

# Fever in Infants and Children

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## What is a normal temperature?

A normal temperature is about 37°C (98°F) when taken orally (by mouth). Temperatures taken rectally (by rectum) usually run 0.5°C higher than those taken orally. So a normal temperature is about 37.5°C (99.5°F) when taken rectally. But temperatures may vary during the day, even in healthy children.

Many doctors define a fever as an oral temperature above 37.5°C (99.5°F) or a rectal temperature above 38.0°C (100.4°F) or an axillary (under the arm) temperature above 37.2°C (99°F) (ear temperatures are not accurate in children under 6 months of age and are often not recommended in children less than 1 to 2 years of age).

## What's the best way to take my child's temperature?

You may think you can tell if your child has a fever by touching his or her forehead. It may alert you to a fever, but this isn't an accurate way to tell. Fever strips, which are placed on the child's forehead, are also not accurate.

The best ways to take your child's temperature are orally, rectally, by placing the bulb of the thermometer under the arm (axillary temperature) or using an ear thermometer. For children under 2, you can check by doing an axillary temperature and a rectal temperature if there is a fever, in order to get an accurate measurement.

## Here are some tips on taking your child's temperature:

- Don't bundle your baby or child up too tightly before taking the temperature.
- Never leave your child alone while using the thermometer.
- Be sure you use the right thermometer. Rectal thermometers are thicker than oral thermometers (the bulb is fatter). Digital thermometers are usually used in the mouth or under the arm.
- If you're taking your child's temperature orally, place the bulb of the thermometer under the tongue, towards the back of the mouth, and leave it there for two minutes. Don't let your child bite on the thermometer or talk. The child must be old enough to cooperate and often this method is used in children over 4 to 5 years of age. Digital

thermometers may beep when they are ready to be read. Wait 30 minutes before taking the temperature of a child who has consumed a hot or cold food or drink.

- If you're taking your child's temperature rectally, place him or her belly-down across your lap. Coat the tip of the thermometer with petroleum jelly (Vaseline) and insert it half an inch into the rectum. Stop if you feel any resistance. Hold the thermometer still for two minutes. Never let go of the thermometer. This method often works best with infants. Some doctors prefer the axillary method for safety reasons.
- Axillary temperatures are not always accurate but this is a safe way to take the temperature of toddlers and children under 4 years of age. Place the bulb of a glass thermometer in the child's armpit and hold the arm against the child's body so that the bulb is covered. Keep the bulb in place for at least 3 minutes.
- Ear temperatures - uses a special thermometer that quickly takes the temperature from the eardrum (tympanic membrane). These are not accurate in infants and the machines can be expensive.



- After you're done using the thermometer, clean it with rubbing alcohol or wash it in cool, soapy water or according to the manufacturer's directions.

## When should I try to lower my child's fever?

In older children, fevers are more frightening than they are harmful. They're usually just a sign that the body is fighting an infection. The main reason to treat your child is to make him or her feel better. When your child is achy and fussy, you may want to give him or her some medicine to bring down the fever.

Fevers often run from 38° to 40°C and are usually a result of viral illnesses lasting just a couple of days.

If your child is between 3 months of age and 4 years of age and has a low-grade fever (up to 37.8°C [100.2°F]), you may want to avoid giving him or her medicine. If your child is achy and fussy, and his or her temperature is above 37.8°C (100.2°F), you may want to give him or her some medicine.

If your baby is younger than 3 months of age and has a rectal temperature of 100.4°F (38°C) or higher, call the doctor or go to the emergency room right away. A fever can be a sign of a serious infection in young babies.

## What kind of medicine should I give my child and how much medicine is needed to lower a fever?

Acetaminophen (Tylenol, Tempra, Panadol) and Ibuprofen (Advil and Motrin) are medicines that relieve pain and lower fever. In smaller children, (less than 6 months old) ibuprofen may have more side effects.

How much medicine children need depends on their weight and age. When the age and weight categories in the chart don't match, use the weight of your child as the main guide in figuring out how much acetaminophen or ibuprofen to give.

These doses may be a little higher than what is on the medicine package. If you have any questions about the right dose, ask your family doctor. Usually acetaminophen (Tylenol) is recommended using a chart for dosing (**Figure 1**).

## Tips on giving medicine

- Don't give more than five doses in one day.
- Don't give a baby younger than four months old any medicine unless your family doctor tells you to.
- Read labels carefully. Make sure you are giving your child the right amount of medicine. Acetaminophen comes in different forms: drops, liquid elixir, chewable tablets, and caplets. Each form is a different strength.
- Don't replace the drops with elixir because the drops are stronger.

- Fill the dropper to the line when using drops.
- For liquid elixir medicines, use a special liquid measuring device to make sure you give the right dose. An ordinary teaspoon may not hold the right amount of medicine. Get one at your drug store or ask your pharmacist.

