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2 **NATIONAL INSTITUTE FOR HEALTH AND CARE**
3 **EXCELLENCE**

4 # Guideline

5 # Fever in under 5s: assessment and initial
6 # management

7 ## Draft for consultation, August 2019

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This guideline covers the assessment and early management of fever with no obvious cause in children aged under 5. It aims to improve clinical assessment and help healthcare professionals diagnose serious illness among young children who present with fever in primary and secondary care.

Who is it for?

- Healthcare professionals
- Parents and carers of children under 5 with feverish illness.

This guideline will update NICE guideline CG160 (published May 2013).

This guideline should be read in conjunction with NICE's guidelines on:

- Bacterial meningitis and meningococcal septicaemia in under 16s
- Urinary tract infection in under 16s
- Antimicrobial prescribing for common infections
- Diarrhoea and vomiting in children under 5.

We have reviewed the evidence on assessment for Kawasaki disease. You are invited to comment on the new and updated recommendations. These are marked as **[2019]**.

You are also invited to comment on recommendations that NICE proposes to delete from the **[2013]** guideline.

We have not reviewed the evidence for the recommendations shaded in grey, and cannot accept comments on them. In some cases, we have made minor wording changes for clarification.

See update information for a full explanation of what is being updated.

This draft guideline contains:

- the draft recommendations
- recommendations for research
- rationale and impact sections that explain why the committee made the **[2019]** recommendations and how they might affect practice
- the guideline context.

Information about how the guideline was developed is on the guideline's page on the NICE website. This includes the evidence reviews, the scope, and details of the committee and any declarations of interest.

Full details of the evidence and the committee's discussion on the **[2019]** recommendations are in the evidence reviews. Evidence for the **[2013]** recommendations is in the full version of the 2013 guideline.

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1 Recommendations

People have the right to be involved in discussions and make informed decisions about their care, as described in your care.

Making decisions using NICE guidelines explains how we use words to show the strength (or certainty) of our recommendations, and has information about prescribing medicines (including off-label use), professional guidelines, standards and laws (including on consent and mental capacity), and safeguarding.

1.1 Thermometers and the detection of fever

Oral and rectal temperature measurements

1.1.1 Do not routinely use the oral and rectal routes to measure the body temperature of children aged 0–5 years. **[2007]**

Measurement of body temperature at other sites

1.1.2 In infants under the age of 4 weeks, measure body temperature with an electronic thermometer in the axilla. **[2007]**

1.1.3 In children aged 4 weeks to 5 years, measure body temperature by one of the following methods:

- electronic thermometer in the axilla
- chemical dot thermometer in the axilla
- infra-red tympanic thermometer. **[2007]**

1.1.4 Healthcare professionals who routinely use disposable chemical dot thermometers should consider using an alternative type of thermometer when multiple temperature measurements are required. **[2007]**

1.1.5 Forehead chemical thermometers are unreliable and should not be used by healthcare professionals. **[2007]**

Subjective detection of fever by parents and carers

1.1.6 Reported parental perception of a fever should be considered valid and taken seriously by healthcare professionals. **[2007]**

1.2 Clinical assessment of children with fever

Life-threatening features of illness in children

1.2.1 First, healthcare professionals should identify any immediately life-threatening features, including compromise of the airway, breathing or circulation, and decreased level of consciousness. **[2007]**

1.2.2 Think "Could this be sepsis?" and refer to the NICE guideline on sepsis: recognition, diagnosis and early management if a child presents with fever and symptoms or signs that indicate possible sepsis. **[2017]**

Assessment of risk of serious illness

1.2.3 Assess children with feverish illness for the presence or absence of symptoms and signs that can be used to predict the risk of serious illness using the traffic light system (see table 1). **[2013]**

1.2.4 When assessing children with learning disabilities, take the individual child's learning disability into account when interpreting the traffic light table. **[2013]**

1.2.5 Recognise that children with any of the following symptoms or signs are in a high-risk group for serious illness:

- pale/mottled/ashen/blue skin, lips or tongue
- no response to social cues[1]
- appearing ill to a healthcare professional
- does not wake or if roused does not stay awake
- weak, high-pitched or continuous cry
- grunting

[1] A child's response to social interaction with a parent or healthcare professional, such as response to their name, smiling and/or giggling.

