to her baby. And because babies are so small and still developing, medicines that are safe for an adult can cause birth defects or other harm to the baby. So pregnant women should avoid most medicines. Rest and fluids — not medicines — are the best treatment for minor problems like headaches, stomach aches, and colds.

But some illnesses are too harmful to leave untreated throughout pregnancy. The illness may be dangerous to the baby too. Illnesses in pregnant women that should always be treated with medicines include:

- malaria. See Some Serious Infectious Illnesses (in development).
- HIV or AIDS. See HIV and AIDS (in development).
- urinary tract infections. See Difficulties with Urinating (in development).
- sexually transmitted infections such as chlamydia, gonorrhea, and syphilis. See Genital Problems and Infections (in development).



Unless you are sure they are needed, it is best to avoid medicines during pregnancy.

To know if a particular medicine is safe in pregnancy and during breastfeeding, ask an experienced health worker, check the medicines pages at the end of this chapter, or look in other medicine guidebooks. If a medicine that is needed is unsafe, there is usually another medicine that can be used instead.

Traditional and plant medicines can also do more harm than good. Medicines, Tests, and Treatments (in development) suggests ways to decide when considering the use of traditional medicines.

### **Avoid sick people**

Being sick while pregnant is miserable. It can make eating difficult too, and not getting enough food drains the woman of energy. Avoid sick people to prevent getting sick yourself.

German measles (rubella) is a sickness that is not usually a serious problem, but when it strikes a pregnant woman it can cause deformities and disabilities in a baby inside the womb. To protect the baby, a pregnant woman should avoid people with rashes, especially children, who often get these infections. Even a pregnant woman's own sick children should be cared for by other family members or friends. A community-wide vaccination program is the best protection for all women.



### **Care from a midwife or other health worker**

An experienced midwife or other health worker can advise a pregnant woman on how to stay healthy and safe, treat common problems and discomforts, and recognize when a pregnant woman needs help at a hospital or medical center. All women should get care from a compassionate, knowledgeable health worker during pregnancy, birth, and in the weeks that follow.

### **Vaccinations**

A pregnant woman should be vaccinated against tetanus as early as possible in pregnancy. She should get a second booster 4 weeks later if she may not be fully up-to-date on her vaccinations. This protects both the woman and her baby. For more details, see Vaccines (in development).

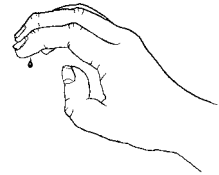
## Laboratory tests

Simple tests can diagnose many of the diseases that are most harmful to pregnant women and their babies. These tests alert the mother and health worker to start treatment right away, which can prevent serious problems during or after the birth. It is wise to test for:

- anemia (with the hemoglobin or hematocrit test).
- syphilis.
- malaria (using rapid tests where malaria is common).

**HIV testing should be available for all pregnant women.** When a woman learns she has HIV, she can take medicines that can keep her healthy and protect her baby from the virus. The chapter HIV and AIDS (in development) includes information on testing and the medicines that pregnant women with HIV should take.

There are new versions of these tests that do not require a lab and are easily done by swabbing the inside of the mouth or vagina, or taking a tiny amount of blood from a prick of the finger. Ask at a local health center if these tests are provided by the government, or if there is a local organization that offers them.



## Discomforts of Pregnancy

Pregnancy can bring problems that are uncomfortable but not dangerous. Avoid medicines for these discomforts. You can treat many of them simply and safely with home remedies.

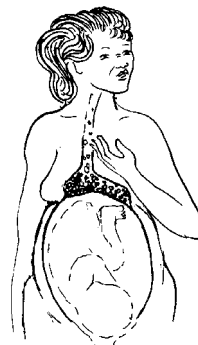
### Nausea

An empty stomach makes the nausea of pregnancy worse. Eat small amounts, many times a day. Try eating a protein food like nuts, cheese, or meat before bed to keep full through the night. Eat something plain, such as rice, bread, or tortilla in the morning even before getting out of bed.

Fatty foods, spices, and strong-smelling foods may make nausea worse. Mint or ginger tea can help.

### Heartburn

Heartburn is common in pregnancy. See page 12 in *Belly Pain, Diarrhea, and Worms* for ideas about how to prevent and treat it.



Changing hormones and a growing baby push stomach acid into the chest, causing burning and pain.

## Constipation and hemorrhoids

Pregnant women often have trouble passing stool. This constipation can be very uncomfortable.

Straining to pass stool can cause hemorrhoids (also called piles). These are swollen veins around the anus. Hemorrhoids cause itching, pain, or bright-red bleeding. Page 39 in *Belly Pain, Diarrhea, and Worms* explains how to prevent and treat constipation and hemorrhoids.

## Tiredness

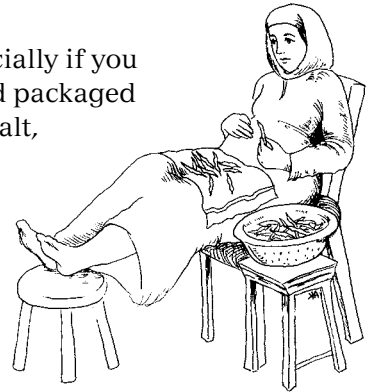
Women feel more tired during pregnancy simply because their bodies need more rest. This is normal. Rest and nap when you can.

Tiredness can be a sign of anemia, which is common but not healthy in pregnancy. Eat more iron-rich foods (such as meat, beans, lentils, and greens) and take iron tablets.

## Swollen feet or hands

Rest and put your feet up a few times a day, especially if you spend most of the day standing or walking. Avoid packaged or canned foods — these usually have too much salt, which makes swelling worse.

Swelling when you first wake in the morning or swelling all over, including the face, are signs of pre-eclampsia. Check your blood pressure immediately, and even if it is OK, continue to have it checked at least once a week for the rest of the pregnancy. See page 15.



## Feelings about sex

Feelings about sex may change during pregnancy. Some pregnant women do not want much sex, others want more sex than usual. These are both normal.

Having sex will not harm the woman or the baby, but a pregnant woman and her partner may need to try different positions for sex that are more comfortable. If a woman has gone into early labor in other pregnancies, avoiding sex after the 6th month may help prevent going into labor too early this time.

## Caring for Pregnant Women

The rest of this chapter offers instructions especially for midwives and health workers caring for pregnant women and babies. (Mothers can use this information too, to understand what is normal and what is dangerous.)

A midwife or other health worker should meet with a pregnant woman several times during the pregnancy. After about 8 months, meet every week. At these meetings, the midwife can:

- answer questions.
- teach about healthy eating, rest, and other needs of pregnant women.
- check health signs that show whether the mother and baby are well or need help.

Write down what you learn at each visit so you can answer such questions as, “is this mother gaining enough weight to support her baby?” and “is her blood pressure staying the same or getting higher?” (Rising blood pressure can mean pre-eclampsia.)



### ⚠ Danger Signs In Pregnancy

Go to a medical center or hospital if you find any of these signs of serious health problems. They can endanger a pregnant woman’s life.

- **Bleeding from the vagina:** Bleeding, like during a menstrual period, in the first few months of pregnancy is a sign of losing the pregnancy. Later in pregnancy, a little bleeding can be a sign of the placenta separating from the womb. This is an emergency. Get medical help.
- **Severe pain** in the first 3 months of pregnancy can be caused by a pregnancy outside the womb. See page 10 in *Belly Pain, Diarrhea, and Worms*, and get to a hospital right away. Severe pain late in pregnancy or during labor can be the placenta separating from the womb. This is an emergency, get medical help.
- **High fever** (above 39°C or 102°F) is a sign of infection that can harm the mother or her baby. Fever in pregnancy can be caused by flu, malaria (see *Some Serious Infectious Illnesses – in development*), kidney infection (see *Difficulties with Urinating – in development*), womb infection (page 32), or any other illness that causes fever.
- **High blood pressure** (140/90 or more), severe headaches, and severe swelling of the face are signs of pre-eclampsia. See pages 15 to 16.
- **Seizures** can be caused by eclampsia. Get her to a medical center quickly. See page 16.



