

**Feverish illness in children**  
**Assessment and initial management in**  
**children younger than 5 years**

**NICE guideline**

**Draft for consultation, November 2012**

If you wish to comment on this version of the guideline, please be aware that all the supporting information and evidence is contained in the full version.

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## Introduction

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

## **Patient-centred care**

This guideline offers best practice advice on the care of children younger than 5 years with feverish illness.

Patients and healthcare professionals have rights and responsibilities as set out in the [NHS Constitution for England](#) – all NICE guidance is written to reflect these. Treatment and care should take into account individual needs and preferences. Patients should have the opportunity to make informed decisions about their care and treatment, in partnership with their healthcare professionals. If someone does not have the capacity to make decisions, healthcare professionals should follow the [Department of Health's advice on consent](#) and the [code of practice that accompanies the Mental Capacity Act](#). In Wales, healthcare professionals should follow [advice on consent from the Welsh Government](#).

If the patient is under 16, healthcare professionals should follow the guidelines in the Department of Health's [Seeking consent: working with children](#). Families and carers should also be given the information and support they need to help the child or young person in making decisions about their treatment.

## **Strength of recommendations**

Some recommendations can be made with more certainty than others. The Guideline Development Group makes a recommendation based on the trade-off between the benefits and harms of an intervention, taking into account the quality of the underpinning evidence. For some interventions, the Guideline Development Group is confident that, given the information it has looked at, most patients would choose the intervention. The wording used in the recommendations in this guideline denotes the certainty with which the recommendation is made (the strength of the recommendation).

For all recommendations, NICE expects that there is discussion with the patient about the risks and benefits of the interventions, and their values and preferences. This discussion aims to help them to reach a fully informed decision (see also 'Patient-centred care').

### ***Interventions that must (or must not) be used***

We usually use 'must' or 'must not' only if there is a legal duty to apply the recommendation. Occasionally we use 'must' (or 'must not') if the consequences of not following the recommendation could be extremely serious or potentially life threatening.

### ***Interventions that should (or should not) be used – a 'strong' recommendation***

We use 'offer' (and similar words such as 'refer' or 'advise') when we are confident that, for the vast majority of patients, an intervention will do more good than harm, and be cost effective. We use similar forms of words (for example, 'Do not offer...') when we are confident that an intervention will not be of benefit for most patients.

### ***Interventions that could be used***

We use 'consider' when we are confident that an intervention will do more good than harm for most patients, and be cost effective, but other options may be similarly cost effective. The choice of intervention, and whether or not to have the intervention at all, is more likely to depend on the patient's values

and preferences than for a strong recommendation, and so the healthcare professional should spend more time considering and discussing the options with the patient.

### ***Recommendation wording in guideline updates***

NICE began using this approach to denote the strength of recommendations in guidelines that started development after publication of the 2009 version of 'The guidelines manual' (January 2009). This does not apply to any recommendations shaded in grey and ending [2007] (see 'Update information' box below for details about how recommendations are labelled). In particular, for recommendations labelled [2007], the word 'consider' may not necessarily be used to denote the strength of the recommendation.

## Update information

This guidance is a partial update of NICE clinical guideline 47 (published in 2007) and will replace it.

New recommendations have been added on the assessment and initial management in children younger than 5 years with no obvious cause of feverish illness.

Where recommendations are shaded in grey and end [2007] the evidence has not been updated since the original guideline. Yellow shading in these recommendations indicates where wording changes have been made for the purposes of clarification only.

You are invited to comment on the new and updated recommendations in this guideline only. These are marked as [2013] if the evidence has been reviewed but no change has been made to the recommendation, or [new 2013] if the evidence has been reviewed and the recommendation has been added or updated.

Appendix A contains recommendations from the [2007] guideline that NICE proposes deleting in the [2013] update. This is because the evidence has been reviewed and the recommendation has been updated, or because NICE has updated other relevant guidance and has replaced the original recommendations. Where there are replacement recommendations, details are provided. Where there is no replacement recommendation, an explanation for the proposed deletion is given. You are invited to comment on the deleted recommendations as part of the consultation on the [2013] update.

The original NICE guideline and supporting documents are available from [www.nice.org.uk/CG47](http://www.nice.org.uk/CG47).

## Key priorities for implementation

The following recommendations have been identified as priorities for implementation.

### Thermometers and the detection of fever

- In children aged 4 weeks to 5 years, healthcare professionals should measure body temperature by one of the following methods:
  - electronic thermometer in the axilla
  - chemical dot thermometer in the axilla
  - infrared tympanic thermometer. [2007] [1.1.2.2].
- Reported parental perception of a fever should be considered valid and taken seriously by healthcare professionals. [2007] [1.1.3.1].

