

## Parent Information Handout: Fever

Some people think that a high fever is bad, because it can cause brain damage. That's not true! If it were true, then we should all have brain damage, because we have all had high fever in the past... The truth is that fever is one of the ways our body protects itself against infections. When we have an infection in any part of the body, we produce more heat (fever). With more heat, our body's defenses can kill germs better. So the fever is not our enemy but our friend, and it is helping the body fight the germs. Therefore, what we need to ask is not, "What can I do to stop the fever?" but "What is causing the fever?" Then we must, decide if the cause is serious or not serious. Fortunately, most of the time, the cause of fever in children will be something that is not serious, such as an ear infection, throat infection, or the flu. Exceptionally, there may be a more serious infection. One example would be pneumonia. With pneumonia there are three main symptoms:

1. A fever that stays high,
2. A cough,
3. And most importantly shortness of breath

Another example of a serious infection is meningitis: This is an infection that is caused by germs sitting around the brain. Fortunately, this disease is rare. Most children will not meningitis, but will get the flu or other mild diseases. To tell the difference between a serious infection, look at the whole picture, not just at the thermometer. A child could have a 104 F fever and have meningitis. He could also have a 104 F and have the flu, then recover in 3 to 4 days.

We need to look at the whole picture and ask ourselves the following questions:

1. Does he look at me in the eyes?
2. Does he move his head easily from side to side, or does he act as if it hurts and he doesn't want to move it?
3. Does he follow what is going on around him?
4. When the fever breaks, after several hours, does he perk up, play and smile more, or does he look worse?

If the answers to these questions are good, then the child most likely does not have meningitis. If the answers to these questions are bad, then the child should be seen by a doctor right away.

Fortunately, meningitis is a rare disease and most children will not have it. Instead, they will have the more common infections, such as the flu. Now that you know that the fever is our friend, you do not have to go out of your way to bring it down. The more you try to do this, the more you are doing exactly the opposite of what the body is trying to do. Putting a child in a bathtub with lukewarm water has been the advice given for a long time. However, scientifically, it does not work very well. Also, if you can remember the last time you had a fever, would you want to be sitting in a bathtub, or lying in a bed with an extra blanket? Tylenol or generic Tylenol (acetaminophen) is used not so much to bring the fever down (which it does most of the time), but to make us more comfortable, because we usually feel miserable when we have a high fever.

You have to use your judgment when you give Tylenol to a child. Some children have a fever and continue to play. They do not need to be given Tylenol every four hours. If the child does not have a specific symptom along with the fever, such as an earache or a sore throat, then he may be having the flu. The flu is a common illness caused by a virus. In your mind, imagine that there are different families of germs. Two big families are called the viruses and the bacteria; The bacteria are the ones that can be killed by antibiotic like penicillin and amoxicillin. **THESE ANTIBIOTICS DO NOT WORK AGAINST VIRUSES.** Therefore, if there is a disease caused by a virus such as the flu, the cold, or the chickenpox, nothing can be done except to wait until it runs its course. With the flu, the fever usually goes up and down like a roller coaster for two to four days, the child will get better. Some parents have heard about seizures caused by a fever. These are called "febrile seizures," and only happen in 3 to 4 out of every 100 children. These seizures last only a few minutes, and are very scary for the parents to watch, but are totally harmless. **THEY DO NOT CAUSE BRAIN DAMAGE.** If you have question, please ask the doctor. In summary, fever is our friend and is helping us to fight infections better. We need to be concerned about its causes, but not about how high the fever is. If the child perks up every once in a while and the whole picture looks good, we can watch and wait for about three days. If the picture looks worse, or the fever lasts longer than three days, the child should be seen.

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## Temperature: How to Measure

Getting an accurate measurement of your child's temperature takes practice. If you have questions about these instructions, ask your healthcare provider to show you how it's done. Then ask your provider to watch you do it.

### Where is the best place to put the thermometer?

A rectal (in the bottom) temperature or a temporal artery temperature are the most accurate. Temperatures measured by mouth, by electronic pacifier, or by ear are also accurate if done properly. Temperatures measured in the armpit are the least accurate, but they are better than no measurement. The best place to use the thermometer depends on the age of your child.

- For a baby less than 3 months old (90 days old):

A temporal artery or armpit temperature are best because they are safe and easy to do. If the armpit temperature is over 99°F (or 37.2°C), double check it with a rectal temperature. It is good to double check with a rectal temperature because if your baby has a true fever, you should see a healthcare provider immediately.

- For a child between 3 months and 4 or 5 years old:

A rectal, temporal artery, or electronic pacifier thermometer are best. Using an ear thermometer is fine after 6 months old if the user understands the technique. An armpit temperature is fine for a quick check if done correctly.

- For a child older than 4 or 5 years old:

Take the temperature by mouth (orally), or use a temporal artery or ear thermometer.

### How to Take a Rectal Temperature

1. If you are using a digital thermometer, turn it on.
2. Have your child lie stomach down on your lap.
3. Before you insert the thermometer, put some water-based lubricating jelly on the end of the thermometer and on the opening of the bottom (anus).
4. Insert the thermometer gently into the bottom about 1 inch. If your child is younger than 6 months old, gently insert the thermometer only 1/4 to 1/2 inch. If you put the thermometer in just until the silver tip disappears, that is about 1/2 inch. Never try to force it past any resistance. Forcing could damage the bowel.
5. Hold your child still while the thermometer is in.
6. Take the thermometer out when you hear the correct signal (usually a series of beeps).