- respiratory rate greater than 60 breaths per minute
- moderate or severe chest indrawing
- reduced skin turgor
- bulging fontanelle. **[2013]**

1.2.6 Recognise that children with any of the following symptoms or signs are in at least an intermediate-risk group for serious illness:

- pallor of skin, lips or tongue reported by parent or carer
- not responding normally to social cues[1]
- no smile
- wakes only with prolonged stimulation
- decreased activity
- nasal flaring
- dry mucous membranes
- poor feeding in infants
- reduced urine output
- rigors. **[2013]**

1.2.7 Recognise that children who have all of the following features, and none of the high- or intermediate-risk features, are in a low-risk group for serious illness:

- normal colour of skin, lips and tongue
- responds normally to social cues[1]
- content/smiles
- stays awake or awakens quickly
- strong normal cry or not crying
- normal skin and eyes
- moist mucous membranes. **[2013]**

1.2.8 Measure and record temperature, heart rate, respiratory rate and capillary refill time as part of the routine assessment of a child with fever. **[2007]**

1.2.9 Recognise that a capillary refill time of 3 seconds or longer is an intermediate-risk group marker for serious illness ('amber' sign). **[2013]**

1.2.10 Measure the blood pressure of children with fever if the heart rate or capillary refill time is abnormal and the facilities to measure blood pressure are available. **[2007]**

1.2.11 In children older than 6 months do not use height of body temperature alone to identify those with serious illness. **[2013]**

1.2.12 Recognise that children younger than 3 months with a temperature of 38°C or higher are in a high-risk group for serious illness[2]. **[2013]**

1.2.13 Recognise that children aged 3–6 months with a temperature of 39°C or higher are in at least an intermediate-risk group for serious illness. **[2013]**

1.2.14 Do not use duration of fever to predict the likelihood of serious illness. However, children with a fever lasting 5 days or longer should be assessed for Kawasaki disease (see recommendation 1.2.26). **[2013, amended 2019]**

1.2.15 Recognise that children with tachycardia are in at least an intermediate-risk group for serious illness. Use the Advanced Paediatric Life Support (APLS)[3] criteria below to define tachycardia: **[2013]**

Age	Heart rate (bpm)
<12 months	>160
12–24 months	>150
2–5 years	>140

1.2.16 Assess children with fever for signs of dehydration. Look for:

- prolonged capillary refill time
- abnormal skin turgor

[2] Some vaccinations have been found to induce fever in children aged under 3 months.
[3] Advanced Life Support Group (2004) Advanced paediatric life support: the practical approach (4th edn). Wiley-Blackwell.

- abnormal respiratory pattern
- weak pulse
- cool extremities. **[2007]**

Symptoms and signs of specific illnesses

1.2.17 Look for a source of fever and check for the presence of symptoms and signs that are associated with specific diseases (see table 2). **[2007]**

Meningococcal disease and bacterial meningitis

Also see NICE's guideline on bacterial meningitis and meningococcal septicaemia in under 16s.

1.2.18 Consider meningococcal disease in any child with fever and a non-blanching rash, particularly if any of the following features are present:

- an ill-looking child
- lesions larger than 2 mm in diameter (purpura)
- a capillary refill time of 3 seconds or longer
- neck stiffness. **[2007]**

1.2.19 Consider bacterial meningitis in a child with fever and any of the following features:

- neck stiffness
- bulging fontanelle
- decreased level of consciousness
- convulsive status epilepticus. **[2007, amended 2013]**

1.2.20 Be aware that classic signs of meningitis (neck stiffness, bulging fontanelle, high-pitched cry) are often absent in infants with bacterial meningitis. **[2007]**

Herpes simplex encephalitis

1.2.21 Consider herpes simplex encephalitis in children with fever and any of the following features:

- focal neurological signs
- focal seizures
- decreased level of consciousness. **[2007]**

Pneumonia

1.2.22 Consider pneumonia in children with fever and any of the following signs:

- tachypnoea (respiratory rate greater than 60 breaths per minute, age 0–5 months; greater than 50 breaths per minute, age 6–12 months; greater than 40 breaths per minute, age older than 12 months)
- crackles in the chest
- nasal flaring
- chest indrawing
- cyanosis
- oxygen saturation of 95% or less when breathing air. **[2007]**

Urinary tract infection

Also see NICE's guideline on urinary tract infection in under 16s.

1.2.23 Consider urinary tract infection in any child younger than 3 months with fever. **[2007]**

1.2.24 Consider urinary tract infection in a child aged 3 months or older with fever and 1 or more of the following:

- vomiting
- poor feeding
- lethargy
- irritability
- abdominal pain or tenderness
- urinary frequency or dysuria. **[2013]**

Septic arthritis/osteomyelitis

1.2.25 Consider septic arthritis/osteomyelitis in children with fever and any of the following signs:

- swelling of a limb or joint
- not using an extremity
- non-weight bearing. **[2007]**

Kawasaki disease

1.2.26 Be aware of the possibility of Kawasaki disease in children with fever that has lasted 5 days or longer. Additional features of Kawasaki disease may include:

- bilateral conjunctival injection without exudate
- erythema and cracking of lips; strawberry tongue; or erythema of oral and pharyngeal mucosa
- oedema and erythema in the hands and feet
- polymorphous rash
- cervical lymphadenopathy. **[2019]**

1.2.27 Ask parents or carers about the presence of these features since the onset of fever, because they may have resolved by the time of assessment. **[2019]**

1.2.28 Be aware that children under 1 year may present with fewer clinical features of Kawasaki disease in addition to fever, but may be at higher risk of coronary artery abnormalities than older children. **[2019]**

> To find out why the committee made the 2019 recommendations on Kawasaki disease and how they might affect practice see rationale and impact.