## Why not use aspirin to lower my child's fever?

In rare cases, Aspirin can cause Reye's syndrome in children who have the flu or the chickenpox. Reye's syndrome is a serious illness that can lead to death. Because it may be hard to tell if your child has one of these infections, it's best not to use aspirin unless your family doctor says it's okay. Acetaminophen and ibuprofen are safer choices to use in children with a fever. Doctors recommend that parents should not give aspirin to children younger than 18 years of age.

## Are there other ways to help my child feel better?

### Yes. Here are a few:

- Give your child plenty to drink to prevent dehydration (not enough fluid in the body) and help the body cool itself. Water, clear soups, popsicles, and flavoured gelatin are good choices. If your child isn't getting enough fluids, don't force him or her to eat if he or she doesn't feel like it.
- Keep your child quiet. Moving around can raise the temperature even more.
- Keep the room temperature at about 21°C (70°F) to 23°C (74°F).
- Dress your child in light cotton pyjamas so that body heat can escape.
- Don't over bundle your child. Overdressing can trap body heat and cause your child's temperature to rise.

Figure 1. Dosing Chart

Age	Weight	Acetaminophen dose (every 4 hours)
0 to 3 months	Less than 13 pounds	Ask your family doctor
4 to 7 months	13 to 17 pounds	80 mg
8 to 18 months	18 to 23 pounds	120 mg
1.5 to 3 years	24 to 32 pounds	160 mg
4 to 5 years	33 to 45 pounds	240 mg
6 to 7 years	46 to 61 pounds	320 mg
8 to 9 years	62 to 78 pounds	400 mg
10 to 11 years	79 to 98 pounds	480 mg
12 years or older	99 pounds or more	650 mg

*There is no benefit of using both acetaminophen and ibuprofen or of alternating these drugs unless this is recommended by your doctor if either medication alone is not effective.*

- If your child is chilled, put on an extra blanket but remove it when the chills stop.

### Will a bath help lower my child's fever?

Used together, acetaminophen or ibuprofen and a lukewarm bath may help lower a fever. Give the medicine before the bath. If the bath is given alone, your child may start shivering as his or her body tries to raise its temperature again. This may make your child feel worse.

Your doctor may suggest giving your baby a sponge bath after giving acetaminophen if the fever reaches 39°C (103°F) or if your baby or child has ever had a seizure during a fever. In a few children, seizures can be caused by a fast rise in temperature.

Don't use alcohol for baths because it can be absorbed through the skin. Also, don't use cold water because it can cause shivering.

### When should I call the doctor?

A saying doctors use is, "Don't treat the thermometer, treat the child". This means that your child's behaviour is more important than the number on the thermometer. You can follow the guidelines below to help decide when to call your doctor, but it's important to call your doctor whenever you feel that your child needs help or if you have any questions.

- **Under one month old.** Call your doctor right away if your baby's temperature goes over 38.0°C (100.4°F) orally or 38.5°C (101.3°F) rectally, even if he or she doesn't seem sick. Your doctor may want to see your baby and may want to put him or her in the hospital to find out what's causing the fever. Babies this young can get very sick, very quickly. Also call your doctor if your baby has any of the warning signs listed below, even if he or she isn't running a fever.
- **One to three months old.** Call your doctor if your baby has a temperature of 38.5°C (101.4°F) even if your baby doesn't seem sick, or a temperature of 38°C (100.4°F) that has lasted more than 24 hours. Also, call if your baby has any of the warning signs listed below.
- **Three months to two years old.** If your child has a fever of 38.6°C (101.4°F), watch how he or she acts. Call the doctor if the fever rises or lasts for more than three days, or if

your child has any of the warning signs listed below. If the temperature is 39°C (103°F), call your doctor even if your child seems to feel fine.

- **Over two years old.** If your child has a fever of 38.6°C (101.4°F), watch how he or she acts. Call the doctor if the fever rises or lasts more than three days, or if your child has any of the warning signs listed below.

### Call your doctor if your child has any of these warning signs:

- Changes in behaviour
- Severe headache
- Constant vomiting or diarrhea
- Skin rashes
- Dry mouth
- Sore throat that doesn't improve
- Earache that doesn't improve or pulling at ears
- Stiff neck
- Fever persisting over several days
- Stomach pain
- High-pitched crying
- Swelling on the soft spot on the head
- Irritable
- Unresponsive or limp
- Not hungry
- Wheezing or problems breathing
- Pale
- Whimpering
- Seizures
- Sore or swollen joints

### What about immunization?

*Immunization* is your best prevention. *H. Influenzae* vaccine has helped to lower serious bacterial infections in children. *Pneumococcal* vaccine is now also available for infants, which will help to lessen even more the risk of serious bacterial infections in young children.

#### REFERENCES

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