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Fever in Children (High Temperature)

A fever occurs when your child's body temperature is higher than normal. Normal body temperature varies a little, but a temperature above 38°C is considered a fever.

Why does it happen?

Fever in young children usually means that they have an underlying infection. This understandably worries parents and carers.

- Most fevers in young children over 6 months of age are not serious.
- Fever in children aged 3-6 months has a higher chance of being serious. You should seek medical advice if the temperature is 39°C or more.
- Fever in a baby aged less than 3 months is unusual and worrying. You should seek medical advice if the temperature is 38°C or more.

When young children have a fever, it can be difficult for parents to work out why. In most cases, the fever is due to a non-serious viral infection. Many viral infections that affect young children cause a fever of up to 48 hours in duration before other symptoms develop. A small number of common viruses cause fevers that last longer than this.

Why do children get fevers?

The most common causes of fever in children in the UK are viral infections. There are many other uncommon causes.

Our normal body temperature is around 37°C. Our temperature can go up and down a little, around this figure, during the day. Children's temperatures can easily rise slightly with things like hot baths, exercise and wearing overly warm clothes. Teething often increases a toddler's temperature by 0.5°C.

Fever is a part of the body's natural defences against infection. Fever is created by your immune system under the direction of a part of the brain called the hypothalamus. The hypothalamus acts like a central heating thermostat. Fever happens when the hypothalamus sets the body temperature above its normal level.

It does this in response to an infection with germs, usually because it detects the presence of infectious agents like bacteria or viruses. It is believed that the increased temperature is a protection the body has developed to help fight the germs that cause infections, as they tend to multiply best at normal body temperature.

How does the body create a fever?

The mechanism through which the body increases its temperature is by reducing heat loss. We sweat less and feel dry to the touch, we shiver (the movement tends to increase temperature) and, because we feel as though we are cold, we curl up and seek different ways of warming up. The blood vessels in our skin shrink to preserve heat loss, so we look pale.

All of this is why, as the temperature is rising to meet the directions of the thermostat, we are hot to the touch but we feel that we are cold. During this stage of a fever your child will not be pleased when you try to cool them down, as they will already feel as though they are cold.

Eventually, the body's temperature reaches the new 'thermostat' setting, and the feeling of being cold goes away. Eventually it reverses, the thermostat setting drops down again towards normal, and the body tries to lose the extra heat it has on board. It does this by sweating and by opening up the blood vessels in the skin so that we are flushed and sweaty.

Children tend to get higher fevers than adults - although this is only true after the age of 6 months. Before that age the immune system of a baby is quite immature. After the age of 6 months the actual temperature, in a fever, is not a good guide to whether or not your child is seriously unwell.

What can cause a fever/high temperature?

The most common causes of fever in children in the UK are viral infections. There are many other uncommon causes. Some of these will show other obvious signs:

- **Infections with germs called viruses** are the most common cause. Viral infections cause many common illnesses such as [colds](#), [coughs](#), [flu](#), [diarrhoea](#), etc. Sometimes viral infections cause more serious illnesses.

- **Infections with germs called bacteria** are less common than viral infections but also cause fevers. Bacteria are more likely to cause serious illness such as [pneumonia](#), joint infections ([septic arthritis](#)), urine infections, [kidney infections](#), [septicaemia and meningitis](#). However, bacteria can also cause fever in less serious infections such as ear infections and infected skin rashes.
- **Inflammatory conditions and reactions** may cause fever, including [Kawasaki disease](#), some types of arthritis, and reactions to some medicines.
- **Immunisations**: sometimes children develop a fever after an immunisation. This is because immunisations are generally designed to 'trick' the body's immune system into thinking it sees an infection, so that it develops immunity. Fevers following immunisation are not usually high or prolonged.
- **Other types of infection**: these include 'tropical' infections such as [malaria](#) and dengue, and conditions which are more common outside the UK, such as [tuberculosis](#).
- **Heat stroke** is a possible cause of raised body temperature, although technically this isn't a fever, as the body is being heated from the outside (whereas in fever the body does the heating itself).

Always inform your doctor if your child develops an unexplained fever within six months of visiting an area where malaria is present (endemic). This is the case even if your child has taken antimalarial medication.

How common is fever in children?

Fever and feverish illness are very common in young children, particularly in those aged less than 5 years, and it can be really worrying for parents. It's not always easy to judge how sick your child is, or whether you should ask for medical help.

Three to four out of every 10 parents of children aged less than 5 years say their child has had a fever in the past year. It is probably the most common reason for a child to be taken to the doctor. Fever is also the second most common reason for a child being admitted to hospital and it can be a cause of great anxiety in parents. This leaflet offers guidance with:

- Understanding how best to manage a fever.
- Knowing when to seek professional help or advice.
- Knowing what signs suggest that your child may be seriously unwell, including how to check for signs of lack of fluid in the body (dehydration) and other signs of serious illness.