Imported infections

1.2.29 When assessing a child with feverish illness, enquire about recent travel abroad and consider the possibility of imported infections according to the region visited. **[2007]**

Table 1 Traffic light system for identifying risk of serious illness

[2013]

Children with fever and **any** of the symptoms or signs in the red column should be recognised as being at high risk. Similarly, children with fever and any of the symptoms or signs in the amber column and none in the red column should be recognised as being at intermediate risk. Children with symptoms and signs in the green column and none in the amber or red columns are at low risk. The management of children with fever should be directed by the level of risk.

This traffic light table should be used in conjunction with the recommendations in this guideline on investigations and initial management in children with fever.

A colour version of this table is available.

	Green – low risk	Amber – intermediate risk	Red – high risk
Colour (of skin, lips or tongue)	• Normal colour	• Pallor reported by parent/carer	• Pale/mottled/ashen/ blue
Activity	• Responds normally to social cues • Content/smiles • Stays awake or awakens quickly • Strong normal cry/not crying	• Not responding normally to social cues • No smile • Wakes only with prolonged stimulation • Decreased activity	• No response to social cues • Appears ill to a healthcare professional • Does not wake or if roused does not stay awake • Weak, high-pitched or continuous cry
Respiratory		• Nasal flaring • Tachypnoea: respiratory rate – >50 breaths/minute, age 6–12 months; – >40 breaths/minute, age >12 months • Oxygen saturation ≤95% in air • Crackles in the chest	• Grunting • Tachypnoea: respiratory rate >60 breaths/minute • Moderate or severe chest indrawing
Circulation and hydration	• Normal skin and eyes • Moist mucous membranes	• Tachycardia: – >160 beats/minute, age <12 months – >150 beats/minute, age 12–24 months – >140 beats/minute, age 2–5 years • Capillary refill time ≥3 seconds • Dry mucous membranes • Poor feeding in infants • Reduced urine output	• Reduced skin turgor
Other	• None of the amber or red symptoms or signs	• Age 3–6 months, temperature ≥39°C • Fever for ≥5 days • Rigors • Swelling of a limb or joint • Non-weight bearing limb/not using an extremity	• Age <3 months, temperature ≥38°C* • Non-blanching rash • Bulging fontanelle • Neck stiffness • Status epilepticus • Focal neurological signs • Focal seizures
*Some vaccinations have been found to induce fever in children aged under 3 months			

Table 2 Summary table for symptoms and signs suggestive of specific diseases

1 **[2013]**

Diagnosis to be considered	Symptoms and signs in conjunction with fever
Meningococcal disease	Non-blanching rash, particularly with 1 or more of the following: • an ill-looking child • lesions larger than 2 mm in diameter (purpura) • capillary refill time of ≥3 seconds • neck stiffness
Bacterial meningitis	Neck stiffness Bulging fontanelle Decreased level of consciousness Convulsive status epilepticus
Herpes simplex encephalitis	Focal neurological signs Focal seizures Decreased level of consciousness
Pneumonia	Tachypnoea (respiratory rate >60 breaths/minute, age 0–5 months; >50 breaths/minute, age 6–12 months; >40 breaths/minute, age >12 months) Crackles in the chest Nasal flaring Chest indrawing Cyanosis Oxygen saturation ≤95%
Urinary tract infection	Vomiting Poor feeding Lethargy Irritability Abdominal pain or tenderness Urinary frequency or dysuria
Septic arthritis	Swelling of a limb or joint Not using an extremity Non-weight bearing
Kawasaki disease	Fever for 5 days or longer and may have some of the following: • bilateral conjunctival injection without exudate • erythema and cracking of lips; strawberry tongue; or erythema of oral and pharyngeal mucosa • oedema and erythema in the hands and feet • polymorphous rash • cervical lymphadenopathy

1.3 Management by remote assessment

Remote assessment refers to situations in which a child is assessed by a healthcare professional who is unable to examine the child because the child is geographically remote from the assessor (for example, telephone calls to NHS 111). Therefore, assessment is largely an interpretation of symptoms rather than physical signs. The guidance in this section may also apply to healthcare professionals whose scope of practice does not include the physical examination of a young child (for example, community pharmacists).