**Record of prenatal care**

Name of mother: \_\_\_\_\_ Age: \_\_\_\_\_ Number of children: \_\_\_\_\_ Date of last childbirth: \_\_\_\_\_

Date of last monthly bleeding: \_\_\_\_\_ Probable due date: \_\_\_\_\_ Problems with other births: \_\_\_\_\_

date of visit	month of pregnancy	general health and minor problems	anemia	weight	temperature	pulse	blood pressure	signs of pre-eclampsia	protein in urine	other warning signs	size of womb	position of baby in womb	baby's heartbeat

## Questions to ask a pregnant woman

At the first meeting, ask questions to learn about the mother's health. Add to this list of questions, depending on the health problems in your own community.

- ? How long has she been pregnant? When is the baby due?



➔ At each meeting, figure out how many weeks pregnant the woman is. Recheck the day her last menstrual period started, and count how many weeks have passed since then.

➔ Knowing how far along the pregnancy is will tell you if the baby is growing enough.

### How were the previous pregnancies?

- ? Did she have high blood pressure or seizures?



➔ High blood pressure or seizures (fits) during pregnancy may have been pre-eclampsia. Meet with this woman at least once a week after week 28 of pregnancy. At each meeting, check her blood pressure and check her urine for protein. Plan how you will get medical help fast if she needs it. See page 18.

- ? Did any babies die before birth? Why?



➔ There are many possible causes of a baby's death during late pregnancy. Diabetes is one possible cause, so check the mother for signs of diabetes (see Chronic Illnesses - in development). But most often, no one ever knows the cause, and even the known causes may not happen again. No matter the cause, listen to this mother's story with kindness.

### How were the previous births?

- ? Did she bleed a lot after a previous birth?



➔ Find a way for the woman to have this baby in a well-equipped hospital. If that is not possible, have medicines ready to treat bleeding at home. See page 30.

? Has she had very quick labors – or very slow ones?



If she had fast labors in the past, get to this birth as quickly as you can or have a plan for how to get her quickly to a clinic.



If she has had slow labors, she may have a small pelvis or another problem. Be ready to go to the hospital if this labor is slow too.

? Have any of her babies been very small? Have they been very big?



Small babies can get breathing problems and infections more easily. Try to help the mother grow a bigger baby this time. If food is scarce, can you find ways to get her more?



Cigarette smoke and other poisons can also keep the baby small. What needs to change to protect the mother and baby from harm?



A large baby, over 4 kg, can be a sign of diabetes. See Chronic Illnesses (in development).

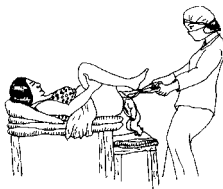
? Did she have any births by surgery – called cesarean births? Has she had births with forceps? Does she know why?



A cesarean or forceps delivery may have been necessary because of a very slow labor, which might happen again. Was the labor long too? If not, a cesarean may have been unnecessary.



It is possible to have a vaginal birth after a cesarean. But it is best to try in a hospital in case of a problem.



? Did any babies die in the weeks after the birth?



Newborn death has many causes. Tetanus, pneumonia, diarrhea, and sepsis are some common causes that can all be prevented. Learn how to prevent and treat these infections in the Newborn Babies and Breastfeeding chapter.

? Did she have trouble breastfeeding?



To help with breastfeeding, see page 18 of Newborn Babies and Breastfeeding.

### How is her health now?

? Does she have any serious infections, like malaria, TB, HIV, or others?

Look for ongoing health problems that are not getting better such as a lasting cough, fevers, or weight loss.

➔ Any serious infection must be treated. Look up the illness in the index of this book for information on how to treat it.



? Does she have itching, sores, a bad smell, or yellow discharge from the vagina? Does she have pain inside the vagina or lower belly when she has sex?

➔ An increase in white or clear discharge from the vagina is normal in pregnancy. But discharge that smells bad or pain in the vagina are signs of infection. See Genital Problems and Infections (in development).

? Does she have pain or burning when she urinates? Or pain on the sides or in the middle of the back?



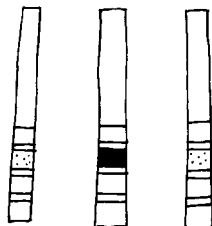
➔ Check for urinary tract infection (bladder infection), see Difficulties with Urinating (in development).

? Has she had any bleeding from the vagina?



➔ Bleeding before 20 weeks is usually a loss of the pregnancy, and is usually not dangerous to the woman's health. Bleeding after week 20 (4 ½ months) is an emergency. Get help.

? Does the mother have diabetes (too much sugar in the blood)?



Urine dipsticks

➔ Diabetes is explained in Chronic Illnesses (in development). A woman with diabetes should continue to take her insulin during pregnancy. It is important to check the blood sugar after each meal, if she can. She will need medical help to have a safe birth.

➔ It is also possible to get diabetes of pregnancy, called gestational diabetes. Check the urine for sugar with urine test strips. If she has sugar in the urine, she needs a blood test for diabetes.

? Is she taking any medicines?



➔ Use the Index of Medicines (in development) or another reference to learn about any medicines the woman is taking. Ask yourself, “is this medicine necessary?” and, “is it safe in pregnancy?” If it is necessary but not safe, look for another, safe medicine she can use instead.

? Is she allergic to any medicines?



➔ Note any medicine allergies. Avoid giving her medicines to which she is allergic and plan to use another, safer medicine if necessary.

? Does she take herbs or natural medicines?



➔ Some plant medicines can cause harm in pregnancy. See Medicines, Tests, and Treatments (in development) for help deciding which may be safe.

? Are strong chemicals used in her home or work?  
Of particular danger are pesticides, strong cleansers, and chemicals and materials used in factories.

➔ Strong chemicals can be dangerous for everyone. Some can also cause a baby to be born with disabilities or be born dead. How can you help protect this mother from dangerous chemicals?



? What does she eat on a normal day?

➔ Use the Good Food Makes Good Health chapter to talk with the woman about how to eat well each day.



? Does anyone help with her other children and household work? Does someone bring food, water, and fuel when she needs it?



➔ Talk with the pregnant woman's family about helping more with household chores. If the family is not helping enough, neighbors, people from her church or mosque, or fellow workers can all be encouraged to help her.

? Where is she planning to have the baby?



➔ If she plans to give birth at home, decide how she will get medical help in case of emergency. See page 18.

➔ If she hopes to have the baby in a hospital or clinic, make a plan about how to get there, including how to pay for transportation and admittance.

## Check health signs

Check the mother's health signs at every visit.

- Check her weight and blood pressure.
- If she feels ill or seems unwell, also check her temperature, pulse, and breathing. Learn how to check these health signs in *Examining a Sick Person* (in development).
- Check the baby's growth and position and listen to the baby's heartbeat (see pages 16 to 18).

### Weight

If you have a scale, check the mother's weight at each visit. She should gain weight, a little at a time, through the whole pregnancy. In general, a healthy pregnant woman gains between 12 and 16 kilos (25 to 35 pounds) during pregnancy. Starting at 4 months, it is healthy to gain a little less than ½ kilo (1 pound) each week — more if she starts underweight, less if she starts fat.

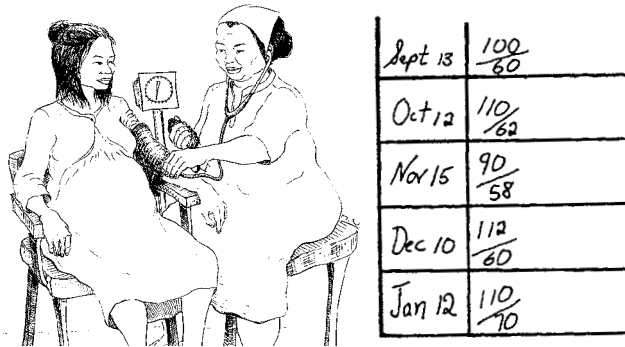
If the woman is not gaining weight, help her to get and eat more food.