Whether or not you decide to seek help or advice, you should always give a child with a temperature lots to drink. It is not always necessary to give them paracetamol or ibuprofen.

How should I measure my child's temperature?

Forehead strip thermometers are not very accurate. Ideally you should use one of the following to measure your child's temperature:

- Under 4 weeks old, with an electronic thermometer in the armpit.
- Between 4 weeks and 5 years old:
 - With an electronic thermometer in the armpit.
 - With a chemical dot thermometer in the armpit.
 - With a digital thermometer designed to be placed in the ear.

What are the symptoms of fever?

The actual level of the temperature in fever is not a good guide to how severely ill a child is once they are **older than 6 months**.

The central symptom of a fever is a raised body temperature, measuring above 37.5°C. The recommendation is that this measurement should be taken under the arm in children less than 5 years old. This gives a reasonable guide to the body's 'core' temperature.

Fever associated with common, self-limiting viral infections such as a cold typically rises and falls over a total of 12-48 hours. Children often complain of feeling cold at the start of a fever. They may look pale and feel shivery, yet will feel hot and dry to the touch. Later they often say they feel hot, and will be sweaty and flushed.

Headache and tummy ache are very common at the same time as fever. Children may be listless, tired and miserable and they may have watery eyes. They may have swollen glands in the neck, under the arms and in the tummy. Drooling may suggest that they have a sore throat, and they feel sick and may be off their food.

What is a febrile convulsion?

Some children have a tendency to febrile convulsions. This is a type of seizure triggered by a rapid rise in body temperature. Some children have only one febrile convulsion, ever, but others go on to have them more often. [See the separate leaflet called Febrile Seizure \(Febrile Convulsion\)](#).

Febrile convulsions, and seizures due to infections such as meningitis, can look very similar. If a child has a seizure for the first time, it is important to rule out serious conditions such as meningitis before deciding it is a febrile convulsion.

When does a fever indicate serious illness?

All the symptoms associated with harmless viral fevers can also occur in more serious illness. It can be difficult to determine whether or not your child's fever symptoms should worry you. You know your child better than anyone else. If your child has a fever with symptoms that are unlike those they have had with fevers in the past, consider the possibility of more serious illness.

There are some features of a fever which will help you assess whether you need to seek medical advice:

Features of a fever that help reassure you that your child is not seriously unwell

These include that your child:

- Has normal-coloured skin, lips or tongue.
- Responds to you normally.
- Is basically content and will smile.
- Stays awake or awakens quickly and easily when you wake them.
- Has a strong normal cry, or is not crying.
- Has moist lips and tongue.

Features of a fever that suggest your child may be more unwell

- Your child is aged 3-6 months and has a temperature of over 39°C.
- Pale skin, lips or tongue.
- Not responding normally to you.
- Not smiling.
- Wakes only with prolonged effort by you.
- Not wanting to do anything; inactive.
- Dry mouth and lips.
- Poor feeding in babies.
- Reduced wet nappies in babies.
- Attacks of shivering.
- Has had a fever for five days or more.
- Has swelling of a limb or joint.
- Isn't using an arm or leg or isn't able to put any weight on one leg.

Features of a fever that suggest your child is seriously unwell

- Your child is less than 3 months of age and has a temperature of over 38°C.
- Pale/mottled/ashen/blue skin, lips or tongue.
- No response to you.
- Does not wake, or if you wake them, does not stay awake.
- Weak, high-pitched or continuous cry.
- Grunting noises when breathing.
- Indrawing of the muscles between the ribs when breathing (this is particularly true in babies).
- Reduced skin turgor (when you very gently pinch the skin on the back of the hand between your fingers, it does not bounce back but keeps the pinched shape).
- Bulging fontanelle (the 'soft spot' on the top of the head of babies up to about 18 months of age).
- Sunken fontanelle - suggests lack of fluid in the body (dehydration).
- A rash that doesn't fade when you press a glass against it.
- Neck stiffness.
- Seizures.
- A bulging fontanelle (the soft spot on the top of a baby's head).

Features that suggest your child is dehydrated

Some children who become irritable with a fever do not drink as much as they need, often because they feel sick (nauseated) and things taste strange. In particular, dehydration can develop quickly in a child who is being sick (vomiting) or has diarrhoea. Once dehydration sets in, nausea and vomiting can get worse, which can be a vicious cycle that is hard to break.

Signs of dehydration

These include:

- Dry mouth or tongue.
- No tears when crying.
- Sunken appearance to eyes.
- Drowsiness.
- Cool hands and feet.
- Generally becoming more unwell.
- Reduced skin elasticity, or turgor (when you very gently pinch the skin on the back of the hand between your fingers, it does not bounce back but keeps the pinched shape).
- Babies stop passing urine (although this can be difficult to detect if they also have diarrhoea), and the soft spot (on the top of the head) may become sunken in. Small babies can become dehydrated very quickly.

