

FEVER

DEFINITION

Your child has a fever if any of the following apply:

- Rectal temperature is over 100.4°F (38.0°C).
- Oral temperature is over 99.5°F (37.5°C).
- Axillary (armpit) temperature is over 99.0°F (37.2°C).
- Ear (tympanic) temperature (taken in the ear) is over 100.4°F (38.0°C) (if set in rectal mode), or > 99.5°F (37.5°C) (if set in oral mode). (Note: Not reliable if your child is less than 6 months old.)
- Pacifier temperature is over 99.5°F (37.5°C). (Note: Not accurate in general. New digital ones are accurate. This mode is okay for screening if your child is over 3 months old.)
- Tactile fever (the impression that your child has a fever because he or she feels hot to the touch) is evident. Tactile fevers are more accurate than we used to think; however, if you're going to call your child's doctor about a fever, actually take his or her temperature.

The body's average temperature when it is measured orally is 98.6°F (37°C), but it normally fluctuates during the day. Mild elevation (100.4° to 101.3°F or 38.0°-38.5°C) can be caused by exercise, excessive clothing, a hot bath, or hot weather. Warm food or drink can also raise the oral temperature. If you suspect such an effect on the temperature of your child, take his or her temperature again in 30 minutes.

Causes

Fever is a symptom, not a disease. Fever is the body's normal response to infections and plays a role in fighting them. Fever turns on the body's immune system. The usual fevers (100°-104°F [37.8-40°C]) that all children get are not harmful. Most are caused by viral illnesses; some are caused by bacterial illnesses. Teething does not cause fever.

Expected Course

Most fevers with viral illnesses range between 101° and 104°F (38.3°-40°C) and last for 2 to 3 days. In general, the height of the fever doesn't relate to the seriousness of the illness. How sick your child acts when the fever is down is what counts. Fever causes no permanent harm until it reaches 107°F (41.7°C). Fortunately, the brain's thermostat keeps untreated fevers below this level.

Although all children get fevers, only 4% develop a brief febrile convulsion. Since this type of seizure is generally harmless but very scary for the parents, it is not worth worrying excessively about. If your child has had high fevers without seizures, your child is probably safe.

HOME CARE

Treat All Fevers with Extra Fluids and Less Clothing. Encourage your child to drink extra fluids, but do not force him or her to drink. Popsicles and iced drinks are helpful. Body fluids are lost during fevers because of sweating.

Clothing should be kept to a minimum because most heat is lost through the skin. Do not bundle up your child; it will cause a higher fever. During the time your child feels cold or is shivering (the chills), give him or her a light blanket.

Acetaminophen Products for Reducing Fever. Children older than 2 months of age can be given anyone of the Acetaminophen products. All have the same dosage.

Remember that fever is helping your child fight the infection. Use drugs only if the fever is over 102°F (39°C) and preferably only if your child is also uncomfortable. Give the correct dosage for your child's age every 4 to 6 hours, but no more often.

Two hours after they are given, these drugs will reduce the fever 2-3°F (1.0-1.5°C). Medicines do not bring the temperature down to normal unless the temperature was not very elevated before the medicine was given. Repeated dosages of the drugs will be necessary because the fever will go up and down until the illness runs its course. If your child is sleeping, don't awaken him for medicines.

Caution: The dropper that comes with one product should not be used with other brands.

Dosages of Acetaminophen. See accompanying table in the front of this manual.

Ibuprofen Products. All Ibuprofen products are now available without a prescription. Give the correct dosage for your child's weight every 6 to 8 hours as needed. (See accompanying table in the front of this manual.)

Ibuprofen and Acetaminophen are similar in their abilities to lower fever, and their safety records are similar. One advantage that Ibuprofen has over Acetaminophen is a longer-lasting effect (6-8 hours instead of 4-6 hours). However, Acetaminophen is still the drug of choice for controlling fever in most conditions. Children with special problems requiring a longer period of fever control may do better with Ibuprofen.

Avoid Aspirin. The American Academy of Pediatrics has recommended that children (through 21 years of age) not take aspirin if they have chickenpox or influenza (any cold, cough, or sore throat symptoms). This recommendation is based on several studies that have linked aspirin to Reye's syndrome, a severe encephalitis-like illness. Most pediatricians have stopped using aspirin for fevers associated with any illness.