Diabetes can cause sudden weight gain (see *Chronic Illnesses - in development*). Sudden weight gain in the last weeks of pregnancy can also be caused by twins or pre-eclampsia.

## Blood pressure

Blood pressure of 140/90 or higher is not healthy. If the blood pressure is steadily rising each time you check it, that is also a danger sign.

High blood pressure early in pregnancy is hypertension. See Chronic Illnesses (in development). Pregnancy and birth are dangerous for a woman with hypertension and she will need medical help.



Write down the blood pressure at each visit. Is it going up?

High blood pressure after about 28 weeks (6 ½ months) of pregnancy may be pre-eclampsia. This is a dangerous problem that can lead to seizures and death. She needs medical help.

## Pre-eclampsia

Pre-eclampsia is a dangerous disease of late pregnancy. There is no way to prevent it. The main sign is high blood pressure which gets worse and worse until the mother has seizures. You can save her life by watching for signs of pre-eclampsia throughout pregnancy and getting treatment quickly if she has signs of severe pre-eclampsia.

If her blood pressure becomes too high, or if there are seizures, medication can help. But the only way to cure the problem is for the baby to be born.

### **SIGNS OF PRE-ECLAMPSIA**

- Blood pressure of 140/90 or more after 28 weeks (the last 3 months or so of pregnancy) AND
- Protein in the urine (see Examining a Sick Person - in development).

If you find high blood pressure in late pregnancy, check for protein in the urine. If there is high blood pressure and protein, the mother has pre-eclampsia and needs medical help or she will quickly get worse.

If there is no protein in the urine, continue to watch her carefully and check her blood pressure at least once a week. Get medical help if you see signs of severe pre-eclampsia (page 16).

### SIGNS OF SEVERE PRE-ECLAMPSIA OR ECLAMPSIA

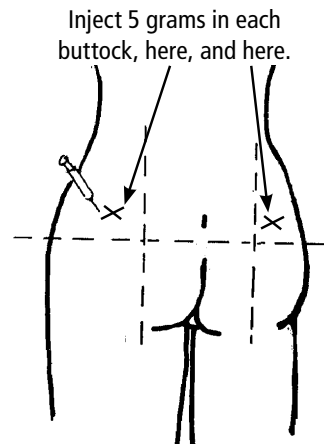
- Severe headaches.
- Blood pressure of 160/110 or higher.
- Blurry vision.
- Pain in the pit of the stomach.
- Severe swelling, including swelling of the face.
- Mental confusion.
- Seizures.



### TREATMENT

If at any time the mother has signs of severe pre-eclampsia, get medical help right away. The mother's life is in danger and she must give birth as soon as possible.

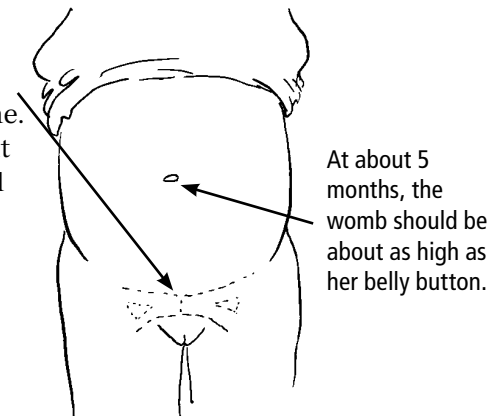
- Stay calm.
- If the mother is having a seizure, turn her on her side. This keeps her from choking on her vomit or spit.
- If you have it, give oxygen.
- To stop the seizures, inject 5 grams magnesium sulfate into each buttock. You can repeat this in 4 hours. **Do not give magnesium sulfate if she is breathing less than 12 breaths a minute.** (Magnesium sulfate comes in different concentrations so be sure you have the right amount. Read more on page 34.)



## The baby's growth

After 3 months of pregnancy you should be able to feel the top of the womb at the bottom of the mother's belly, just above her pubic bone. At about 5 months the womb should be about as high as her belly button, and then should continue to grow about one finger-width each week.

If the womb grows bigger or faster than you would expect, the woman may be farther along in pregnancy than you thought. Or she may have twins. Or she may have diabetes or another health problem.





If the womb and baby grow very slowly the mother may not be as far along in pregnancy as you thought. Other causes of small growth are not eating enough food, or being exposed to smoke or poisonous chemicals.

### The baby's position

The baby moves around at the beginning of pregnancy. Toward the end, the baby gets into position for the birth.

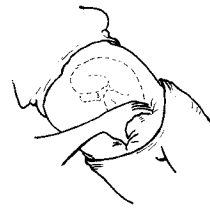
With practice you can feel whether the baby is head down (a safe position) or is butt down (breech, a position where problems are more likely to occur).

Use two hands and firm, deep pressure. Ask the mother to slowly blow out all her breath and you will be able to press your fingers deeper to feel the baby.

Feel the top of the belly with two hands. Do you feel a hard, movable head? Or a soft butt?

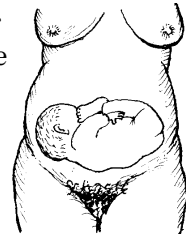


Feel the part in the pelvis. Is it hard or soft? When you hold it, can you move the rest of the body freely?



If the baby is breech at the time of birth, it may be safer to give birth in a hospital. If you are helping a woman have a breech baby, see page 28.

**A sideways baby cannot be born through the vagina. If the baby is sideways when labor starts, get to a hospital. Cesarean surgery is needed.**

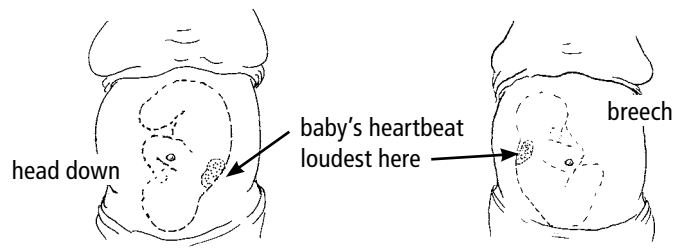


### The baby's heartbeat

By week 20 (about 4 ½ months) you should be able to hear the baby's heartbeat with a fetoscope and a few weeks later with a regular stethoscope. A healthy baby's heart speeds up and slows down a lot but stays between 120 and 160 beats each minute. This is about twice as fast as an adult. It may be slower when the baby is sleeping. (If you hear a heartbeat between 60 and 80, you are probably hearing the mother's heart, not the baby.) Use a watch with a second hand or a 1 minute timer to count the beats.



A fetoscope is for listening to the baby through the mother's belly.



After about week 20 of pregnancy, a baby's heartbeat can show you the baby's position.

If the heart stays slower than 120, or faster than 160, or always seems to go at the same speed with no changes, then the baby may be having trouble and you should go for help.

Finally, if you notice two separate baby heartbeats, there may be twins.

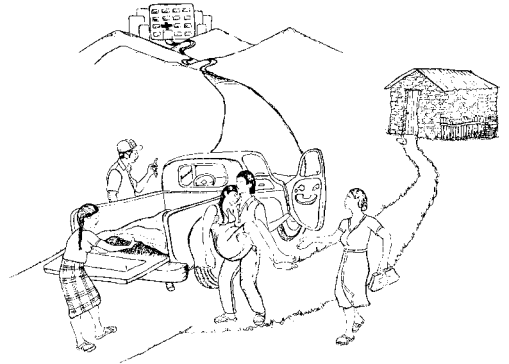
## Make a plan for emergencies

Every common emergency of birth is treatable. Bleeding, seizures, infection, labors that go on and on where the baby never comes, all can be stopped with the right medicines or sometimes surgery in a well-equipped medical center. The hard part is getting this help when it is needed. Remember that there is rarely much warning before something goes wrong in birth. Money, transportation, and cooperation from family or neighbors are all better arranged in advance, before labor begins.