### Clinical assessment of the child with fever

- 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] [1.2.2.1]
- Healthcare professionals should measure and record temperature, heart rate, respiratory rate and capillary refill time as part of the routine assessment of a child with fever. [2007] [1.2.2.6]
- Recognise that children with tachycardia are in at least an intermediate-risk group for serious illness. Use the Advanced Paediatric Life Support (APLS) criteria below to define tachycardia: [new 2013][1.2.2.13]

| Age       | Heart rate (bpm) |
|-----------|------------------|
| <1 year   | > 160            |
| 1–2 years | >150             |
| 2–5 years | >140             |

### Management by remote assessment

- 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] [1.3.1.3]

### **Management by the non-paediatric practitioner**

- If any 'amber' features are present and no diagnosis has been reached, healthcare professionals should 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 section 1.7)
  - 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] [1.4.2.3]

### **Management by the paediatric specialist**

- 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<sup>1</sup>
  - chest X-ray only if respiratory signs are present
  - stool culture, if diarrhoea is present. [2013] [1.5.2.2]

### **Antipyretic interventions**

- Antipyretic agents do not prevent febrile convulsions and should not be used specifically for this purpose. [2007] [1.6.1.1]
- 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

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<sup>1</sup> See [Urinary tract infection in children](#), NICE clinical guideline 54 (2007).

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- only consider alternating these agents if the distress persists or if it recurs before the next dose is due. [new 2013] [1.6.3.3]

## 1 Recommendations

The following guidance is based on the best available evidence. The [full guideline](#) [\[hyperlink to be added for final publication\]](#) gives details of the methods and the evidence used to develop the guidance.

This guideline is intended for use by healthcare professionals for the assessment and initial management in young children with feverish illness. 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.

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

This guideline should be read in conjunction with:

- [Bacterial meningitis and meningococcal septicaemia](#) (NICE clinical guideline 102).
- [Urinary tract infection in children](#) (NICE clinical guideline 54).
- [Diarrhoea and vomiting in children under 5](#) (NICE clinical guideline 84).

### 1.1 *Thermometers and the detection of fever*

#### 1.1.1 Oral and rectal temperature measurements

- 1.1.1.1 The oral and rectal routes should not routinely be used to measure the body temperature of children aged 0–5 years. [2007]

## **1.1.2 Measurement of body temperature at other sites**

1.1.2.1 In infants under the age of 4 weeks, body temperature should be measured with an electronic thermometer in the axilla. [2007]

1.1.2.2 In children aged 4 weeks to 5 years, healthcare professionals should 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]

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

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

## **1.1.3 Subjective detection of fever by parents and carers**

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

## **1.2 Clinical assessment of the child with fever**

### **1.2.1 Life-threatening features of illness in children**

1.2.1.1 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 Assessment of risk of serious illness**

1.2.2.1 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]

- 1.2.2.2 When assessing children with learning difficulties, take the individual child's learning difficulties into account when interpreting the traffic light table. [new 2013]
- 1.2.2.3 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<sup>2</sup>
  - appearing ill to a healthcare professional
  - does not wake or if roused does not stay awake
  - weak, high-pitched or continuous cry
  - grunting
  - respiratory rate greater than 60 breaths per minute
  - moderate or severe chest indrawing
  - reduced skin turgor
  - bulging fontanelle. [new 2013]
- 1.2.2.4 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
  - no smile
  - wakes only with prolonged stimulation
  - decreased activity
  - nasal flaring
  - dry mucous membranes
  - poor feeding in infants
  - reduced urine output
  - rigors. [new 2013]

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<sup>2</sup> A child's response to social interaction with a parent or health professional, such as response to their name, smiling and/or giggling.

1.2.2.5 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
- content/smiles
- stays awake or awakens quickly
- strong normal cry or not crying
- normal skin and eyes
- moist mucous membranes. [new 2013]

1.2.2.6 Healthcare professionals should measure and record temperature, heart rate, respiratory rate and capillary refill time as part of the routine assessment of a child with fever. [2007]

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

1.2.2.8 Healthcare professionals should 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]

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

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

1.2.2.11 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. [new 2013]

1.2.2.12 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 1.2.3.10). [new 2013]

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

| Age       | Heart rate (bpm) |
|-----------|------------------|
| <1 year   | >160             |
| 1–2 years | >150             |
| 2–5 years | >140             |

- 1.2.2.14 Children with fever should be assessed for signs of dehydration. Healthcare professionals should look for:

- prolonged capillary refill time
- abnormal skin turgor
- abnormal respiratory pattern
- weak pulse
- cool extremities. [2007]

### 1.2.3 Symptoms and signs of specific illnesses

- 1.2.3.1 Healthcare professionals should 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]

- 1.2.3.2 Meningococcal disease should be considered 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]

1.2.3.3 Meningitis should be considered in a child with fever and any of the following features:

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

1.2.3.4 Healthcare professionals should be aware that classic signs of meningitis (neck stiffness, bulging fontanelle, high-pitched cry) are often absent in infants with bacterial meningitis. [2007]

1.2.3.5 Herpes simplex encephalitis should be considered in children with fever and any of the following features:

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

1.2.3.6 Pneumonia should be considered 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]

1.2.3.7 Urinary tract infection should be considered in any child younger than 3 months with fever<sup>3</sup>. [2007]

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<sup>3</sup> See [Urinary tract infection in children](#), NICE clinical guideline 54 (2007).