Seek medical advice if you suspect that your child is becoming dehydrated.

What do meningitis and septicaemia look like?

Two of the most serious infections are [meningitis](#) and blood infection ([septicaemia](#)). These are uncommon; the vast majority of children with a fever do not have these infections.

The symptoms often develop quickly, over a few hours or so, or more slowly, over a few days. The symptoms may suggest a less serious illness at first, such as flu. But, even if you think it was flu to start with, if symptoms become worse and your child seems really sick you should seek urgent medical advice.

Meningitis and septicaemia are always medical emergencies, so it is essential to know what signs to look out for. See the separate leaflets called [Meningitis symptoms checklist](#) and [Child Sepsis Safety Net](#) for more details.

When should we go to the doctor?

The National Institute for Health and Care Excellence (NICE) has produced guidelines aimed to help healthcare professionals assess children with fever. These can also be useful to parents. They look at the symptoms seen in children with fever and allocate them to categories of 'green', 'amber' and 'red'. They are shown in the table below.

Green symptoms are reassuring. They mean that your child's symptoms suggest they are at low risk of serious illness.

Amber symptoms suggest that you need a doctor's advice. They suggest that your child might be at slightly increased risk of more serious illness.

Red symptoms suggest that you need urgent medical advice. They suggest that your child's symptoms could indicate a serious illness, needing emergency help.

Not all possible symptoms are included in the guidance - for instance, tummy (abdominal) pain is not mentioned and, unless it is mild, it usually does need assessing by a doctor.

Some of the guidance concerns the kind of symptoms which a trained healthcare professional is expected to assess but which you may feel uncomfortable trying to measure, such as number of breaths per minute (respiratory rate) and heart rate (which usually needs a stethoscope for accurate assessment in a small child). They are included here for completeness: **if ANY red or amber signs are present you should seek help or advice; you do not need all of them to be present in order to do so.**

Green/amber/red symptoms in fever in children aged below 5 years			
	Green Low risk	Amber Medium risk	Red High risk
Colour	Normal colour	Pale	Very pale, mottled or blue.
Activity	Responds normally to you. Content/smiles. Stays awake or awakens quickly. Strong normal cry/not crying.	Not responding normally to you. No smile. Wakes only with a lot of stimulation. Decreased activity, listless.	No response to you. Does not wake or if roused does not stay awake. Weak, high-pitched or continuous cry.
Breathing		Increased breathing rate (>40 breaths per minute aged over 12 months, >50 breaths per minute aged 6-12 months). Flaring of the nostrils when they breathe.	Grunting. Respiratory rate >60 breaths per minute. Chest indrawing between ribs when breathing in.
Circulation	Moist tongue and lips, normal eyes.	Dry tongue and lips. Poor feeding (babies). Not producing wet nappies/needling to pass urine. Fast heart rate ('normal' varies with age, and rate is difficult to judge without a stethoscope: your doctor will check this).	Reduced skin elasticity.
Other	No red or amber signs.	Age 3-6 months, temperature $\geq 39^{\circ}\text{C}$. Fever for ≥ 5 days. Rigors (repeated episodes of alternating shivering bouts then sweating, as temperature repeatedly goes up and down). Swelling of a limb or joint. Non-weight-bearing limb/not using an extremity.	Age <3 months, temperature $\geq 38^{\circ}\text{C}$. Non-blanching rash. Bulging fontanelle. Neck stiffness. Unusual seizures or fits.

How do you diagnose the cause of a fever?

If your child has no 'amber' or 'red' warning signs, and they have other symptoms such as runny nose or sneezing suggesting a simple viral infection, their temperature will usually come down fairly quickly. In these cases, you can usually assume they have a simple cold.

If you telephone your GP or out of hours service, the healthcare professional will try to work out why your child has a fever. This will usually include asking about your child's health and symptoms.

Your child may need to be examined (a 'face-to-face' consultation). In this case it is most likely that your child's temperature, pulse and breathing will be checked. Your child will be checked for lack of fluid in the body (dehydration) and their blood pressure may be taken. A urine sample may be tested. Rarely, an ambulance may be called. This does not necessarily mean your child is very ill, only that they need to be assessed quickly in hospital.

It may be decided that you can carry on looking after your child at home; you may be given a number to contact if you need more advice or you may be asked to take the child for a check-up the next day.

What further tests are possible?

Often, the healthcare professional who assesses your child will decide that no further tests are necessary. This is usually because there are no worrying signs in your child's condition and your doctor or nurse feels able to diagnose the infection, based on their training and experience.

Occasionally, however, they are uncertain.

