

## Fever in Children Overview

Fever is the most common reason parents bring their children to the emergency department. Fever is medically defined as a rectal temperature of 100.4°F or 38.0°C. A fever itself is not life threatening unless it is extremely high, such as greater than 107°F (41.6°C). A fever may indicate the presence of a serious illness, but usually a fever is caused by common infections. A part of the brain called the hypothalamus controls body temperature. The hypothalamus increases the body's temperature as a way to fight the infection. Be aware that things other than infections may cause a fever.

## Fever in Children Causes

Causes of fever include the following:

- Bacterial infections
- Viral infections
- Medications
- Illicit drugs
- Heat illnesses

## Fever in Children Symptoms

Signs and symptoms of fever may be obvious or subtle. The younger the child, the more subtle the symptoms.

- Infants
  - Irritable
  - Fussy
  - Lethargic
  - Quiet
  - Feel warm or hot
  - Not feed normally
  - Cry
  - Breathe rapidly
  - Exhibit changes in sleeping or eating habits
- Verbal children (may complain of these)
  - Feel hot or cold
  - Body aches
  - [Headache](#)
  - Have difficulty sleeping or [sleep](#) more
  - Appetite may be affected

## When to Seek Medical Care

You should call your child's doctor if any of the following are present with fever.

- Your child is younger than 6 months.
- You are unable to control the fever.
- You suspect your child may be beginning to become [dehydrated](#) from vomiting, [diarrhea](#), or not drinking (sunken eyes, dry diapers).
- You have been to your child's doctor and the child is now getting worse or new symptoms have developed.

Although you may have done your best to care for your child, sometimes it is smart to take your child to the emergency department. Your child's doctor may meet you there, or your child may be evaluated and treated by the emergency doctor.

You should take your child to a hospital's emergency department when any of the following is true:

- You have serious concerns and are unable to contact your child's doctor.
- You suspect your child is dehydrated.
- A [seizure](#) occurs.
- Your child has a purple or red [rash](#).
- A change in consciousness occurs.

- Your child's breathing is shallow, rapid, or difficult.
- Your child is younger than 2 months.
- Your child has a headache that will not go away.
- Your child continues to vomit.

## Exams and Tests

When you arrive in the emergency department, a nurse will determine how quickly your child needs to be seen by the doctor. The nurse is usually very experienced and will bring your child immediately into the emergency department if a life-threatening condition is present. Otherwise, the nurse will put your child in line to be seen ahead of people less ill, but behind people more ill.

The doctor will evaluate your child by taking a history from you and the child, if possible. The doctor will then perform a physical examination and may order tests.

- A [chest x-ray](#) is useful for seeing the lungs to diagnose [pneumonia](#). The doctor will order two views taken, one sideways and one from front to back. The doctor may use this test if your child has a cough, chest pain, or shortness of breath.
- A [complete blood count](#), [electrolytes](#), and blood culture are taken from a blood sample.
  - It is much more difficult to find and enter the small veins in children. It may take more than one attempt to draw your child's blood.
  - Complete blood counts are useful for diagnosing bacterial blood infections in very young children. It may suggest whether an infection is bacterial or viral and check whether the child's immune system is working properly.
  - Electrolytes are useful for evaluating [dehydration](#) and whether certain electrolytes are lacking.
  - Samples of blood are taken to see if bacteria are present in the bloodstream. Blood culture results may take 24 hours and usually are complete in 72 hours. You will be called if the blood culture test is abnormal.
  - Urine may be obtained for a [urinalysis](#) and urine culture. Your child may be asked to urinate into a sterile cup, a bag may be placed over your child's genital area to catch urine, or a catheter, which is a small tube, may be inserted into a tiny opening, called the urethra, and into the bladder.
    - The urinalysis is useful to look for infections of the urinary tract system and may be helpful for evaluating dehydration.
    - The urine culture is tested to see if bacteria are present in the urine. Results for urine culture may take 24-72 hours. You will be called if urine culture results are abnormal.
- A [lumbar puncture](#) (also called a spinal tap) is a procedure that uses a small needle to remove a sample of fluid from the central nervous system.
  - Your doctor will have you sign a consent form for this procedure. The doctor will review the potential complications of the procedure.
  - Lumbar puncture is a very safe procedure with extremely rare complications in children.
  - Your child either lies on his or her side or sits up, and a needle is inserted between the backbones into a space that contains fluid that flows all the way up to the brain.
  - The fluid is sent to the laboratory. There, they look at the fluid under a microscope to check for bacteria.
  - A machine analyzes the fluid for the presence of red and white blood cells, sugar, and protein.
  - Results for the spinal fluid culture may take 24-72 hours. You will be called if spinal fluid culture results are abnormal.
    - The lumbar puncture is performed to check for [meningitis](#), which is an infection of the brain.
    - Signs of meningitis may include headache, stiff neck, sensitivity to light, [nausea and vomiting](#), or alterations in mental status.
    - If your doctor suspects this condition, it is very important that this test be performed.

- Meningitis can cause permanent disability or death in just a few hours.