1.2.3.8 Consider urinary tract infection in a child aged 3 months or older with fever and 1 or more of the following<sup>3</sup>:

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

1.2.3.9 Septic arthritis/osteomyelitis should be considered in children with fever and any of the following signs:

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

1.2.3.10 Kawasaki disease should be considered 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.

Healthcare professionals should be aware that, in rare cases, incomplete/atypical Kawasaki disease may be diagnosed with fewer features. [2007]

## **1.2.4 Imported infections**

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

**Table 1 Traffic light system for identifying risk of serious illness. [new 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.

|                                  | <b>Green – low risk</b>  | <b>Amber – intermediate risk</b>   | <b>Red – high risk</b>   |
|----------------------------------|--|--|--|
| Colour (of skin, lips or tongue) | <ul style="list-style-type: none"> <li>• Normal colour</li> </ul>  | <ul style="list-style-type: none"> <li>• Pallor reported by parent/carer</li> </ul>  | <ul style="list-style-type: none"> <li>• Pale/mottled/ashen/blue</li> </ul>  |
| Activity                         | <ul style="list-style-type: none"> <li>• Responds normally to social cues</li> <li>• Content/smiles</li> <li>• Stays awake or awakens quickly</li> <li>• Strong normal cry/not crying</li> </ul> | <ul style="list-style-type: none"> <li>• Not responding normally to social cues</li> <li>• No smile</li> <li>• Wakes only with prolonged stimulation</li> <li>• Decreased activity</li> </ul>  | <ul style="list-style-type: none"> <li>• No response to social cues</li> <li>• Appears ill to a healthcare professional</li> <li>• Does not wake or if roused does not stay awake</li> <li>• Weak, high-pitched or continuous cry</li> </ul> |
| Respiratory                      |  | <ul style="list-style-type: none"> <li>• Nasal flaring</li> <li>• Tachypnoea: RR &gt;50 breaths/minute, age 6–12 months<br/>RR &gt;40 breaths/minute, age &gt;12 months</li> <li>• Oxygen saturation ≤95% in air</li> <li>• Crackles in the chest</li> </ul>   | <ul style="list-style-type: none"> <li>• Grunting</li> <li>• Tachypnoea: RR &gt;60 breaths/minute</li> <li>• Moderate or severe chest indrawing</li> </ul>   |
| Circulation and hydration        | <ul style="list-style-type: none"> <li>• Normal skin and eyes</li> <li>• Moist mucous membranes</li> </ul>   | <ul style="list-style-type: none"> <li>• Tachycardia: &gt;160 beats/minute, age &lt;1 year<br/>&gt;150 beats/minute, age 1–2 years<br/>&gt;140 beats/minute, age 2–5 years</li> <li>• CRT ≥3 seconds</li> <li>• Dry mucous membranes</li> <li>• Poor feeding in infants</li> <li>• Reduced urine output</li> </ul> | <ul style="list-style-type: none"> <li>• Reduced skin turgor</li> </ul>  |

|  | <b>Green – low risk</b>  | <b>Amber – intermediate risk</b>  | <b>Red – high risk</b>   |
|--|--|---|--|
| Other  | <ul style="list-style-type: none"> <li>• None of the amber or red symptoms or signs</li> </ul> | <ul style="list-style-type: none"> <li>• Age 3–6 months, temperature <math>\geq 39^{\circ}\text{C}</math></li> <li>• Fever for <math>\geq 5</math> days</li> <li>• Rigors</li> <li>• Swelling of a limb or joint</li> <li>• Non-weight bearing limb/not using an extremity</li> </ul> | <ul style="list-style-type: none"> <li>• Age <math>&lt; 3</math> months, temperature <math>\geq 38^{\circ}\text{C}</math></li> <li>• Non-blanching rash</li> <li>• Bulging fontanelle</li> <li>• Neck stiffness</li> <li>• Status epilepticus</li> <li>• Focal neurological signs</li> <li>• Focal seizures</li> </ul> |
| CRT, capillary refill time; RR, respiratory rate |  |   |  |