Bring together the mother and the people who care for her: her husband, mother-in-law, or whoever else, and decide what will be needed in case of an emergency. This might include:

- the use of someone's car or other vehicle.
- money to pay for care.
- permission in advance from those who make family decisions.

If you are very far from medical help, consider spending the weeks before the birth with a relative who lives closer to a hospital.



## Labor and Birth

Every community has traditions of how to care for women in labor. The safest traditions allow nature to take its course while staying alert for signs of danger. Remember:

- Most births are safe and healthy.
- Encourage the mother. Hold her hand, talk gently to her, show her how to take slow, deep breaths.
- Help the mother move, walk, change positions, and make sounds.




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*If there are signs of problems, do not delay – get to a hospital right away.*

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### ⚠ Danger Signs in Labor and Birth

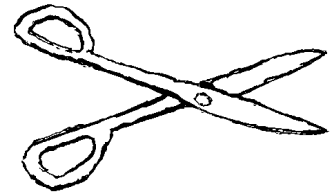
- **Too long labor:** Labor longer than 12 hours for an experienced mother, or longer than 24 hours (a whole day and night) for a first birth, often leads to injuries in the mother and difficulty for the newborn. Also, if the water breaks, but labor has not started after 12 hours, this can lead to infection.
- **High blood pressure:** Blood pressure of 160/110 or higher is an emergency. Get medical help and watch for seizures on the way.
- **Fever:** If there is a fever and the mother has a fast pulse, or the baby's heartbeat is fast, there is probably a womb infection that could harm the mother and baby. Get help and give antibiotics on the way. See page 36.
- **Sideways baby:** This is an impossible birth position and a cesarean birth is needed right away to save the baby. Get medical help.
- **The cord comes out before the baby:** This rare occurrence causes the baby's head to pinch the cord, cutting off the supply of blood to the baby. The baby can only be saved if you can immediately get to a hospital for a cesarean birth. The woman should stay on her hands and knees with her bottom up in the air to keep the pressure off the cord.

## Prepare for birth

For a safe birth, prepare these supplies:



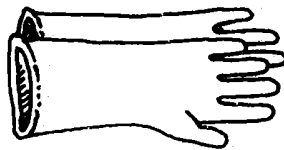
Soap and water to wash hands often, clean the mother, and wash medical tools.



New or freshly sterilized razor blades or sharp scissors for cutting the cord.



Medicines to stop bleeding: oxytocin, misoprostol.

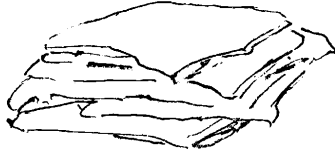


Plenty of disposable gloves to protect the health of the mother, baby, and the midwife.

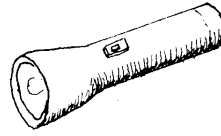


Sterilized or freshly boiled string or ribbon, or cord clamps for tying or clamping the cord.

The family or health worker should also gather:



Lots of clean cloths or towels to keep the new baby warm and dry.



A light for seeing the birth and the baby.



Water for drinking and cleaning up.



A bowl for washing up and a bowl to catch the placenta.

Other useful tools for the health worker or midwife:

- The mother's health records
- A new or sterilized suction bulb or suction trap for sucking mucus out of the baby's mouth and nose
- A fetoscope, stethoscope, and blood pressure cuff
- Sterile needles and suture for sewing any tears



**Keeping clean is the most important thing you can do to protect the mother, baby, and yourself.** At every birth, wash your hands well and often. Clean anything that will touch the baby or the mother's vagina. If possible, use new, clean gloves for touching the mother's vagina or the baby.

Protect yourself from the blood and fluids of birth which can carry viruses and infections, such as HIV or hepatitis. Wear gloves. Wash regularly during the birth, especially after getting any fluid on yourself. If fluid gets in your mouth or eyes, wash with a lot of water right away. If you get blood in your eyes or into a cut in your skin, see *Care for Sick People* (in development).

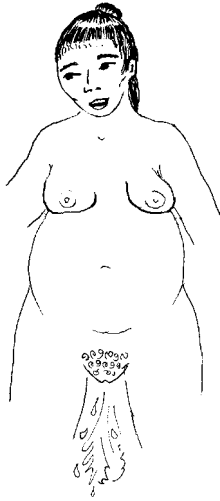
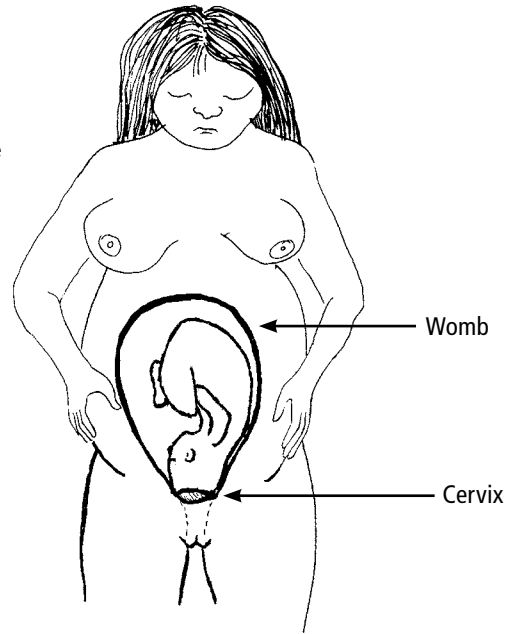


## The start of birth

### Contractions

Labor pains, or contractions, are the womb tightening and relaxing over and over. These contractions slowly open the bottom of the womb, called the cervix. When the cervix is open all the way, the baby can come out of the womb and then out of the vagina.

Mild, **practice contractions** start late in pregnancy. They do not last very long and they stop when the mother rests. True **labor contractions** are strong. They come often, and in a regular pattern, once every few minutes. They do not go away when the mother lies down or rests.



### Breaking bag of waters

The bag of waters can break with a big splash or with a slow leak of fluid. The loss of fluid may be the first sign of labor before contractions start. Or there may be a splash during labor. Sometimes a baby is born inside the bag and it does not break at all. These are all normal.

Inside the womb, the bag protects the baby from germs. After the bag breaks, germs can infect the womb and the baby. For that reason, the longer the bag is broken, the more likely infection is to occur. Do not put anything in the vagina after the bag of waters has broken. If the bag breaks and 12 hours – 1 day or 1 night – passes without labor starting, go to a hospital where labor can be started with medicine.

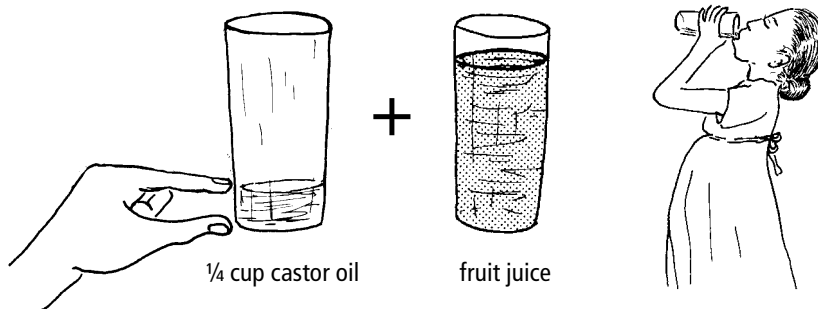
### Helping labor start

You might want to help start a labor, or speed a slow labor, in these situations:

- **A too-long pregnancy.** A pregnancy longer than 41 weeks can cause health problems for the baby.
- **A broken bag of waters.** After water breaks, help start labor to avoid the risk of infection.
- **A labor that is moving very slowly.** Help start or strengthen labor so the mother does not become exhausted.