Management according to risk of serious illness

1.3.1 Healthcare professionals performing a remote assessment of a child with fever should seek to identify symptoms and signs of serious illness and specific diseases as described in section 1.2 and summarised in tables 1 and 2. **[2007]**

1.3.2 Children whose symptoms or combination of symptoms suggest an immediately life-threatening illness (see recommendation 1.2.1) should be referred immediately for emergency medical care by the most appropriate means of transport (usually 999 ambulance). **[2007]**

1.3.3 Children with any ‘red’ features but who are not considered to have an immediately life-threatening illness should be urgently assessed by a healthcare professional in a face-to-face setting within 2 hours. **[2007]**

1.3.4 Children with 'amber' but no 'red' features should be assessed by a healthcare professional in a face-to-face setting. The urgency of this assessment should be determined by the clinical judgement of the healthcare professional carrying out the remote assessment. **[2007]**

1.3.5 Children with ‘green’ features and none of the ‘amber’ or ‘red’ features can be cared for at home with appropriate advice for parents and carers, including advice on when to seek further attention from the healthcare services (see section 1.7). **[2007, amended 2013]**

1.4 Management by the non-paediatric practitioner

In this guideline, a non-paediatric practitioner is defined as a healthcare professional who has not had specific training or who does not have expertise in the assessment and treatment of children and their illnesses. This term includes healthcare professionals working in primary care, but it may also apply to many healthcare professionals in general emergency departments.

Clinical assessment

1.4.1 Management by a non-paediatric practitioner should start with a clinical assessment as described in section 1.2. Healthcare practitioners should attempt to identify symptoms and signs of serious illness and specific diseases as summarised in tables 1 and 2. **[2007]**

Management according to risk of serious illness

1.4.2 Children whose symptoms or combination of symptoms and signs suggest an immediately life-threatening illness (see recommendation 1.2.1) should be referred immediately for emergency medical care by the most appropriate means of transport (usually 999 ambulance). **[2007]**

1.4.3 Children with any 'red' features but who are not considered to have an immediately life-threatening illness should be referred urgently to the care of a paediatric specialist. **[2007]**

1.4.4 If any 'amber' features are present and no diagnosis has been reached, provide parents or carers with a 'safety net' or refer to specialist paediatric care for further assessment. The safety net should be 1 or more of the following:

- providing the parent or carer with verbal and/or written information on warning symptoms and how further healthcare can be accessed (see recommendation 1.7.2)
- arranging further follow-up at a specified time and place
- liaising with other healthcare professionals, including out-of-hours providers, to ensure direct access for the child if further assessment is required. **[2007]**

1.4.5 Children with 'green' features and none of the 'amber' or 'red' features can be cared for at home with appropriate advice for parents and carers, including advice on when to seek further attention from the healthcare services (see section 1.7). **[2007, amended 2013]**

Tests by the non-paediatric practitioner

1.4.6 Children with symptoms and signs suggesting pneumonia who are not admitted to hospital should not routinely have a chest X-ray. **[2007]**

1.4.7 Test urine in children with fever as recommended in NICE's guideline on urinary tract infection in under 16s. **[2007]**

1.4.8 When a child has been given antipyretics, do not rely on a decrease or lack of decrease in temperature to differentiate between serious and non-serious illness. **[2017]**

Use of antibiotics by the non-paediatric practitioner

1.4.9 Do not prescribe oral antibiotics to children with fever without apparent source. **[2007]**

1.4.10 Give parenteral antibiotics to children with suspected meningococcal disease at the earliest opportunity (either benzylpenicillin or a third-generation cephalosporin). See NICE's guideline on bacterial meningitis and meningococcal septicaemia in under 16s. **[2007]**

1.5 Management by the paediatric specialist

In this guideline, the term paediatric specialist refers to a healthcare professional who has had specific training or has recognised expertise in the assessment and treatment of children and their illnesses. Examples include paediatricians, or healthcare professionals working in children's emergency departments.

Children younger than 5 years

1.5.1 Management by the paediatric specialist should start with a clinical assessment as described in section 1.2. The healthcare professional should attempt to identify symptoms and signs of serious illness and specific diseases as summarised in tables 1 and 2. **[2007]**

Children younger than 3 months

1.5.2 Infants younger than 3 months with fever should be observed and have the following vital signs measured and recorded:

- temperature
- heart rate
- respiratory rate. **[2007]**

1.5.3 Perform the following investigations in infants younger than 3 months with fever:

- full blood count
- blood culture
- C-reactive protein
- urine testing for urinary tract infection (see NICE's guideline on urinary tract infection in under 16s)
- chest X-ray only if respiratory signs are present
- stool culture, if diarrhoea is present. **[2013]**

1.5.4 Perform lumbar puncture in the following children with fever (unless contraindicated):

- infants younger than 1 month
- all infants aged 1–3 months who appear unwell
- infants aged 1–3 months with a white blood cell count (WBC) less than 5×10^9/litre or greater than 15×10^9/litre. **[2007, amended 2013]**

1.5.5 When indicated, perform a lumbar puncture without delay and, whenever possible, before the administration of antibiotics. **[2007]**

