

NORTHFIELD MEDICAL CENTRE

99, Northfield Drive E., #206 Waterloo, Ontario, N2K 3P9 Canada
Tel: (519) 744-2592 Fax: 519-744-1197

FEVER IN CHILDREN

Fever is the body's reaction to infection. Through mechanisms that aren't known well, some aspect of infection and/or inflammation causes the brain to reset its "thermostat." There are many theories for why this happens, including the idea that most germs can't replicate well at higher body temperatures and that some parts of the immune system works better at higher temperatures. When the body has reset its thermostat, any temperature below that is considered by the body to be cold; so if the thermostat has been reset to 104 F, a temperature of 102 F will actually seem cold, and the body starts shivering to increase body heat: that's why we get "chills." While fever is considered a rise in body temperature, not everyone's body temperature is the same. The common average cited is 98.6 F (37.0 C), but your actual "normal" temperature may vary.

Regardless, in infants and small children, fever is regarded as anything 100 F (37.8 C) or higher; in school-aged children and above, 99.3 F (37.4 C) or higher. (Note: these numbers may vary slightly with different doctors.) It used to be common to tell people that the rectal temperature was one degree higher than oral, and axillary was one degree less than oral, but that turns out to be not true all the time; it can vary from half a degree to 2 degrees difference.

The "gold standard" for taking fever is still the glass thermometer, but technological advances have changed the way parents take temperatures. The digital thermometer (looks like a thermometer but has a digital readout) is a very good choice; it's more expensive by a few dollars, but is quicker and reliable. The forehead strips are very unreliable; you're better off guessing than using these. There is a new device in which a pacifier has a thermometer, but the infants have to suck continuously for 3 to 5 minutes for it to work, which is unlikely. Finally, infra-red technology has made the "ear thermometer" useful and somewhat affordable (\$75 - 100). Unfortunately, they do not work well in newborns and other infants with small ear canals (like our infants and toddlers with Down Syndrome). Also, they become fairly inaccurate at temperatures over 104 F.

Here's the important point: Fever is NOT dangerous!

The amount of temperature required to hurt the human brain is over 107.6 F (42 C). Fever due to infection very rarely goes over 106.2 (41.3 C), and while scary to parents, is not harmful. (Temperatures over 107.6 F are usually due to heatstroke, head trauma, toxic ingestions or anesthesia side effects.)

Seizures due to fever can occur in the age range of 4 months to 6 years, but is most often associated with an abrupt rise in temperature, rather than an extremely high fever. And while seizures due to fever are frightening, they are short (less than 5 minutes) and are very rarely harmful to the child's brain.

The reason for treating the fever, then, is an issue of comfort for the child. Certainly the higher the fever goes, the worse the child feels. The medication of choice is acetaminophen, given at 10 to 15 mg per kg of body weight every 4 hours; it can be given orally or rectally. Ibuprofen appears to be slightly better at decreasing fevers over 103 F (39.5 C), and is given at 10 mg per kg every 6 hours. Aspirin is NOT recommended for children under 18 years of age due to the risk of Reyes syndrome, which is a liver disorder associated with the use of aspirin and certain viral infections.

While waiting for the medication to take effect, the temperature can also be brought down by lukewarm water baths; cold water or ice water is not recommended as they can cause the blood vessels in the skin to constrict, and decrease the body's ability to get rid of extra heat. Also, cold or chilly water will cause the child to shiver, which will increase the body's internal heat. Alcohol baths should not be used, since there is a small risk of alcohol poisoning.

Important note: while fever is not dangerous, it is a sign of infection, and there are some infections that are dangerous to children. How high the fever gets may not tell you how dangerous the infection may be.

Infants 3 months of age and younger may not show serious signs of infection until it is too late, so these infants should always be seen by a doctor when febrile. For older infants and children, they should be seen by a doctor or other health care provider if you feel the symptoms may indicate that your child may have a serious infection, or if you are unsure if your child's symptoms are serious or not.

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

- Changes in behavior
- Constant vomiting or diarrhea
- Dry mouth
- Earache or pulling at ears
- Fever comes and goes over several days
- High-pitched crying
- Irritable
- Not hungry
- Pale
- Seizures
- Severe headache
- Skin rash
- Sore or swollen joints
- Sore throat
- Stiff neck
- Stomach pain
- Swelling of the soft spot on the head
- Unresponsive or limp
- Wheezing or problems breathing
- Whimpering