Start with the first method and if it does not work, try the next:

1. Have her walk, dance, or climb stairs or hills.
2. Massage her nipples as if milking the breasts (see page 20 in *Newborn Babies and Breastfeeding*). Or have a baby nurse. This should bring some contractions.
3. Mix about  $\frac{1}{4}$  cup castor oil with some juice and have the mother drink it. This usually causes painful diarrhea and cramps, but it may also start contractions.



There may be plant medicines that are used in your community to start labor. Some of these may be safe, others are not. Before using them, ask yourself: have these plants started labor for other women? Have women or babies ever had health problems after taking these plant medicines? Have these medicines been used for a long time or did people only start using them recently? See *Medicines, Tests, and Treatments* (in development) for more ideas about how to know if a plant medicine is safe.

- Do not try to start labor if the baby is sideways in the womb.
- Do not waste time trying to start labor if you are far from medical help. Instead, use your time to go to the hospital.
- Never give oxytocin, misoprostol, or other modern medicines to start labor at home. These medicines are so strong they can kill.

## Helping a woman in labor

Mostly you can help a woman give birth by giving loving encouragement. Avoid putting your fingers inside the vagina to check the cervix. This is not necessary in a normal labor and can cause infection. Do not push on the belly or use cloths to pull the baby down. None of this helps get the baby out faster.

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*For most of labor, watching quietly is better than interfering.*

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During the opening stage of labor, the health worker should simply encourage the mother. Remind her to:

- breathe slowly, blow, or make sounds to relieve the pain during contractions.
- sip liquids often, and eat small amounts of food.
- urinate every few hours. A full bladder slows birth.

### Check the health signs of the mother and baby

If you know how, check the mother's blood pressure, pulse, and temperature, and the baby's position and heart rate, as soon as labor starts. Continue checking regularly during labor. These signs can tell you if the mother is getting an infection or eclampsia, or if the baby is in trouble.

#### To look for pre-eclampsia:

Check the blood pressure. Blood pressure of 160/110 or above is severe pre-eclampsia and may lead to seizures. Get help.

#### To look for infection:

Check the mother's temperature. It often rises in labor, but a temperature of 38° C (100.4° F) or higher is usually an infection. While any infection (such as malaria or urinary tract infections) can happen in labor, be especially mindful of infection inside the womb. Other signs of womb infection are:

- The baby's heartbeat is more than 180 beats in a minute.
- The mother's pulse is more than 100 beats in a minute.
- The mother's vagina smells bad.
- The mother's belly is sore or tender to the touch.

Treat womb infection with ampicillin and gentamicin right away and continue to give it after the birth. If signs of infection are severe, also give metronidazole. See page 36 for more on these medicines. And get help.

#### To check the baby's well-being:

A baby's heartbeat that stays less than 120, or ever goes below 100, is a sign that the baby is not getting enough oxygen and is in danger. The baby might die, but there is nothing to do except deliver the baby.



Walk around or change positions every hour or so.

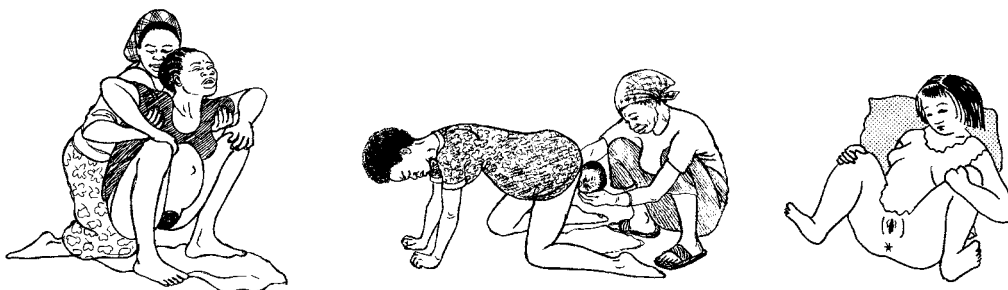


## Length of labor

Each woman's labor is different and that is normal. A healthy labor can be very fast or can last many hours. However, some babies get stuck and will not be born without medication or surgery. Think about how long it will take for you to get to a hospital. If you are far away and labor has gone on for hours, start toward help sooner.

## Pushing

Once the mother feels a strong urge to push, she can do so safely. Mostly, mothers know how to push their babies out without help. Do not yell at the mother or boss her.



Squatting, hands-and-knees, and propped up on pillows are all good pushing positions. If one position does not bring the baby out, try another.

Pushing usually feels good to the mother compared to the earlier labor pains. If the labor has been long, the mother may doze off between contractions and then wake up to push.

If pushing takes a long time:

- encourage the mother to change positions.
- ask the mother to urinate. A full bladder slows labor.
- ask her to rest between contractions, and then take a deep breath and push as hard as she can during contractions.

After 2 hours of strong pushing, get medical help. Surgery may be needed to bring out the baby.

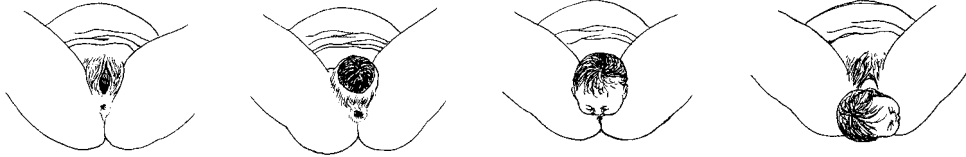
**If the baby is breech:** You may be able to feel the baby is breech (butt or legs first) by feeling the mother's belly. If you see a lot of fresh, dark meconium (baby feces) coming from the vagina during labor, the baby is likely breech. See page 28 for how to deliver breech babies.



## The birth

When you can see the baby's head coming, **wash your hands** well and put on gloves. If the baby is butt down (breech), see pages 28 to 29.

When the head comes out, it will look like this:




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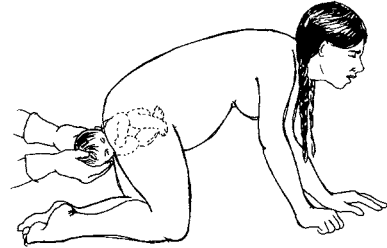
*Never twist or pull on the baby's head.*

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Hold the head gently. Guide it towards the mother's bottom and away from her belly. Let the rest of the baby's body come out into your hands.

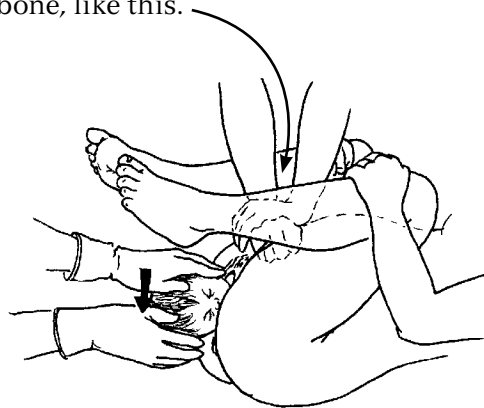
**If the cord is around the neck**, you can usually loosen it enough to slip it over the baby's head or to allow the baby's body to slide through it. In the very rare times when it is tightly looped around the neck and the baby cannot move past it, you may need to clamp and cut it. Then have the mother push the baby out as fast as possible.

**If the shoulders get stuck after the head comes out**, move the mother quickly to her hands and knees. Ask her to hold her breath and push hard.



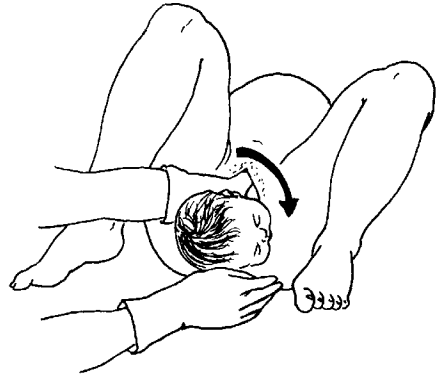
If the baby is still stuck, move the mother onto her back. Ask her to pull her knees back as far as possible toward her armpits. Have a helper push firmly, just above the pubic bone, like this.

