

## **Doctor, My Child has Fever!**

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No topic in Pediatrics generates more confusion and fear than fever. Despite the attempts of Physicians to allay fears, not a day passes we are not approached by distressed parents. Misinformation about fever is deeply engrained in our culture and media. (Books, Movies, TV, internet, twitter etc.) I am not sure anyone can completely remove all the misconceptions, but I will humbly attempt.

### **What is a fever?**

Fever simply is a symptom and not a disease or disorder. It is commonly due to infection and part of the body's natural defense. A fever is a temperature of 100.4° F or higher. The average body temperature is 98.6 F but normally rises and falls throughout the day with normal body rhythms. However when temperature however rises to 100.4 F or greater it is beyond the normal rhythms and considered fever. When fever occurs, the body continues to regulate body temperature, but resets the baseline temperature to a higher degree. The body produces fever by conserving heat, decreasing sweat production and shifting the circulation away from the skin. The patient in turn seeks a warmer environment and increases muscle frictions (shivering) which further raises temperature.

Infection with a microorganism, such as a virus or bacteria is the most common reasons for fever. Microorganisms cause fever by invading tissues causing a release of chemicals called cytokines. Cytokines raise the body temperature and draw immune cells to the infection site to fight the microorganism. Fever increases the body's metabolism to assist the battle. In short, fever helps to destroy the microorganism. It stimulates the immune system to the area of infection to protect the area and prevents the spread of the invader.

Despite the normal function of fever there still exist many misconceptions. The most common misconception is fever is a disease or disorder. As previously noted, fever is a symptom. Fever associated with infection is not harmful and serves an important role. Height of the fever does not correlate with the seriousness of the infection. High fever and low fever can easily occur with everyday viral infections as with serious infections. Low fevers can give a false sense of security, where as high fever can create over concern. There is a common misconception that fever can rise without stopping. As previously noted, fever is a resetting of the body's baseline temperature. The temperature will rise to a point and stop. It is extremely rare for temperature to go beyond 105.5 F, ° well within the safe range.

So when, if ever should you be concerned about fever? More specifically, when should you be concerned about the cause or source of the fever? (Table 1) To summarize (Table 1) you should be concerned about the cause of fever if the child is younger than 2 months; if the certain symptoms exists (stiff neck, painful urination etc.); or if the child continues to have symptoms of fever after treatment of the fever. (Table 2 Symptoms of Fever) If your child is older than 2 months; has current immunizations; acts fine after treatment of the fever and has none of the listed other symptoms, the cause is likely less serious.

### **When should a fever be treated?**

The fever should be treated in order to make the child feel comfortable and to better assess the underlying illness. Most children with non serious illnesses will return to normal behavior once the fever is treated. A child with a more serious illness will continue to behave ill despite treatment of fever. Treating your child's fever will not help the body get rid of the infection any quicker, it simply will relieve discomfort. A small percentage of children between the ages of 6 months and 5 years can develop febrile seizures from fever. A febrile seizure does not mean your child has epilepsy.

**Table 1.**

When should you be concerned about the cause or source of the fever?

(i.e.) When should you immediately call your child's physician?

- If your child is younger than 2 months old
- If your child looks or acts very sick (see Symptoms Table 2) one to two hours after giving the appropriate dose of Acetaminophen or Ibuprofen
- Your child is crying inconsolably after treatment of the fever
- Your child is difficult to awaken
- Your child's neck is stiff
- Your child has a convulsion
- Purple spots are present on the skin
- Breathing is difficult AND no better after you clear the nose
- Your child is unable to swallow anything and is drooling saliva
- Fever is > 105.5° F (rare)
- Burning or pain occurs with urination
- Your child has had a fever for more than 24 hours without an obvious cause of infection

Call your child's physician during office hours if any of the following conditions are present:

- Your child has had a fever more than 72 hours and has otherwise been doing well
- The fever went away for more than 24 hours and then returned
- Your child has a history of febrile seizures
- You have other concerns or questions

**Table 2.**

Common Symptoms of fever in children

- Lethargy and/or increased irritability. The child may become more uncomfortable as the temperature rises.
- Less talkative, less socially engaging
- Increased clinginess
- Less hungry and thirst
- Increased heart and respiratory rate

**What's the best way to take a child's temp?**

A digital thermometer can be used to take a rectal (in the bottom), oral (in the mouth), or axillary (under the arm). Despite all the new fever measuring instruments, rectal measuring is still considered the "Gold Standard" for recording fever at home.

For obtaining a rectal temperature clean the end of the thermometer with rubbing alcohol or soap and water. Rinse it with cool water. Do not rinse it with hot water. Put a small amount of lubricant on the end. Insert the thermometer 1/2 inch to 1 inch into the anal opening. Keep it there till you hear the signal (about 1 minute) Label the rectal thermometer so it's not accidentally used orally.

Once your child is 4 or 5 years of age, you can take his temperature by mouth. To take an oral temperature, clean the thermometer with lukewarm soapy water or rubbing alcohol. Rinse with cool water. Wait at least 15 minutes after your child has had a hot or cold drink before putting the thermometer in their mouth. Turn the thermometer on and place the tip under his tongue toward the back of his mouth. Hold in place until you hear the signal.(About 1 minute)

Although axillary temperature measurements are inconsistent, they may be tried initially. If the child has an axillary temperature > 100.4, you have documented the presence of fever. If the temperature is < 100.4 but you feel the temperature is greater, obtain a rectal temperature. To take an axillary temperature, place the tip of a digital thermometer in your child's armpit. Hold his arm tightly against his chest until you hear the

signal (About 1 minute) If you child has recently taken a warm bath, wait till their skin is dry and cool before taking an axillary temperature.

Tympanic (ear) thermometers are useful for older children older than 3 years. Because of the small size of the ear canal, ear thermometers may be inaccurate in children under 3 years. Tympanic thermometers need to be placed correctly in your child's ear to be accurate. Too much earwax can cause incorrect readings.

Temporal Artery (Forehead) probes are attractive because of their speed and ease, however studies of their accuracy in children have yielded conflicting results so are not recommended.

**What can I do to decrease my child's fever?**

Administer an anti-fever medication, such as acetaminophen or ibuprofen. DO NOT give your child aspirin, because it is linked to the fatal disorder Reye Syndrome. Be sure to give the correct dose of anti-fever medicine. If you have any questions about the appropriate dose of the anti-fever medicine call your doctor. Other ways to reduce a fever include dressing the child in light clothing, drink plenty of fluids, and giving a lukewarm bath. Never use alcohol baths or cold baths, since they may lead to shivering which further raises the temperature.