## Fever in Children Treatment

### Self-Care at Home

The 3 goals of home care for a child with a fever are to reduce the temperature, prevent dehydration, and monitor for serious or life-threatening illness.

- The first goal is to make the child comfortable by monitoring and reducing the fever to under 102°F (38.9°C). This is done using a thermometer and medications and dressing the child appropriately. A warm water bath can also be helpful.
  - To check your child's temperature, you will need a thermometer. Thermometers available are glass mercury, digital, and tympanic (used in the ear). And now, [constant monitors such as tempguard give you a reading every 10 seconds](#).
    - Stay away from tympanic thermometers, the jury is still out about their accuracy.
    - Glass thermometers work well but may break and take several minutes to get a reading.
    - Digital thermometers are inexpensive and obtain a reading in seconds.
    - [The tempguard monitor is a great way of monitoring temperature](#).
  - Oral temperatures may be obtained in older children who are not mouth breathing or have not recently had a hot or cold beverage.
  - [Acetaminophen](#) (Children's Tylenol, Tempra) and [ibuprofen](#) (Children's Advil, Children's Motrin) are used to reduce fever.
    - Follow the dosage and frequency printed on the label.
    - Remember to continue to give the medication over at least 24 hours or the fever will usually return.
    - Do not use aspirin to treat fever in children, especially for a fever with [chickenpox](#). It has been linked to causing liver failure. Ibuprofen use is being questioned in people with chickenpox.
  - Children should not be overdressed indoors, even in the winter.
    - Overdressing keeps the body from cooling using evaporation, radiation, conduction, or convection.
    - Most practical is to dress the child in a single layer of clothing and cover the child with a sheet or light blanket.
  - A sponge bath in warm water will help reduce a fever.
    - This is usually not needed but may more quickly reduce the fever.
    - Put the child in a few inches of warm water and use a sponge or washcloth to wet the skin of the body and arms and legs.
    - The water itself does not cool the child. The evaporation of the water off the skin does, so do not cover the child with wet towels.
    - Contrary to the popular folk remedy to reduce fever, under no circumstances should rubbing alcohol be used in a bath or rubbed on the skin. Alcohol is poisonous to children.
- The second goal is to keep the child from becoming dehydrated. Humans lose extra water from the skin and lungs during a fever.
  - Encourage the child to drink clear fluids such as non-carbonated drinks without caffeine or juice (not water). Water does not contain the necessary electrolytes and [glucose](#). Other clear fluids are chicken soup, Pedialyte, and other rehydrating drinks available at your grocery or drug store.
  - Tea should not be given because, like any caffeine-containing product, it causes you to lose water through urination. This is not the effect you want to create.
  - Your child should urinate light-colored urine at least every 4 hours if well hydrated.
- The third goal is to monitor the child for signs of serious or life-threatening illness.
  - A good strategy is to reduce the child's temperature to under 102°F (39.0°C).
  - Also, make sure the child is drinking enough clear fluids (not water).

- If both these conditions are met and your child is still ill appearing, a more serious problem may exist.

### Medical Treatment

Your doctor may or may not be able to tell you the exact cause of your child's fever.

- Viral infections of the respiratory system are the most common cause of fever. Antibiotics do not cure or help with viral infections.
  - If your doctor diagnoses a bacterial infection, your child will be started on antibiotics.
    - Urinary tract infections, ear infections, throat infections, sinus infections, skin infections, gastrointestinal infections, and pneumonia may be treated with antibiotics at home.
    - Your child may receive oral antibiotics or a shot or both.
    - Children diagnosed with bacterial meningitis are always admitted to the hospital.
- Additionally, your doctor may give acetaminophen (Tylenol) or ibuprofen (Advil) for fever.
- Dehydration may be treated by giving oral fluids or IV fluids.
  - If a child is vomiting, an anti-nausea drug may be given by injection or by rectal suppository.
  - After a period of time, oral fluids will be attempted.
- If your child's condition improves after reducing the fever, treating dehydration, and serious bacterial infections have been ruled out, the doctor will more than likely discharge your child from the emergency department for further care and monitoring at home.

### Next Steps

#### Follow-up

More than likely, the emergency department doctor will ask that you contact or see your child's doctor or return to the emergency department within the next 24-48 hours.

- Your child's condition can be further watched.
- Any treatment prescribed by the doctor in the emergency department should be monitored for effectiveness.
- You should receive information about any tests and cultures performed for your child and follow up if necessary.

#### Prevention

Prevention of illnesses that cause fever revolves around personal and household hygiene. Use strategies to prevent the spread of viruses and bacteria:

- Wash your hands with soap and water.
- Cover your mouth and nose when sneezing and coughing.
- Handle food with clean hands.
- Properly immunize your child (see the [children's immunization schedule](#)).
- Eat a healthy diet including fruits and vegetables.
- Get the proper amount of sleep.

#### Outlook

The prognosis for a child with a fever is excellent.

- Most illnesses that cause fever last 3-7 days.
- Sometimes, at-home treatment of bacterial infections fail, and the child will need to be hospitalized.
- Meningitis and bacterial blood infections have a much more serious prognosis.

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