Move the baby's head down toward the floor to free the shoulder from under the bone.



You may need to reach into the vagina and turn the baby by pushing on the back of its shoulder. Or sweep the baby's arm down across its body and out of the vagina. The body should follow easily.

**After the birth, put the baby directly onto the mother's naked chest – skin against skin.** This is the safest, warmest place. Gently wipe mucus off the baby's mouth then nose. Dry the baby well with clean cloths or towels. Then cover the baby and mother with cloths or a blanket. For more on caring for the new baby, see *Newborn Babies and Breastfeeding*.



### Things to check after the birth

- Is the baby breathing? If the baby does not breathe, struggles to breathe, or turns blue, see pages 1 to 3 in *Newborn Babies and Breastfeeding*.
- Is the mother bleeding heavily? If she bleeds after the birth, see pages 29 to 31.

### The cord

There is no rush to cut the cord. After a few minutes, feel it between two fingers. If you can no longer feel a pulse, it is OK to tie or clamp it.

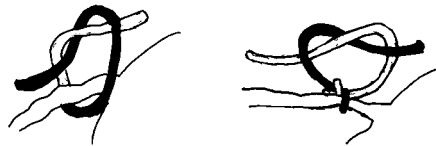
Wash hands well.

Use a sterile clamp or freshly boiled or ironed string.

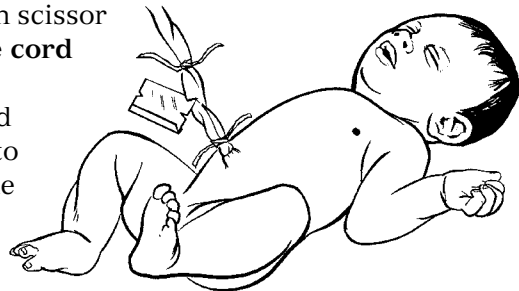
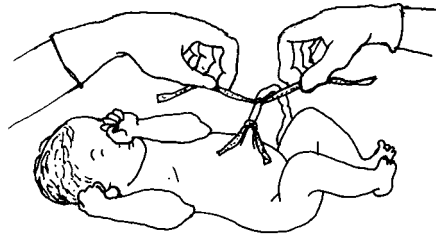
Tie the cord about 2 fingers away from the baby's body. Then tie again about 2 more fingers away.

Cut the cord between the 2 ties.

Use a brand new razor blade, or a clean scissor or blade. **Whatever you use to cut the cord must first be washed and sterilized.** Boiled is best. If you cannot boil it, hold it over a flame or clean it with alcohol to kill most germs. After cutting, leave the baby's cord stump alone to prevent infection. (Page 17 in *Newborn Babies and Breastfeeding* explains how to care for the cord stump.)



Tie a square knot.



## The placenta

If there is not much bleeding, then there is no rush for the placenta to be born. Wait until the mother feels the urge to push it out. If she is bleeding, ask her to push hard during a contraction. If the placenta does not come out:

- help the mother breastfeed. Breastfeeding right after birth causes contractions that push the placenta out.
- ask the mother to urinate. A full bladder can stop the womb from tightening and pushing out the placenta.
- ask the mother to squat and then push again.



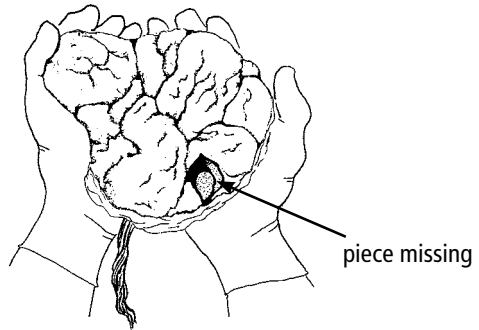
If the mother is losing blood quickly, or if the steps above do not work, try **gently pulling the cord**. If you feel resistance, stop. (Pulling too hard can break the cord or pull out the womb.)

Once the placenta has come out, check it. Are any pieces missing? If so, rub the lower belly firmly to get them out. Give oxytocin or misoprostol (see pages 33 and 34). If the missing piece does not come out, get medical help. A piece of placenta left in the womb can cause serious infection and bleeding.

When the mother and baby are safe, take a moment to clean up, wash the mother's genitals and legs, and offer her food and drink. Help the mother and baby start breastfeeding (see page 18 in *Newborn Babies and Breastfeeding*) and offer your blessings and congratulations to the family as they welcome the new baby into the world!

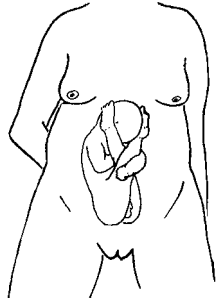


Put pressure against the bottom of the womb – to keep it inside – as you give the cord a gentle tug.

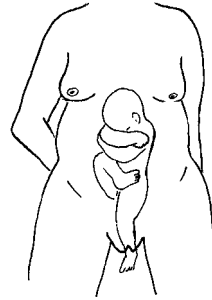


## Breech

A breech birth can have serious problems, including the cord coming before the baby or the baby's head getting stuck inside. Both of these are so dangerous they can cause death. If possible, a breech baby should be born at a well-equipped medical center, especially for a mother's first baby.

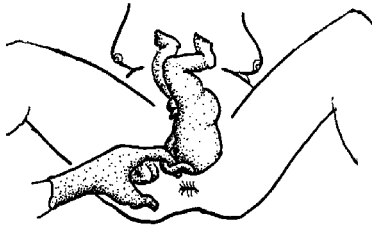


A frank breech (butt first) is the safest of the breech positions.

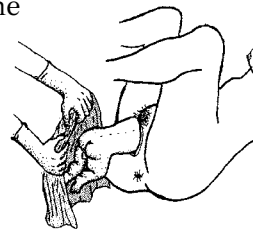


A footling is the most dangerous.

1. The mother must not push until her cervix is all the way open. Ask her to blow or change positions until she cannot resist the need to push. Then let the body come out on its own. Do not pull on it.
2. When the baby's belly is out, if the cord is very tight, gently pull a little bit loose – so the baby is not held back by it. Otherwise, do not touch the cord.



3. When the butt and legs come out, wrap the baby in a clean blanket. If she gets cold, she may try to take a breath and her lungs will fill with fluid.



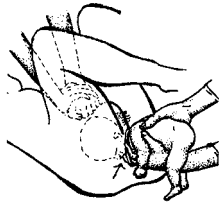
4. If the baby is stuck halfway out, reach inside the vagina to unfold an arm down across her chest.



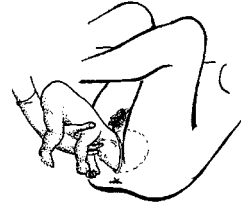
5. If the baby gets stuck at the head, put the mother on her back. Ask someone to push on the very bottom of her belly, just above the pubic bone. **Do not push on the top of the belly.**

6. The baby should now turn to face the mother's bottom.

Support the baby's body with one arm. Put your finger inside the baby's mouth or on the baby's upper lip, and pull it down towards the baby's chest. This keeps the chin tucked. Put your other hand on the baby's shoulders, with your fingers against the hard part at the back of the baby's head to keep the head tilted so it can come out.



7. The weight of the baby's body will move it down, towards the mother's bottom. Go slowly. **Do not pull.**



8. When you see the baby's hair, lift the baby's body up. Keep your finger in its mouth. The face should come out.

9. Now ask the mother to stop pushing and blow. **Let the top of the baby's head come out as slowly as possible.**

Be ready to help the baby breathe (see pages 1 to 3 of *Newborn Babies and Breastfeeding*).

A breech baby is likely to be bruised and swollen on the bottom and legs. This will usually get better in a few days.