1.5.6 Give parenteral antibiotics to:

- infants younger than 1 month with fever
- all infants aged 1–3 months with fever who appear unwell
- infants aged 1–3 months with WBC less than 5×10^9/litre or greater than 15×10^9/litre. **[2007, amended 2013]**

1.5.7 When parenteral antibiotics are indicated for infants younger than 3 months of age, a third-generation cephalosporin (for example cefotaxime or ceftriaxone) should be given plus an antibiotic active against listeria (for example, ampicillin or amoxicillin). **[2007]**

Children aged 3 months or older

1.5.8 Perform the following investigations in children with fever without apparent source who present to paediatric specialists with 1 or more 'red' features:

- full blood count
- blood culture
- C-reactive protein
- urine testing for urinary tract infection (see NICE's guideline on urinary tract infection in under 16s). **[2013]**

1.5.9 The following investigations should also be considered in children with 'red' features, as guided by the clinical assessment:

- lumbar puncture in children of all ages (if not contraindicated)
- chest X-ray irrespective of body temperature and WBC
- serum electrolytes and blood gas. **[2007]**

1.5.10 Children with fever without apparent source presenting to paediatric specialists who have 1 or more 'amber' features, should have the following investigations performed unless deemed unnecessary by an experienced paediatrician.

- urine should be collected and tested for urinary tract infection (see NICE's guideline on urinary tract infection in under 16s)
- blood tests: full blood count, C-reactive protein and blood cultures
- lumbar puncture should be considered for children younger than 1 year
- chest X-ray in a child with a fever greater than 39°C and WBC greater than 20×10^9/litre. **[2007]**

1.5.11 Children who have been referred to a paediatric specialist with fever without apparent source and who have no features of serious illness (that

is, the 'green' group), should have urine tested for urinary tract infection and be assessed for symptoms and signs of pneumonia (see table 2 and NICE's guideline on urinary tract infection in under 16s). **[2007]**

1.5.12 Do not routinely perform blood tests and chest X-rays in children with fever who have no features of serious illness (that is, the 'green' group). **[2007]**

Viral co-infection

1.5.13 Febrile children with proven respiratory syncytial virus or influenza infection should be assessed for features of serious illness. Consideration should be given to urine testing for urinary tract infection (see NICE's guideline on urinary tract infection in under 16s). **[2007]**

Observation in hospital

1.5.14 In children aged 3 months or older with fever without apparent source, a period of observation in hospital (with or without investigations) should be considered as part of the assessment to help differentiate non-serious from serious illness. **[2007]**

1.5.15 When a child has been given antipyretics, do not rely on a decrease or lack of decrease in temperature at 1–2 hours to differentiate between serious and non-serious illness. Nevertheless, in order to detect possible clinical deterioration, all children in hospital with 'amber' or 'red' features should still be reassessed after 1–2 hours. **[2013]**

Immediate treatment by the paediatric specialist (for children of all ages)

1.5.16 Children with fever and shock presenting to specialist paediatric care or an emergency department should be:

- given an immediate intravenous fluid bolus of 20 ml/kg; the initial fluid should normally be 0.9% sodium chloride
- actively monitored and given further fluid boluses as necessary. **[2007]**

1.5.17 Give immediate parenteral antibiotics to children with fever presenting to specialist paediatric care or an emergency department if they are:

- shocked
- unrousable
- showing signs of meningococcal disease. **[2007]**

1.5.18 Immediate parenteral antibiotics should be considered for children with fever and reduced levels of consciousness. In these cases symptoms and signs of meningitis and herpes simplex encephalitis should be sought (see table 2 and NICE's guideline on bacterial meningitis and meningococcal septicaemia in under 16s). **[2007]**

1.5.19 When parenteral antibiotics are indicated, a third-generation cephalosporin (for example, cefotaxime or ceftriaxone) should be given, until culture results are available. For children younger than 3 months, an antibiotic active against listeria (for example, ampicillin or amoxicillin) should also be given. **[2007]**

1.5.20 Give intravenous aciclovir to children with fever and symptoms and signs suggestive of herpes simplex encephalitis (see recommendation 1.2.21). **[2007]**

1.5.21 Oxygen should be given to children with fever who have signs of shock or oxygen saturation (SpO_2) of less than 92% when breathing air. Treatment with oxygen should also be considered for children with an SpO_2 of greater than 92%, as clinically indicated. **[2007]**

Causes and incidence of serious bacterial infection

1.5.22 In a child presenting to hospital with a fever and suspected serious bacterial infection, requiring immediate treatment, antibiotics should be directed against *Neisseria meningitidis*, *Streptococcus pneumoniae*, *Escherichia coli*, *Staphylococcus aureus* and *Haemophilus influenzae* type b. A third-generation cephalosporin (for example, cefotaxime or ceftriaxone) is appropriate, until culture results are available. For infants younger than 3 months, an antibiotic active against listeria (for example, ampicillin or amoxicillin) should be added. **[2007]**