**Table 2 Summary table for symptoms and signs suggestive of specific diseases [2013]**

| <b>Diagnosis to be considered</b> | <b>Symptoms and signs in conjunction with fever</b>  |
|-----------------------------------|--|
| Meningococcal disease             | Non-blanching rash, particularly with 1 or more of the following: <ul style="list-style-type: none"> <li>• an ill-looking child</li> <li>• lesions larger than 2 mm in diameter (purpura)</li> <li>• capillary refill time of <math>\geq 3</math> seconds</li> <li>• neck stiffness</li> </ul> |
| Meningitis                        | Neck stiffness<br>Bulging fontanelle<br>Decreased level of consciousness<br>Convulsive status epilepticus  |
| Herpes simplex encephalitis       | Focal neurological signs<br>Focal seizures<br>Decreased level of consciousness   |
| Pneumonia                         | Tachypnoea (RR $>60$ breaths/minute, age 0–5 months; RR $>50$ breaths/minute, age 6–12 months; RR $>40$ breaths/minute, age $>12$ months)<br>Crackles in the chest<br>Nasal flaring<br>Chest indrawing<br>Cyanosis<br>Oxygen saturation $\leq 95\%$  |
| Urinary tract infection           | Vomiting<br>Poor feeding<br>Lethargy<br>Irritability<br>Abdominal pain or tenderness<br>Urinary frequency or dysuria   |
| Septic arthritis                  | Swelling of a limb or joint<br>Not using an extremity<br>Non-weight bearing  |
| Kawasaki disease                  | Fever for more than 5 days and at least 4 of the following: <ul style="list-style-type: none"> <li>• bilateral conjunctival injection</li> <li>• change in mucous membranes</li> <li>• change in the extremities</li> <li>• polymorphous rash</li> <li>• cervical lymphadenopathy</li> </ul>   |
| RR, respiratory rate              |  |

### **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 Direct). 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).

#### **1.3.1 Management according to risk of serious illness**

1.3.1.1 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]

1.3.1.2 Children whose symptoms or combination of symptoms suggest an immediately life-threatening illness (see recommendation 1.2.1.1) should be referred immediately for emergency medical care by the most appropriate means of transport (usually 999 ambulance). [2007]

1.3.1.3 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]

1.3.1.4 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]

1.3.1.5 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]

## **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.

### **1.4.1 Clinical assessment**

1.4.1.1 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]

### **1.4.2 Management according to risk of serious illness**

1.4.2.1 Children whose symptoms or combination of symptoms and signs suggest an immediately life-threatening illness (see recommendation 1.2.1.1) should be referred immediately for emergency medical care by the most appropriate means of transport (usually 999 ambulance). [2007]

1.4.2.2 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]

1.4.2.3 If any 'amber' features are present and no diagnosis has been reached, healthcare professionals should 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 section 1.7)
- 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]

1.4.2.4 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]

### 1.4.3 Tests by the non-paediatric practitioner

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

1.4.3.2 Urine should be tested in children with fever as recommended in 'Urinary tract infection in children' (NICE clinical guideline 54). [2007]

### 1.4.4 Use of antibiotics by the non-paediatric practitioner

1.4.4.1 Oral antibiotics should not be prescribed to children with fever without apparent source. [2007]

- 1.4.4.2 Children with suspected meningococcal disease should be given parenteral antibiotics at the earliest opportunity (either benzylpenicillin or a third-generation cephalosporin)<sup>4</sup>. [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.

### **1.5.1 Children younger than 5 years**

- 1.5.1.1 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]

### **1.5.2 Children younger than 3 months**

- 1.5.2.1 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]

- 1.5.2.2 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<sup>5</sup>

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<sup>4</sup> See [Bacterial meningitis and meningococcal septicaemia](#), NICE clinical guideline 102 (2010).

- chest X-ray only if respiratory signs are present
- stool culture, if diarrhoea is present. [2013]

1.5.2.3 Lumbar puncture should be performed on 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  $5 \times 10^9$ /litre or greater than  $15 \times 10^9$ /litre. [2007]

1.5.2.4 When indicated, a lumbar puncture should be performed without delay and, whenever possible, before the administration of antibiotics. [2007]

1.5.2.5 Parenteral antibiotics should be given 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  $5 \times 10^9$ /litre or greater than  $15 \times 10^9$ /litre. [2007]

1.5.2.6 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]

### 1.5.3 Children aged 3 months or older

1.5.3.1 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

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<sup>5</sup> See [Urinary tract infection in children](#), NICE clinical guideline 54 (2007).

- urine testing for urinary tract infection<sup>6</sup>. [2013]

1.5.3.2 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]

1.5.3.3 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<sup>7</sup>
- 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  $20 \times 10^9$ /litre. [2007]

1.5.3.4 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<sup>8</sup> and be assessed for symptoms and signs of pneumonia (see table 2). [2007]

1.5.3.5 Routine blood tests and chest X-rays should not be performed in children with fever who have no features of serious illness (that is, the 'green' group). [2007]

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<sup>6</sup> See [Urinary tract infection in children](#), NICE clinical guideline 54 (2007).