## After the Birth

After the birth, help the mother deliver the placenta and watch for bleeding. See *Newborn Babies and Breastfeeding* for how to care for the baby and help start breastfeeding.

### Bleeding

Watch the mother's bleeding closely and continue to check it often. Lift off any covers and also check if blood is pooling under her bottom. There is often a small gush of blood when the placenta is born. This is OK. But any big gush or smaller but ongoing flow of blood is an emergency.

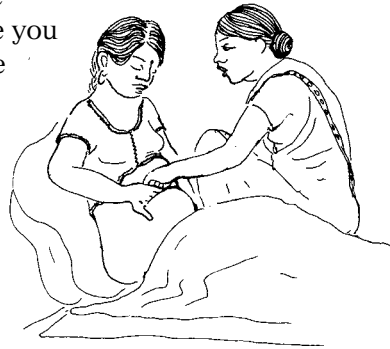
For too much bleeding:

- Birth the placenta
- Urinate
- Rub the womb
- Give medicines to stop bleeding

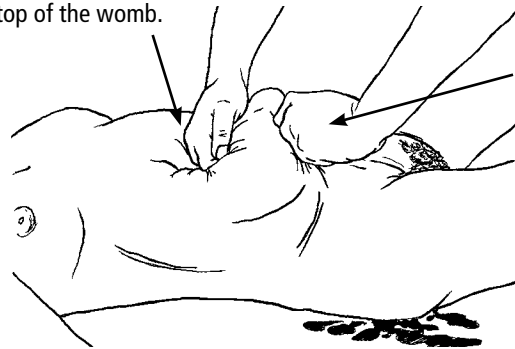
### Rub the womb

Rub the woman's womb after the birth of the placenta every 15 minutes or so, and anytime you notice bleeding. Rub hard and deep, until the womb feels like a hard, round ball in the center of the belly, below the belly button. If the womb is off to one side, the bladder is full and the woman should urinate.

If the bleeding continues, rub harder, squeezing the womb between two hands. It will hurt, but should work.



Rub the womb until it is hard. Then cup  
1 hand on the top of the womb.



Put your other hand, in a fist,  
at the bottom of the womb.

If the bleeding still does not stop, you can put one hand inside the vagina, make a fist, and then use the other hand to press the womb into your fist.

### Medicines to stop bleeding

Most bleeding can be stopped with oxytocin or misoprostol.

- Inject 10 units oxytocin in the muscle on the side of the woman's thigh. (For how to give injections, see Medicines, Tests, and Treatment – in development.)
- If she is still bleeding after 10 minutes, give one more injection of 10 units.

OR

- Give 600 mcg misoprostol dissolved under the tongue.

Heavy bleeding can also be prevented by using these medicines. For this reason, some health workers give either one dose of misoprostol or one shot of oxytocin immediately after every birth, especially if they can easily get medicines. If you are worried about heavy bleeding and can give one of these medicines, do so.

### **SIGNS OF SEVERE BLOOD LOSS**

Get medical help for any of these signs and, on the way, treat for shock (see pages 10 to 11 of First Aid).

- Lightheadedness
- Weakness
- Passing out
- Confusion
- Cold, clammy skin
- Fast or rising pulse
- Low or dropping blood pressure

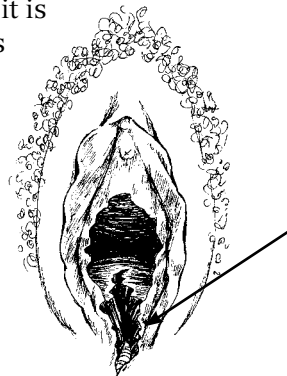


### **Check for tears**

Small tears heal on their own. Long or deep tears will heal better with a few stitches. A stitch will also stop the bleeding if a blood vessel in the vagina has torn.

Gently put a clean, gloved finger into the cut to see how deep it is. If you know how to sew, use only a few stitches. For a deep tear, use a couple of dissolvable stitches in the muscle before you sew the skin together. Do not leave a pocket to collect pus. For more on sewing, see page 15 of First Aid, but if you are not experienced at sewing, it is almost always best to let a tear heal on its own.

If the tear is all the way into the rectum, the round sphincter muscle must be sewn together before the tear is sewn. Someone experienced in this kind of suturing must sew this or the woman may never be able to hold in her feces.



Carefully line up the two sides of the tear before sewing.

## In the Weeks After Birth

In the weeks after birth, make sure the mother is healthy, resting, eating well, and that someone is helping her when she needs it. Also see *Newborn Babies and Breastfeeding*.

### Bleeding

Bleeding normally continues for a few weeks. At first it is about the same amount as a heavy menstrual period and then it lessens, becomes more watery, and stops after 2 or 3 weeks. Filling a thick pad or rag with blood in 1 hour (or faster) is too much.

If bleeding increases in the days after birth, the mother may just need help with her chores and care for her other children so she can rest more. But sometimes bleeding is caused by something left inside the womb, and sometimes it is caused by infection.

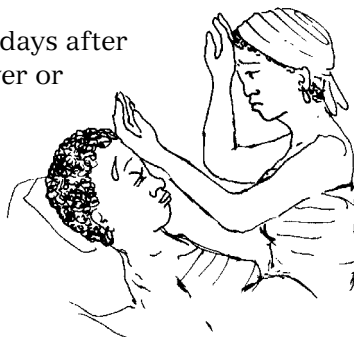
To help stop bleeding, first help the mother breastfeed. This makes the womb contract. Also remind her to urinate often. Show the mother how to massage her womb to make it firm. If none of that works, give oxytocin or misoprostol (pages 33 and 34) and look for signs of infection.



### Infection

A woman's temperature often goes up about 3 days after the birth when her milk comes in. A lasting fever or fever of 38° C or higher is a sign of infection.

It is normal for vaginal discharge to have a strong smell for several days after birth. But a foul or fishy smell after birth is a sign of infection inside the womb. Other signs include chills, fast pulse, or pain or tenderness around the womb.



Treat any sign of womb infection with ampicillin, gentamicin, and metronidazole, see page 36. If possible, use injectable antibiotics at least for the first 2 days. If you do not have antibiotics, or if the woman does not start to get better in 24 hours, get help.



# Pregnancy and Birth: Medicines

## Medicines for Severe Bleeding after Birth

### Oxytocin

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Oxytocin prevents or controls heavy bleeding after birth. It can also be used to hasten the delivery of a placenta that is not coming out. Used for these purposes, this drug is safe and works very well.

In a hospital, oxytocin is sometimes used to speed up labor, but should never be used at home for this purpose because without careful medical monitoring it can make the uterus contract so hard it can rip open.

#### How to use

##### To treat or prevent heavy bleeding after birth

- ➔ Inject 10 units into the side of the thigh muscle. If heavy bleeding continues, wait 15 minutes then inject 10 more units.

### Misoprostol

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Misoprostol prevents or controls heavy bleeding after childbirth.

In a hospital, misoprostol is sometimes used in very small doses to speed up labor, but it should not be used at home for this purpose because without careful medical monitoring it can make the uterus contract so hard it can rip open.

It is sometimes used to end a pregnancy in the first few months, or to control bleeding from an abortion or miscarriage.

#### Side effects

Nausea, stomach ache, or diarrhea.

**Important** 

Check the woman's temperature after giving this medicine as it sometimes causes high fever. If this happens, stop giving the misoprostol and treat the fever right away with paracetamol.

Misoprostol should usually be avoided in women who have previously had cesarean births.

**How to use** 

Dissolve tablets of misoprostol under the tongue or against the inside of the cheek. They also work well dissolved in the vagina or in the anus. This is especially useful if the woman is nauseous.

**To treat bleeding after birth**

→ Dissolve 600 mcg under the tongue, in the anus, or in the vagina.