- This may be because your child has some of the 'amber' or 'red' warning signs.
- It may be because a specific, worrying infection such as meningitis is in the community, and your doctor thinks that your child could be affected.
- It may be because your doctor or nurse feels unsure about the diagnosis and thinks that a second opinion and further tests are needed.

If this is the case you may be asked to go to the paediatric ward or Accident and Emergency department. If your child is very unwell an ambulance will be called. However, if that is not the case, and you are able, you may be asked to make your way there by car.

On the ward your child is likely to have several tests done. These will vary, depending on how your child appears and on what the doctors find when they assess and examine your child. They may include:

- Blood tests
- Urine tests
- Swabs
- Sputum samples
- X-rays
- Ultrasound scan
- Lumbar puncture

You may be discharged home from the hospital after this or, if doctors are still not certain that your child is at very low risk of a more serious condition, your child may be kept for observation or treatment.

What can I do if my child has a fever/high temperature?

You do not need to use paracetamol and ibuprofen if your child is comfortable and not distressed by the fever, aches or pains.

A child with a fever may look flushed and irritable and they may not feel like doing very much.

- Make your child comfortable - details below.
- Check for signs of lack of fluid in the body (dehydration).
- Check for signs of serious infection.
- Keep your child off school or nursery until they are better.

In most bouts of fever that are not caused by serious illness, the temperature generally comes down quickly. It is not unusual to see a child play happily after an hour or so, when their temperature has come down and they have had a good drink. It is reassuring if a child improves with the drop in temperature.

At any age, a child with a serious infection usually gets worse despite efforts to bring their temperature down. In addition, they may have other worrying symptoms. For example, breathing problems, drowsiness, convulsions, pains, or headaches which become worse. But - use your instincts. If you think a child is getting worse, get medical help, even if they don't quite fit the 'rules' described here. **Note:** you should check on your child 2-3 times in the night if they have a fever, to make sure they are not developing a serious infection.

[See the separate article called Fever treatment for children: a doctor's advice.](#)

How do I manage a fever?

The important things are to try to keep your child calm, reassured and comfortable.

- **Give lots to drink.** This helps to prevent a lack of fluid in the body (dehydration). You might find that a child is more willing to have a drink if they are not so irritable. So, if they are not keen to drink, it may help to give some paracetamol first. Then, try the child with drinks half an hour or so later. Fever caused by any illness may contribute to dehydration. This happens through evaporation of moisture from the skin as the body tries to cool itself, and through sweating.
- **Cooling** an over-warm room may be helpful.
- **Tepid sponging is not recommended** for treatment of fever. This is because the blood vessels under the skin become narrower (constrict) if the water is too cold. This reduces heat loss and can trap heat in deeper parts of the body. The child may then get worse. Many children also find cold-sponging uncomfortable.
- **Cold fans are not recommended**, for the same reasons, although cooling an over-warm room with adequate ventilation is sensible.
- Children with fever **should not be underdressed or over-wrapped.**
- **Medicines** like paracetamol and ibuprofen should not be used for fever unless your child appears distressed. If they are not distressed it is better to let the fever do its job and run its course:
 - Using paracetamol and ibuprofen does not prevent febrile convulsions and should not be used for this purpose alone.
 - You can use either paracetamol or ibuprofen in children with fever who appear distressed.
 - You should not use both at the same time.
 - Some studies have shown that ibuprofen may increase the risk of developing serious skin infections when used in chickenpox. Therefore, paracetamol is usually recommended in chickenpox and ibuprofen should not be used.
 - Ibuprofen should not be used if your child is dehydrated because studies have shown that this can increase the risk of kidney failure.

When using paracetamol or ibuprofen in children with fever

- Continue for as long as the child appears distressed.
- Consider changing to the other medicine if the child's distress is not relieved by the first.
- Only consider alternating these two medicines if the distress persists or comes back before the next dose is due.
- Do not give both at the same time.

You can buy paracetamol and ibuprofen in liquid form, or melt-in-the-mouth tablets, for children. The dose for each age is given with the medicine packet.

Remember: paracetamol and ibuprofen do not treat the cause of the fever - they merely help to ease discomfort. They also ease headaches and aches and pains. You do not need to use these medicines if your child is comfortable and not distressed by the fever, aches or pains.

Do not use ibuprofen for:

- Children known to react (have hypersensitivity) to ibuprofen.
- Children in whom attacks of asthma have been triggered by ibuprofen or similar medicines.
- Children who have chickenpox.
- Children who are dehydrated.

Dr Mary Lowth is an author or the original author of this leaflet.

Further reading & references

- [Fever in under 5s: assessment and initial management](#); NICE Guidance (last updated November 2021)
- [Feverish child - risk assessment](#); NICE CKS, November 2018 (UK access only)
- [Thompson M, Van den Bruel A, Verbakel J, et al; Systematic review and validation of prediction rules for identifying children Health Technol Assess. 2012 Mar;16\(15\):1-100.](#)

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