<sup>7</sup> See [Urinary tract infection in children](#), NICE clinical guideline 54 (2007).

<sup>8</sup> See [Urinary tract infection in children](#), NICE clinical guideline 54 (2007).

#### **1.5.4 Viral co-infection**

1.5.4.1 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<sup>9</sup>. [2007]

#### **1.5.5 Observation in hospital**

1.5.5.1 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]

1.5.5.2 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. [new 2013]

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

1.5.6.1 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]

1.5.6.2 Children with fever presenting to specialist paediatric care or an emergency department should be given immediate parenteral antibiotics if they are:

- shocked

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<sup>9</sup> See [Urinary tract infection in children](#), NICE clinical guideline 54 (2007).

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

1.5.6.3 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 [Bacterial meningitis and meningococcal septicaemia](#) (NICE clinical guideline 102). [2007]

1.5.6.4 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]

1.5.6.5 Children with fever and symptoms and signs suggestive of herpes simplex encephalitis should be given intravenous aciclovir. [2007]

1.5.6.6 Oxygen should be given to children with fever who have signs of shock or oxygen saturation (SpO<sub>2</sub>) of less than 92% when breathing air. Treatment with oxygen should also be considered for children with an SpO<sub>2</sub> of greater than 92%, as clinically indicated. [2007]

## 1.5.7 Causes and incidence of serious bacterial infection

1.5.7.1 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]

1.5.7.2 Healthcare professionals should refer to local treatment guidelines when rates of bacterial antibiotic resistance are significant. [2007]

## 1.5.8 Admission to and discharge from hospital

1.5.8.1 In addition to the child's clinical condition, healthcare professionals should 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]

1.5.8.2 If it is decided that a child does not need to be admitted to hospital, but no diagnosis has been reached, a safety net should be provided 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 section 1.7)
- 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]

1.5.8.3 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]

## **1.5.9 Referral to paediatric intensive care**

1.5.9.1 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]

1.5.9.2 Children with suspected meningococcal disease should be given parenteral antibiotics at the earliest opportunity (either benzylpenicillin or a third-generation cephalosporin). [2007]

1.5.9.3 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**

### **1.6.1 Effects of body temperature reduction**

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

### **1.6.2 Physical interventions to reduce body temperature**

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

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

### **1.6.3 Drug interventions to reduce body temperature**

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

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

1.6.3.3 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 if it recurs before the next dose is due. [new 2013]

## **1.7 Advice for home care**

### **1.7.1 Care at home**

1.7.1.1 Parents or carers should be advised to manage their child's temperature as described in section 1.6. [2007]

1.7.1.2 Parents or carers looking after a feverish child at home should be advised:

- 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]

## 1.7.2 When to seek further help

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 longer than 5 days
- the parent or carer is distressed, or concerned that they are unable to look after their child. [2007]

## 2 Research recommendations

The Guideline Development Group has made the following recommendations for research, based on its review of evidence, to improve NICE guidance and patient care in the future. The Guideline Development Group's full set of research recommendations is detailed in the full guideline.

### 2.1 *Symptoms and signs of serious illness*

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

#### **Why this is important**

The current recommendations on symptoms and signs in the NICE guideline are based on a series of heterogeneous studies (using different methods, populations, outcomes and of varying quality) and a degree of subjectivity was needed to bring these together in the guideline. Therefore, the GDG

recommends that a large prospective UK-wide study (n=20,000 plus) should be undertaken comparing all of these symptoms and signs covered in the guideline. This would allow for a standardised comparison of each symptom and sign, and for validation of the existing 'traffic light' table.

The study should use a standardised data collection protocol. Where possible the study should link with routinely collected data sets, such as Hospital Episode Statistics. The study should include a variety of settings and locations – that is, wherever children present, including primary care. The primary outcome of the study should be the final diagnosis and results of treatment.

## **2.2      *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]

### **Why this is important**

Traditionally, symptomatic patients have been assessed in a face-to-face setting but increasingly, remote assessment (for example, assessment over the telephone) determines the urgency of the patient's need, the level of care required and from that the most appropriate next step for the patient. This might include referral to emergency services, referral to acute or non-acute services or closing the call with self-care advice/support. Clinical and cost effectiveness will only be achieved through remote assessment if perceived need equates to actual need. There is currently a lack of data available that demonstrate the validity of remote assessment.