## Medicines for Severe Pre-eclampsia and Seizures

### Magnesium sulfate

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Magnesium sulfate is the best medicine to treat seizures (convulsions) in pregnant women with severe pre-eclampsia. If you cannot get magnesium sulfate, give diazepam instead (see page 35).

**Important** 

Only use magnesium sulfate if a woman's blood pressure is over 160/110, or if she has a seizure or severe pre-eclampsia (pages 15 to 16).

Count the breaths before and after giving. Do not give if her breathing is less than 12 breaths per minute. Do not give a second dose if her breathing slows to less than 12 breaths per minute, or if the woman cannot urinate within 4 hours after the first dose.

Magnesium sulfate comes in different concentrations (the number of mg in each ml of liquid), so check the label carefully, and be sure to mix in the correct amount of sterile water before using.

**How to use** 

→ Inject 10 grams in the buttocks. Because such a large injection can be painful, split the injection so 5 grams go into each buttock muscle.

If after 4 hours you have not yet reached medical help, you can give one more injection of 5 grams.

## Diazepam

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Diazepam can be used to stop a single seizure. For people with ongoing seizures (epilepsy), use a different medicine, one that can be taken every day.

### Side effects



Sleepiness.

### Important

1. Too much diazepam can slow down or stop breathing. **Do not give more than two doses and do not give more than 30 mg all together.**
2. Diazepam is a habit-forming (addictive) drug. Avoid long-term or frequent use.
3. Do not take during pregnancy unless there is severe pre-eclampsia or seizures.
4. Do not inject diazepam into a muscle or vein unless you have experience or training to do so. It is very difficult to give safely by injection. Instead, during a seizure, you can put it into the anus.

### How to use

Use the liquid solution for injection or grind up the tablets and mix with a little water. Take the needle off a syringe, then draw up the medication. Or use diazepam gel made for use in the anus.

Lay the woman on her side and use the needle-less syringe to put the medicine deep into her anus. Then hold her buttocks together for 5 minutes to keep the medicine in.

### For a seizure

➔ Give 20 mg diazepam in the anus.

30 minutes after the first dose, you can give another 10 mg, but do not give more than that amount.

## Medicines for Womb Infection

For mild fever during labor, ampicillin (below) plus gentamicin (page 37) will usually work. For high fever in labor, or for signs of infection after birth, use metronidazole as well to fight all the possible bacteria that can cause the infection. It is best to inject at least the first dose of ampicillin, but if you have only pills give those instead.

AMPICILLIN Inject 2 grams. Wait 6 hours, then inject or give by mouth 1 gram every 6 hours.

### AND

GENTAMICIN Inject 5 mg per kg, once a day. If you cannot weigh the woman, inject 80 mg, 3 times a day.

### AND

METRONIDAZOLE Give 500 mg by mouth, 3 times a day.

Give all 3 medicines until 2 days after signs of infection have stopped.

In case of allergy to penicillins, give 500 mg erythromycin 4 times a day instead of ampicillin. Other combinations of antibiotics can be given if they are all you have. Choose a combination that fights a wide-range of bacteria.

## Ampicillin: a broad-spectrum antibiotic

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Ampicillin is a broad-spectrum penicillin, which means it kills more kinds of bacteria than other medicines in the penicillin family. You can often use it interchangeably with amoxicillin, that is, if this book or another resource suggests one of these medicines, you will often be able to use the other in its place, in the correct dose.

Ampicillin is very safe and especially helpful for infections during birth.

### Side effects

Ampicillin tends to cause nausea and diarrhea.

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 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 in *Belly Pain, Diarrhea, and Worms*. A flat rash that looks like measles, 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 this medicine is growing more common. Depending on where you live, it may not work any more against certain infections.

### How to use

Ampicillin works well when taken by mouth. It can also be given by injection, but should be injected only for severe illnesses such as pelvic infection or womb infection, or when the person cannot swallow.

As with other antibiotics, there is a range for how long to continue giving this medicine. Continue until all signs of infection (including fever) have been gone for 24 to 48 hours.

#### **For womb infection**

Give combined with other antibiotics and in the amount listed on page 36.

## Gentamicin

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Gentamicin is a very strong antibiotic of the aminoglycoside family. It can only be given by injection or IV (in the vein). This drug can damage the kidneys and the hearing, so it should only be used in emergencies.

### Important

Gentamicin must be given in the exactly correct dose. Giving too much can cause kidney damage or permanent deafness. It is best to dose by weight. And do not give gentamicin for more than 10 days.

### How to use

#### **For womb infection**

Give combined with the other antibiotics and in the amount listed on page 36.

## Metronidazole

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Metronidazole is effective at fighting certain bacteria and infections. It is often helpful in combination with other antibiotics when you do not know the exact cause of a severe infection and are trying to treat as many different bacteria as possible.

### 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 metronidazole in the first 3 months of pregnancy. It may cause birth defects. While it is possible this medicine may cause some problems later in pregnancy or during breastfeeding, it is usually worth taking for severe infections because the harm of the infection is much greater than the potential harm of the medicine.

Do not drink alcohol until 2 days after you finish taking this medicine. Mixing the two causes severe nausea. Do not use metronidazole if you have liver problems.

**How to use** 

For many conditions, 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 womb infection**

Give combined with the other antibiotics and in the amount listed on page 36.

## Vitamin and Mineral Supplements

### Iron, ferrous sulfate, ferrous gluconate

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Ferrous sulfate is useful in the treatment or prevention of most cases of anemia. Treatment with ferrous sulfate by mouth usually takes at least 3 months.

Iron works better when taken with vitamin C (either by eating fruits and vegetables, or taking a vitamin C tablet).

**Side effects** 

Iron sometimes upsets the stomach and is best taken with meals. Also, it can cause constipation especially in older people, and it may make the stools (feces) look black. See advice for constipation on page 37 of Belly Pain, Diarrhea, and Worms.

Drinking liquid iron supplements blackens the teeth. Drink it through a straw or brush the teeth after.

**Important** 

Be sure the dose is right. Too much ferrous sulfate is poisonous. Do not give iron to severely malnourished persons. Wait until they have recovered their health.

**How to use** 

Different forms of iron contain different concentrations of this mineral. For example, a 300 mg tablet of ferrous sulfate contains about 60 mg of iron. But a 325 mg tablet of ferrous gluconate contains 36 mg of iron. So read the label of your tablets, syrup, or other iron supplement to learn the iron content.

**To PREVENT anemia in pregnant and breastfeeding women**

- ➔ Give 300 mg ferrous sulfate (60 mg iron) each day. Iron should also be taken daily by women who plan to become pregnant. A combined iron and folic acid supplement is even better, because folic acid helps prevent birth defects.

**To TREAT someone who is already anemic**

- ➔ Give this amount once a day, or divide into 2 doses if it upsets the stomach:

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**DOSE BY AGE FOR FERROUS SULFATE**

AGE GROUP	HOW MUCH PER DOSE	HOW MANY 300 MG TABLETS	HOW MUCH TOTAL IRON
Under 2 years	→ 125 mg ferrous sulfate	→ Use iron syrup, or crush about ¼ of a 300 mg ferrous sulfate tablet in breast milk	→ Give enough to provide 25 mg iron
2 to 12 years old	→ 300 mg ferrous sulfate	→ 1 tablet of 300 mg ferrous sulfate	→ Give enough to provide 60 mg iron
Over 12 years	→ 600 mg ferrous sulfate	→ 2 tablets of 300 mg ferrous sulfate	→ Give enough to provide 120 mg iron

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## Folic acid, folate

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Folic acid is an important vitamin that aids a baby's healthy development in the first weeks of pregnancy.

### How to use

A combined folic acid and iron supplement may be more convenient than taking the two separately. Whether combined with iron or used alone, the dose is the same.

It is best to start taking folic acid before you become pregnant so your body has enough to meet the baby's needs in the early weeks. Continue taking it throughout the first 3 months of pregnancy.

→ Give 400 to 500 mcg each day.