1.5.23 Refer to local treatment guidelines when rates of bacterial antibiotic resistance are significant. **[2007]**

Admission to and discharge from hospital

1.5.24 In addition to the child's clinical condition, consider the following factors when deciding whether to admit a child with fever to hospital:

- social and family circumstances
- other illnesses that affect the child or other family members
- parental anxiety and instinct (based on their knowledge of their child)
- contacts with other people who have serious infectious diseases
- recent travel abroad to tropical/subtropical areas, or areas with a high risk of endemic infectious disease
- when the parent or carer's concern for their child's current illness has caused them to seek healthcare advice repeatedly
- where the family has experienced a previous serious illness or death due to feverish illness which has increased their anxiety levels
- when a feverish illness has no obvious cause, but the child remains ill longer than expected for a self-limiting illness. **[2007]**

1.5.25 If it is decided that a child does not need to be admitted to hospital, but no diagnosis has been reached, provide a safety net for parents and carers if any 'red' or 'amber' features are present. The safety net should be 1 or more of the following:

- providing the parent or carer with verbal and/or written information on warning symptoms and how further healthcare can be accessed (see recommendation 1.7.2)
- arranging further follow-up at a specified time and place
- liaising with other healthcare professionals, including out-of-hours providers, to ensure direct access for the child if further assessment is required. **[2007]**

1.5.26 Children with 'green' features and none of the 'amber' or 'red' features can be cared for at home with appropriate advice for parents and carers,

including advice on when to seek further attention from the healthcare services (see section 1.7). **[2007, amended 2013]**

Referral to paediatric intensive care

1.5.27 Children with fever who are shocked, unrousable or showing signs of meningococcal disease should be urgently reviewed by an experienced paediatrician and consideration given to referral to paediatric intensive care. **[2007]**

1.5.28 Give parenteral antibiotics to children with suspected meningococcal disease at the earliest opportunity (either benzylpenicillin or a third-generation cephalosporin). **[2007]**

1.5.29 Children admitted to hospital with meningococcal disease should be under paediatric care, supervised by a consultant and have their need for inotropes assessed. **[2007]**

1.6 Antipyretic interventions

Effects of body temperature reduction

1.6.1 Antipyretic agents do not prevent febrile convulsions and should not be used specifically for this purpose. **[2007]**

Physical interventions to reduce body temperature

1.6.2 Tepid sponging is not recommended for the treatment of fever. **[2007]**

1.6.3 Children with fever should not be underdressed or over-wrapped. **[2007]**

Drug interventions to reduce body temperature

1.6.4 Consider using either paracetamol or ibuprofen in children with fever who appear distressed. **[2013]**

1.6.5 Do not use antipyretic agents with the sole aim of reducing body temperature in children with fever. **[2013]**

1.6.6 When using paracetamol or ibuprofen in children with fever:

- continue only as long as the child appears distressed
- consider changing to the other agent if the child's distress is not alleviated
- do not give both agents simultaneously
- only consider alternating these agents if the distress persists or recurs before the next dose is due. **[2013]**

1.7 Advice for home care

Care at home

1.7.1 Advise parents or carers to manage their child's temperature as described in section 1.6. **[2007]**

1.7.2 Advise parents or carers looking after a feverish child at home:

- to offer the child regular fluids (where a baby or child is breastfed the most appropriate fluid is breast milk)
- how to detect signs of dehydration by looking for the following features:
  - sunken fontanelle
  - dry mouth
  - sunken eyes
  - absence of tears
  - poor overall appearance
- to encourage their child to drink more fluids and consider seeking further advice if they detect signs of dehydration
- how to identify a non-blanching rash
- to check their child during the night
- to keep their child away from nursery or school while the child's fever persists but to notify the school or nursery of the illness. **[2007]**

When to seek further help

1.7.3 Following contact with a healthcare professional, parents and carers who are looking after their feverish child at home should seek further advice if:

- the child has a fit
- the child develops a non-blanching rash
- the parent or carer feels that the child is less well than when they previously sought advice
- the parent or carer is more worried than when they previously sought advice
- the fever lasts 5 days or longer
- the parent or carer is distressed, or concerned that they are unable to look after their child. **[2007, amended 2019]**

Terms used in this guideline

This section defines terms that have been used in a particular way for this guideline. For other definitions see the NICE glossary.

Fever

For the purposes of this guideline, fever was defined as an elevation of body temperature above the normal daily variation.

Recommendations for research

The guideline committee has made the following recommendations for research. As part of the **[2019]** update, the guideline committee made an additional research recommendation on Kawasaki disease.