## **2.3      *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].

### **Why this is important**

Many young children with fever appear well with no symptoms or signs of serious illness. The vast majority of these children will have self-limiting

illnesses. However, a few will have serious bacterial infections which may not be identifiable by clinical assessment alone. Investigations that help to identify these children with serious bacterial infections could lead to prompt antibiotic treatment, which may improve their outcome. These investigations need to be both sensitive and specific so that most serious bacterial infections are identified and so that antibiotics are not given to children who don't need them. The inflammatory markers C-reactive protein and procalcitonin have shown varying performance characteristics for identifying bacterial infection in a variety of populations. If either or both were found to be sensitive and specific for identifying serious bacterial infection in children with fever without apparent source, there would be evidence for their more widespread use. The cost effectiveness of this approach would need to be calculated.

## **2.4      *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]

### **Why this is important**

Antipyretic medications are widely used in primary and secondary settings by parents and healthcare professionals. Children may therefore present to healthcare facilities having had a dose of antipyretics. Furthermore, the child's response to antipyretic drugs may be used as an indication of severity of illness, the rationale being that those with milder illness will either show greater improvement in condition or a greater reduction in their fever than children with more serious illnesses. However, it is not clear if such changes in condition are a valid and reliable method of differentiating children with serious illness from those with less serious conditions.

## **2.5      *Home-based antipyretic use***

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

### **Why this is important**

The current guideline recommends the use of antipyretics to relieve distress in children. However, the concept of 'distress' and how parents act on it is little understood. Therefore, the GDG recommends that a study is undertaken to investigate 'distress' in children with feverish illness. The study should include parents' and carers' interpretation of this, including: help-seeking behaviour, what triggers presentation to a healthcare professional, what triggers the decision to give a dose of antipyretic, and what triggers the decision to change from one antipyretic to another.

## **3 Other information**

### **3.1 *Scope and how this guideline was developed***

NICE guidelines are developed in accordance with a [scope](#) that defines what the guideline will and will not cover.

#### **How this guideline was developed**

NICE commissioned the National Collaborating Centre for Women's and Children's Health to develop this guideline. The Centre established a Guideline Development Group (see section 4), which reviewed the evidence and developed the recommendations.

The methods and processes for developing NICE clinical guidelines are described in [The guidelines manual](#).

### **3.2 *Related NICE guidance***

Details are correct at the time of consultation on the guideline (November 2012). Further information is available on [the NICE website](#).

#### **Published**

##### ***General***

- [Medicines adherence](#). NICE clinical guidance 76 (2011).

***Condition-specific***

- [Bacterial meningitis and meningococcal septicaemia](#). NICE clinical guideline 102 (2010).
- [Diarrhoea and vomiting in children under 5](#) NICE clinical guideline 84 (2009).
- [Urinary tract infection in children](#), NICE clinical guideline 54 (2007).

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## Appendix A: Recommendations to be deleted

| Recommendation  | Comment  |
|---|--|
| <p>Children with the following symptoms or signs should be recognised as being in a high-risk group for serious illness:</p> <ul style="list-style-type: none"> <li>• unable to rouse or if roused does not stay awake</li> <li>• weak, high-pitched or continuous cry</li> <li>• pale/mottled/blue/ashen</li> <li>• reduced skin turgor</li> <li>• bile-stained vomiting</li> <li>• moderate or severe chest indrawing</li> <li>• respiratory rate greater than 60 breaths/minute</li> <li>• grunting</li> <li>• bulging fontanelle</li> <li>• appearing ill to a healthcare professional. (Recommendation [1.2.1.3] in [2007] guideline)</li> </ul> | <p>Replaced by:</p> <p>Recognise that children with any of the following symptoms or signs are in a high-risk group for serious illness:</p> <ul style="list-style-type: none"> <li>• pale/mottled/ashen/blue skin, lips or tongue</li> <li>• no response to social cues</li> <li>• appearing ill to a healthcare professional</li> <li>• does not wake or if roused does not stay awake</li> <li>• weak, high-pitched or continuous cry</li> <li>• grunting</li> <li>• respiratory rate greater than 60 breaths per minute</li> <li>• moderate or severe chest indrawing</li> <li>• reduced skin turgor</li> <li>• bulging fontanelle. [1.2.2.3]</li> </ul> |
| <p>Children with any of the following symptoms should be recognised as being in at least an intermediate-risk group for serious illness:</p> <ul style="list-style-type: none"> <li>• wakes only with prolonged stimulation</li> <li>• decreased activity</li> </ul>  | <p>Replaced by:</p> <p>Recognise that children with any of the following symptoms or signs are in at least an intermediate-risk group for serious illness:</p> <ul style="list-style-type: none"> <li>• pallor of skin, lips or tongue</li> </ul>  |