ALTERNATING ACETAMINOPHEN AND IBUPROFEN

We don't recommend combining these medicines for the following reasons:

- No added benefit in reducing fever compared with either product used alone. (Reason: both drugs have the same mechanism of action.)
- Can cause dosage errors and poisoning (especially if you give one product too frequently).
- You don't need to control fever this closely.
- If you are instructed by your physician to alternate both products, do it as follows:
 - Use both if the fever is over 104°F (40°C) and unresponsive to one medicine alone.
 - Give a fever medicine every 4 hours (Acetaminophen every 8 hours and Ibuprofen every 8 hours).
 - Only alternate medicines for 24 hours or less, then return to a single product.

Sponging. Sponging is usually not necessary to reduce fever. Never sponge your child without giving her Acetaminophen first. Sponge immediately only in emergencies such as heatstroke, delirium, a seizure from fever, or any fever over 106°F (41.1°C). In other cases sponge your child only if the fever is over 104°F (40°C), the fever stays that high when you take the temperature again 30 minutes after your child has taken Acetaminophen or Ibuprofen, and your child is uncomfortable. Until Acetaminophen has taken effect (by resetting the body's thermostat to a lower level), sponging will just cause shivering, which is the body's attempt to raise the temperature.

If you do sponge your child, sponge her in lukewarm water (85° to 90°F [29° to 32°C]). (Use slightly cooler water for emergencies.) Sponging works much faster than immersion, so sit your child in 2 inches of water and keep wetting the skin surface. Cooling comes from evaporation of the water. If your child shivers, raise the water temperature or wait for the Acetaminophen to take effect. Don't expect to get the temperature below 101°F (38.3°C). Don't add

rubbing alcohol to the water; it can be breathed in and cause a coma.



CALL OUR OFFICE

IMMEDIATELY if:

- Your child is less than 3 months old.
- The fever is over 105°F (40.6°C).
- Your child looks or acts very sick especially when the fever is down.

Within 24 hours if:

- Your child is 3 to 6 months old (unless the fever is due to a diphtheria-pertussis-tetanus (DPT) shot).
- The fever is between 104° and 105°F (40° to 40.6°C), especially if your child is less than 2 years old.
- Your child has had a fever more than 24 hours without an obvious cause or location of infection.
- Your child has had a fever more than 3 days.
- The fever went away for more than 24 hours and then returned.
- You have other concerns or questions.

FEVER PHOBIA: UNDERSTANDING THE MYTHS

Misconceptions about the dangers of fever are commonplace. Unwarranted fears about harmful side effects from fever cause lost sleep and unnecessary stress for many parents. Let the following facts help you put fever into perspective.

MYTH: All fevers are bad for children.

FACT: Fevers turn on the body's immune system. Fevers are one of the body's protective mechanisms. Most fevers are good for children and help the body fight infection. Use the following definitions to help put your child's level of fever into perspective:

100°-102°F (37.8°-38.9°C)

Low-grade fevers are beneficial. Try to keep the fever in this range.

102°-104°F (38.9°-40°C)

Moderate-grade fevers are beneficial.

> 104°F (>40°C)

High fevers cause discomfort but are harmless.

>105°F (>40.6°C)

There is a higher risk of bacterial infections with a very high fever.

>108°F (>42.2°C)

The fever itself can be harmful.

MYTH: Fevers cause brain damage, and fevers over 104°F (40°C) are dangerous.

FACT: Fevers with infections don't cause brain damage. Only body temperatures over 108°F (42.2°C) can cause brain damage. The body temperature only goes this high with high environmental temperatures (e.g., confined in a closed car).

MYTH: Anyone can have a febrile seizure.

FACT: Only 4% of children ever have a febrile seizure.

MYTH: Febrile seizures are harmful.

FACT: Febrile seizures are scary to watch, but they usually stop within 5 minutes. They cause no permanent harm. Children with febrile seizures have no higher incidence for developmental delays, learning disabilities, or seizures without fever.

MYTH: All fevers need to be treated with fever medicine.

FACT: Fevers only need to be treated if they cause discomfort – usually fevers over 102° or 103°F (38.9° or 39.5°C).

MYTH: Without treatment, fevers will keep going higher.

FACT: Fevers from infection top out at 105° or 106°F (40.6° or 41.10C) or lower, because of the brain's thermostat.

MYTH: With treatment, fevers should come down to normal.

FACT: With treatment, fevers usually come down 2° or 3°F (1.0-1.5°C).

MYTH: If the fever doesn't come down (if you can't "break the fever"), the cause is serious.