Key recommendations for research

1 Symptoms and signs of serious illness

The GDG recommends a UK-based epidemiological study on the symptoms and signs of serious illness. **[2013]**

2 Management by remote assessment

The GDG recommends that a UK study is undertaken to determine the validity of symptoms reported on remote assessment for children with fever. **[2007]**

3 Diagnosis

The GDG recommends that a UK study of the performance characteristics and cost-effectiveness of procalcitonin versus C-reactive protein in identifying serious bacterial infection in children with fever without apparent source be carried out. **[2007]**

4 Antipyretics

The GDG recommends that studies are conducted in primary care and secondary care to determine whether examination or re-examination after a dose of antipyretic medication is of benefit in differentiating children with serious illness from those with other conditions. **[2007]**

5 Home-based antipyretic use

The GDG recommends studies on home-based antipyretic use and parental perception of distress caused by fever. **[2013]**

Other recommendations for research

Thermometers and the detection of fever

Measuring temperature in young babies: tympanic versus axilla electronic versus axilla chemical dot versus temporal artery. **[2007]**

Management according to risk of serious illness

The GDG recommends that research is carried out on referral patterns between primary and secondary care for children with fever, so the health economic impact of this and future guidelines can be estimated. **[2007]**

Signs and symptoms of Kawasaki disease

Which signs and symptoms (or combinations of signs and symptoms) predict a diagnosis of Kawasaki disease in children under 5 presenting with fever lasting 5 days or more? **[2019]**

Rationale and impact

These sections briefly explain why the committee made the recommendations and how they might affect practice. They link to details of the evidence and a full description of the committee's discussion.

Kawasaki disease

Recommendations 1.2.26 to 1.2.28

Why the committee made the recommendations

Prompt diagnosis and treatment of Kawasaki disease can prevent long-term cardiac complications. The 2013 version of the NICE guideline recommended that Kawasaki disease should be considered when children had a fever lasting 5 days and 4 of the 5 principal features specified by the American Heart Association diagnostic criteria. However, the evidence from case-series suggested that often fewer than 4 features are present early in the course of the illness, and some children may have 'incomplete' Kawasaki disease, in which fewer than 4 features are present throughout the course of the illness. Because of this, clinicians should think about Kawasaki disease in all children who have a fever lasting 5 days or longer, even when no additional features are present, and should be aware of the principal features of Kawasaki disease that would increase the probability of a Kawasaki disease diagnosis.

Based on the experience of the committee, features of Kawasaki disease may appear and disappear through the course of the illness, so it is important to ask parents and carers about and document these features to reach the correct diagnosis.

The evidence also showed that some of the principal features of Kawasaki disease are less common in children under 1 year. This was consistent with the committee's experience that incomplete Kawasaki disease is more common in this age group, so they wanted clinicians to be aware of this when thinking about Kawasaki disease as a possible diagnosis.

There is no existing evidence on how accurate most signs or symptoms are at ruling in or out Kawasaki disease in a group of children with fever. The committee made a research recommendation for a diagnostic accuracy study in this area to allow more specific recommendations to be made when the guideline is updated.

How the recommendations might affect practice

The recommendations should prompt clinicians to think about Kawasaki disease with fewer clinical features, which may result in more children being referred for assessment in secondary care. However, prompt identification and treatment of children with Kawasaki disease will reduce the number of children with long-term cardiac complications, which will reduce long-term costs for the NHS.

Full details of the evidence and the committee's discussion are in evidence review A: Signs and symptoms predicting Kawasaki disease.

Return to recommendations

Context

Feverish illness in young children usually indicates an underlying infection and is a cause of concern for parents and carers. Feverish illness is very common in young children, with between 20 and 40% of parents reporting such an illness each year. As a result, fever is probably the commonest reason for a child to be taken to the doctor. Feverish illness is also the second most common reason for a child being admitted to hospital. Despite advances in healthcare, infections remain the leading cause of death in children under the age of 5 years.

Fever in young children can be a diagnostic challenge for healthcare professionals because it is often difficult to identify the cause. In most cases, the illness is due to a self-limiting viral infection. However, fever may also be the presenting feature of serious bacterial infections such as meningitis or pneumonia. A significant number of children have no obvious cause of fever despite careful assessment. These children with fever without apparent source are of particular concern to healthcare professionals because it is especially difficult to distinguish between simple viral illnesses and life-threatening bacterial infections in this group. As a result, there is a

perceived need to improve the recognition, assessment and immediate treatment of feverish illnesses in children.

The introduction of new vaccination programmes in the UK may have significantly reduced the level of admissions to hospital resulting from diseases covered by this guideline. For example, early analysis of the pneumococcal vaccination programme in England shows that the incidence of pneumococcal-related disease has fallen 98% in children younger than 2 years since vaccination was introduced. However, evidence suggests a 68% increase in the prevalence of disease caused by subtypes of bacteria not covered by vaccination programmes. Also, potentially serious cases of feverish illness are likely to be rare, so it is important that information is in place to help healthcare professionals distinguish these from mild cases.