|   |   |
|---|---|
| <ul style="list-style-type: none"> <li>• poor feeding in infants</li> <li>• not responding normally to social cues/no smile</li> <li>• dry mucous membranes</li> <li>• reduced urine output</li> <li>• a new lump larger than 2 cm</li> <li>• pallor reported by parent or carer</li> <li>• nasal flaring. (Recommendation [1.2.1.4] in [2007] guideline)</li> </ul>  | <p>reported by parent or carer</p> <ul style="list-style-type: none"> <li>• not responding normally to social cues</li> <li>• no smile</li> <li>• wakes only with prolonged stimulation</li> <li>• decreased activity</li> <li>• nasal flaring</li> <li>• dry mucous membranes</li> <li>• poor feeding in infants</li> <li>• reduced urine output</li> <li>• rigors. [1.2.2.4]</li> </ul>   |
| <p>Healthcare professionals examining children with fever, should be aware that a raised heart rate can be a sign of serious illness, particularly septic shock. [2007]</p>   | <p>Removed</p> <p>This recommendation was superseded by recommendation 1.2.2.13</p>   |
| <p>Height of body temperature alone should not be used to identify children with serious illness. However, children in the following categories should be recognised as being in a high-risk group for serious illness:</p> <ul style="list-style-type: none"> <li>• children younger than 3 months with a temperature of 38°C or higher</li> <li>• children aged 3–6 months with a temperature of 39°C or higher. (Recommendation [1.2.1.10] in [2007] guideline)</li> </ul> | <p>Replaced by the following recommendations:</p> <p>In children older than 6 months do not use height of body temperature alone to identify those with serious illness [1.2.2.9]</p> <p>Recognise that children younger than 3 months with a temperature of 38°C or higher are in a high-risk group for serious illness. [1.2.2.10]</p> <p>Recognise that children aged 3–6 months with a temperature of 39°C or higher are in at least an</p> |

|   |  |
|---|--|
|   | intermediate-risk group for serious illness. [1.2.2.11]  |
| <p>Urinary tract infection should be considered in a child aged 3 months or older with fever and 1 or more of the following:<sup>10</sup></p> <ul style="list-style-type: none"> <li>• vomiting</li> <li>• poor feeding</li> <li>• lethargy</li> <li>• irritability</li> <li>• abdominal pain or tenderness</li> <li>• urinary frequency or dysuria</li> <li>• offensive urine or haematuria. (Recommendation [1.2.2.8] in [2007] guideline)</li> </ul> | <p>Replaced by:</p> <p>Consider urinary tract infection in a child aged 3 months or older with fever and 1 or more of the following:<sup>10</sup></p> <ul style="list-style-type: none"> <li>• vomiting</li> <li>• poor feeding</li> <li>• lethargy</li> <li>• irritability</li> <li>• abdominal pain or tenderness</li> <li>• urinary frequency or dysuria. [1.2.3.8]</li> </ul>        |
| <p>When a child has been given antipyretics:</p> <ul style="list-style-type: none"> <li>• healthcare professionals should not rely on a decrease or lack of decrease in temperature after 1–2 hours to differentiate between serious and non-serious illness</li> <li>• children in hospital with ‘amber’ or ‘red’ features should be reassessed after 1–2 hours. (Recommendation [1.5.3.8] in [2007] guideline)</li> </ul>                             | <p>Replaced by:</p> <p>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. [1.5.3.8]</p> |
| <p>Either paracetamol or ibuprofen can be used to reduce temperature in children</p>  | <p>Replaced by:</p>  |

<sup>10</sup> See [Urinary tract infection in children](#), NICE clinical guideline 54.

|   |  |
|---|--|
| <p>with fever. (Recommendation [1.6.1.4] in [2007] guideline)</p>   | <p>Consider using either paracetamol or ibuprofen in children with fever who appear distressed. [1.6.3.1]</p>  |
| <p>The use of antipyretic agents should be considered in children with fever who appear distressed or unwell. Antipyretic agents should not routinely be used with the sole aim of reducing body temperature in children with fever who are otherwise well. The views and wishes of parents and carers should be taken into consideration.<br/>(Recommendation [1.6.1.3] in [2007] guideline)</p> | <p>Replaced by:<br/><br/>Do not use antipyretic agents with the sole aim of reducing body temperature in children with fever. [1.6.3.2]</p>  |
| <p>Paracetamol and ibuprofen should not be administered at the same time to children with fever. (Recommendation [1.6.1.5] in [2007] guideline)</p>   | <p>Replaced by:<br/><br/>When using paracetamol or ibuprofen in children with fever:</p> <ul style="list-style-type: none"> <li>• continue only as long as the child appears distressed</li> <li>• consider changing to the other agent if the child's distress is not alleviated</li> <li>• do not give both agents simultaneously</li> <li>• only consider alternating these agents if the distress persists or if it recurs before the next dose is due. [1.6.3.3]</li> </ul> |
| <p>Paracetamol and ibuprofen should not routinely be given alternately to children with fever. However, use of the alternative drug may be considered if the child does not respond to the first agent. (Recommendation [1.6.1.6] in [2007] guideline)</p>  |  |