7. Read the temperature on the thermometer. If the rectal temperature is over 100.4°F (38°C), your child has a fever.

### **How to Take Armpit (Axillary) Temperatures**

1. Place the tip of the thermometer in a dry armpit.
2. Close the armpit by holding the elbow against the chest for 4 or 5 minutes. Do not remove it before 4 minutes have passed.
3. Remove the thermometer after you hear the signal (usually a series of beeps) and read the temperature on the screen.
4. Your child has a fever if the armpit temperature is over 99°F (37.2°C). If you're not sure if it is correct, check it by taking a rectal temperature.

### **How to Take Oral (Mouth) Temperatures**

1. Be sure your child has not had a cold or hot drink in the last 30 minutes.
2. If you are using a digital thermometer, turn it on.
3. Place the tip of the thermometer under one side of the tongue and toward the back. An accurate temperature depends on putting it in the right place. Ask your healthcare provider to show you where it should go.
4. Have your child hold the thermometer in place with his lips and fingers (not his teeth). He should breathe through his nose, keeping his mouth closed. If your child can't keep his mouth closed because his nose is blocked, suction out the nose.
5. Leave the digital thermometer in the mouth until you hear the correct signal (usually a series of beeps).
6. Read the temperature. Fever is an oral temperature over 99.5°F (37.5°C).

### **How to Take a Electronic Pacifier Temperature**

1. Have your child suck on the pacifier until the temperature stops changing and you hear a beep. This usually takes 3 to 4 minutes.
2. Read the temperature. Your child has a fever if the pacifier temperature is over 100°F (37.8°C).

### **How to Take an Ear Temperature**

1. If your child has been outdoors on a cold day, he needs to be inside for 15 minutes before taking the temperature. (Earwax, ear infections, and ear tubes, however, do not interfere with accurate readings.)
2. Pull the ear backward to straighten the ear canal.
3. Place the end of the thermometer into your child's ear canal and aim the probe toward the eye on the opposite side of the head. Then press the button.

4. In about 2 seconds you can read the temperature.
5. Your child has a fever if the ear temperature is over 100.4°F (38°C).

### **How to Take a Temporal Artery Temperature**

1. The thermometer reads the infrared heat waves released by the temporal artery which runs across the forehead just below the skin.
2. Place the sensor head at the center of the forehead midway between the eyebrow and the hairline.
3. To scan for your child's temperature, depress the scan button and keep it depressed.
4. Slowly slide the TA thermometer straight across the forehead toward the top of the ear keeping in contact with the skin.
5. Stop when you reach the hairline and release the scan button.
6. Remove the thermometer from the skin and read your child's temperature on the display screen.

### **Types of Thermometers**

#### **1. Glass (with mercury) thermometers**

The American Academy of Pediatrics urges parents not to use glass mercury thermometers due to safety issues with mercury and broken glass. They measure temperatures slowly and are often hard to read. If you still have one of these thermometers, ask your healthcare provider how to dispose of it.

#### **2. Digital electronic thermometers**

Digital electronic thermometers measure temperatures with a heat sensor and require a button battery. They measure temperatures 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 rectal, armpit, and oral temperatures.

Digital thermometers come in many sizes and shapes. You can get them at most supermarkets and pharmacies, and they are available in a range of prices.

#### **3. 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 biggest advantage of this thermometer is that it measures temperatures in less than 2 seconds. It also does not require cooperation by the child and does not cause any discomfort. Ear thermometers for use at home have been developed and they cost \$30 to \$40. The American Academy of Pediatrics (AAP) advises against using electronic ear

thermometers for infants younger than 3 months because their ear canals are usually too small.

#### 4. **Temporal artery thermometers**

These infrared thermometers read the temperature of the blood within the temporal artery. A temporal artery crosses the forehead on each side of the head. The readings are more accurate than ear temperatures. Their main advantage is that the temperature can be taken in seconds and without awakening the child. The disadvantage is that they cost more than any other thermometer, about \$60. Newer research suggests they are accurate in younger infants.

#### 5. **Digital electronic pacifier thermometers**

The new electronic pacifier thermometers have a heat sensor and are powered by a button battery. These pacifiers let you measure oral temperature in younger children. To get an accurate reading, the child needs to keep the pacifier in the mouth for 3 minutes without moving. This is very difficult for most babies and toddlers.

#### 6. **Temperature strips**

Liquid crystal strips put on the forehead have been studied and have been found to be inaccurate. They do not detect an elevated temperature in most children with fever. Touching the forehead is somewhat reliable for detecting fevers over 102°F (38.9°C) but tends to miss mild fevers.

### **Conversion of Degrees Fahrenheit (F) to Degrees Celsius (C)**

Temperatures can be measured in degrees Fahrenheit (F) or degrees Celsius (C). The table below shows the temperatures in degrees Celsius that are equivalent to temperatures measured in degrees Fahrenheit:

95	degrees F	=	35	degrees C
96.8	degrees F	=	36	degrees C
98.6	degrees F	=	37	degrees C
99	degrees F	=	37.2	degrees C
99.5	degrees F	=	37.5	degrees C
99	degrees F	=	37.2	degrees C
100	degrees F	=	37.8	degrees C
100.4	degrees F	=	38	degrees C
101	degrees F	=	38.3	degrees C
102	degrees F	=	38.9	degrees C
103	degrees F	=	39.5	degrees C
104	degrees F	=	40	degrees C
105	degrees F	=	40.6	degrees C
106	degrees F	=	41.1	degrees C
107	degrees F	=	41.7	degrees C
108	degrees F	=	42.2	degrees C