This guideline is designed to assist healthcare professionals in the initial assessment and immediate treatment of young children with fever presenting to primary or secondary care. The guideline should be followed until a clinical diagnosis of the underlying condition has been made. Once a diagnosis has been made, the child should be treated according to national or local guidance for that condition.

Parents or carers of a child with fever may approach a range of different healthcare professionals as their first point of contact, for example, a GP, a pharmacist or an emergency care practitioner. The training and experience of the healthcare professionals involved in the child's care will vary and each should interpret the guidance according to the scope of their own practice.

The guideline will assume that prescribers will use a drug's summary of product characteristics to inform decisions made with individual patients.

For information on groups that are included and excluded in this guideline see feverish illness in children: final scope.

Finding more information and resources

To find out what NICE has said on topics related to this guideline, see our web page on children and young people.

1 # Update information

2 **November 2019**

3 This guideline is an update of NICE CG160 (published May 2013) and will replace it.

4 We have reviewed the evidence on assessment for Kawasaki disease.
5 Recommendations are marked **[2019]** if the evidence has been reviewed.

6 ## *Recommendations that have been deleted or changed*

7 We propose to delete 1 recommendation from the **[2013]** guideline (see table 1). In
8 recommendations shaded in grey and ending **[2007, amended 2019]** and **[2013,**
9 **amended 2019]** we have made changes that could affect the intent without
10 reviewing the evidence. Yellow shading is used to highlight these changes, and
11 reasons for the changes are given in table 2.

12 See also the 2013 NICE guideline and supporting documents.

13 **Table 1 Recommendations that have been deleted**

Recommendation in 2013 guideline	Comment
1.2.3.10 Consider Kawasaki disease in children with fever that has lasted longer than 5 days and who have 4 of the following 5 features: ● bilateral conjunctival injection ● change in mucous membranes in the upper respiratory tract (for example, injected pharynx, dry cracked lips or strawberry tongue) ● change in the extremities (for example, oedema, erythema or desquamation) polymorphous rash ● cervical lymphadenopathy Be aware that, in rare cases, incomplete/atypical Kawasaki disease may be diagnosed with fewer features. [2007]	Replaced by: Be aware of the possibility of Kawasaki disease in children with fever that has lasted 5 days or longer. Additional features of Kawasaki disease may include: ● bilateral conjunctival injection without exudate ● erythema and cracking of lips, strawberry tongue, or erythema of oral and pharyngeal mucosa ● oedema and erythema in the hands and feet ● polymorphous rash ● cervical lymphadenopathy. [1.2.26] Ask parents or carers about the presence of these features since the onset of fever, because they may have resolved by the time of assessment. [1.2.27] Be aware that children under 1 year may present with fewer clinical

	features of Kawasaki disease in addition to fever, but may be at higher risk of coronary artery abnormalities than older children. [1.2.28]

1 **Table 2 Amended recommendation wording (change to intent) without an**
2 **evidence review**

Recommendation in 2013 guideline	Recommendation in current guideline	Reason for change
Do not use duration of fever to predict the likelihood of serious illness. However, children with a fever lasting more than 5 days should be assessed for Kawasaki disease (see recommendation 1.2.26). (1.2.2.12)	Do not use duration of fever to predict the likelihood of serious illness. However, children with a fever lasting 5 days or longer should be assessed for Kawasaki disease (see recommendation 1.2.26). (1.2.14)	Changed for consistency with wording of 2019 recommendations and to avoid ambiguity about duration of fever which should prompt action.
Following contact with a healthcare professional, parents and carers who are looking after their feverish child at home should seek further advice if: • the child has a fit • the child develops a non-blanching rash • the parent or carer feels that the child is less well than when they previously sought advice • the parent or carer is more worried than when they previously sought advice • the fever lasts longer than 5 days • the parent or carer is distressed, or concerned that they are unable to look after their child. (1.7.2.1)	Following contact with a healthcare professional, parents and carers who are looking after their feverish child at home should seek further advice if: • the child has a fit • the child develops a non-blanching rash • the parent or carer feels that the child is less well than when they previously sought advice • the parent or carer is more worried than when they previously sought advice • the fever lasts 5 days or longer • the parent or carer is distressed, or concerned that they are unable to look after their child. (1.7.3)	Changed for consistency with wording of 2019 recommendations and to avoid ambiguity about duration of fever which should prompt action.

3

4

1 **Minor changes since publication**

2 **August 2017:** Recommendation 1.2.2 was added to cross-refer to the NICE
3 guideline on sepsis: recognition, diagnosis and early management.
4 Recommendation 1.4.8 was added to highlight that clinicians should not use a
5 response to antipyretic therapy alone as a means to differentiate between serious
6 and non-serious infection. A footnote was added to recommendation 1.2.12 and
7 Table 1 to highlight that some vaccinations have been found to induce fever in
8 children younger than 3 months.

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