FACT: Fevers that don't respond to fever medicine can be caused by viruses or bacteria. It doesn't relate to the seriousness of the infection.

MYTH: If the fever is high, the cause is serious.

FACT: If your child looks very sick, the cause is serious.

MYTH: The exact number of the temperature is very important.

FACT: How your child looks is what's important.

MYTH: Temperatures between 98.6° and 100°F (37.0° and 37.8°C) are low-grade fevers.

FACT: The normal temperature changes throughout the day and peaks in the late afternoon and evening.

- A reading of 99.4°F (37.5°C) is just the average rectal temperature. It normally can change from 98.4°F (36.9°C) in the morning to a high of 100.3°F (38.0°C) in the late afternoon.
- A reading of 98.6°F (37°C) is just the average oral temperature. It normally can change from a low of 97.6°F (36.5°C) in the morning to a high of 99.5°F (37.5°C) in the late afternoon.

THE TEMPERATURE: HOW TO MEASURE IT

TAKING THE TEMPERATURE

Obtaining an accurate measurement of your child's temperature requires some practice. If you have questions about this procedure, ask a physician or nurse to demonstrate how it's done, and then observe you doing the same.

Where to Take the Temperature

- Rectal temperatures are the most accurate. Oral or eardrum temperatures are also accurate if done properly. Axillary (armpit) temperatures are the least accurate but are better than no measurement.
- For a child younger than 2 years old, a rectal temperature is preferred. Axillary temperature is adequate for screening if it is taken correctly. If your infant is less than 90 days old (3 months old) and axillary temperature is over 99.0°F (37.2°C), check it by taking the rectal temperature. The reason we need a rectal temperature taken for young infants is that if they have a true fever, they need to be evaluated immediately.
- For a child 2 years old or older, take the temperature by ear or orally (by mouth).

Taking Rectal Temperatures

- Have your child lie stomach down on your lap.
- Before you insert the thermometer, apply some petroleum jelly to the end of the thermometer and to the opening of the anus.
- Insert the thermometer into the rectum about 1 inch. During the first 6 months of life, gently insert the rectal thermometer 1/4 to 1/2 inch (inserting until the silver tip disappears is about 1/2 inch). Never try to force it past any resistance. (Reason: it could cause perforation of the bowel.)
- Hold your child still while the thermometer is in your child's rectum. Leave the thermometer in your child's rectum for 2 minutes.

Taking Axillary Temperatures

- Place the tip of the thermometer in a dry armpit.
- Close the armpit by holding the elbow against the chest and leave in place per instructions for thermometer. You may miss detecting a fever if the thermometer is removed before it beeps (if using digital thermometer).
- If you're uncertain about the result, check it with a rectal temperature.

Taking Oral Temperatures

- Be sure your child has not taken a cold or hot drink within the last 30 minutes.
- Place the tip of the thermometer under one side of the tongue and toward the back. An accurate temperature depends on proper placement. Ask a physician or nurse to show you where it should go.
- Have your child hold it in place with the lips and fingers (not the teeth) and breathe through the nose, keeping the mouth closed.
- Leave it in mouth per instructions for thermometer.
- If your child can't keep his or her mouth closed because of nose blockage, suction out the nose.

TYPES OF THERMOMETERS

Digital Thermometers. Digital thermometers record temperatures with a heat sensor and run on a button battery. They measure quickly, usually in less than 30 seconds. The temperature is displayed in numbers on a small screen. The same thermometer can be used to take both rectal and oral temperatures. Buy one for your family; they cost about \$10.00.

Ear Thermometers. Many hospitals and medical offices now take your child's temperature using an infrared thermometer that reads the temperature of the eardrum. In general, the eardrum temperature provides a measurement that is as accurate as the rectal temperature. The outstanding advantage of this instrument is that it measures temperatures in less than 2 seconds. It also requires no cooperation by the child and causes no discomfort (the thermometer is placed at the ear's opening). An ear thermometer for home use is available, but it's expensive.

CONVERSION OF DEGREES FAHRENHEIT (F) TO DEGREES CENTIGRADE (C)

96.8°F = 36.0°C	102.0°F = 38.9°C
98.6°F = 37.0°C	103.0°F = 39.5°C
99.5°F = 37.5°C	104.0°F = 40.0°C
100.0°F = 37.8°C	105.0°F = 40.6°C
100.4°F = 38.0°C	106.0°F = 41.1°C
101.0°F = 38.3°C	107.0°F = 41.7°C