**Table 1 Traffic light system for identifying risk of serious illness. (Table 1 in [2007] guideline)**

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

|             | <b>Green – low risk</b>  | <b>Amber – intermediate risk</b>   | <b>Red – high risk</b>   |
|-------------|--|--|--|
| Colour      | <ul style="list-style-type: none"> <li>• Normal colour of skin, lips and tongue</li> </ul>   | <ul style="list-style-type: none"> <li>• Pallor reported by parent/carer</li> </ul>  | <ul style="list-style-type: none"> <li>• Pale/mottled/ashen/blue</li> </ul>  |
| Activity    | <ul style="list-style-type: none"> <li>• Responds normally to social cues</li> <li>• Content/smiles</li> <li>• Stays awake or awakens quickly</li> <li>• Strong normal cry/not crying</li> </ul> | <ul style="list-style-type: none"> <li>• Not responding normally to social cues</li> <li>• Wakes only with prolonged stimulation</li> <li>• Decreased activity</li> <li>• No smile</li> </ul>  | <ul style="list-style-type: none"> <li>• No response to social cues</li> <li>• Appears ill to a healthcare professional</li> <li>• Does not wake or if roused does not stay awake</li> <li>• Weak, high-pitched or continuous cry</li> </ul> |
| Respiratory |  | <ul style="list-style-type: none"> <li>• Nasal flaring</li> <li>• Tachypnoea: RR &gt; 50 breaths/minute, age 6–12 months RR &gt; 40 breaths/minutes, age &gt; 12 months</li> <li>• Oxygen saturation ≤ 95% in air</li> <li>• Crackles</li> </ul> | <ul style="list-style-type: none"> <li>• Grunting</li> <li>• Tachypnoea: RR &gt; 60 breaths/minute</li> <li>• Moderate or severe chest indrawing</li> </ul>  |
| Hydration   | <ul style="list-style-type: none"> <li>• Normal skin and eyes</li> <li>• Moist mucous membranes</li> </ul>   | <ul style="list-style-type: none"> <li>• Dry mucous membranes</li> <li>• Poor feeding in infants</li> <li>• CRT ≥ 3 seconds</li> <li>• Reduced urine output</li> </ul>   | <ul style="list-style-type: none"> <li>• Reduced skin turgor</li> </ul>  |
| Other       | <ul style="list-style-type: none"> <li>• None of the amber or red symptoms or signs</li> </ul>   | <ul style="list-style-type: none"> <li>• Fever for ≥ 5 days</li> </ul>   | <ul style="list-style-type: none"> <li>• Age 0–3 months, temperature ≥ 38°C</li> <li>• Age 3–6 months, temperature ≥ 39°C</li> </ul>   |

|  |  |  |  |
|--|--|--|--|
|  |  | <ul style="list-style-type: none"> <li>Swelling of a limb or joint</li> <li>Non-weight bearing/not using an extremity</li> </ul> | <ul style="list-style-type: none"> <li>Non-blanching rash</li> <li>Bulging fontanelle</li> <li>Neck stiffness</li> <li>Status epilepticus</li> <li>Focal neurological signs</li> <li>Focal seizures</li> </ul> |
|  |  | <ul style="list-style-type: none"> <li>A new lump &gt; 2 cm</li> </ul>   | <ul style="list-style-type: none"> <li>Bile-stained vomiting</li> </ul>  |

Replaced by:

**Table 1 Traffic light system for identifying risk of serious illness. [new 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.

|                                  | <b>Green – low risk</b>  | <b>Amber – intermediate risk</b>   | <b>Red – high risk</b>   |
|----------------------------------|--|--|--|
| Colour (of skin, lips or tongue) | <ul style="list-style-type: none"> <li>Normal colour</li> </ul>  | <ul style="list-style-type: none"> <li>Pallor reported by parent/carer</li> </ul>  | <ul style="list-style-type: none"> <li>Pale/mottled/ashen/blue</li> </ul>  |
| Activity                         | <ul style="list-style-type: none"> <li>Responds normally to social cues</li> <li>Content/smiles</li> <li>Stays awake or awakens quickly</li> <li>Strong normal cry/not crying</li> </ul> | <ul style="list-style-type: none"> <li>Not responding normally to social cues</li> <li>No smile</li> <li>Wakes only with prolonged stimulation</li> <li>Decreased activity</li> </ul>  | <ul style="list-style-type: none"> <li>No response to social cues</li> <li>Appears ill to a healthcare professional</li> <li>Does not wake or if roused does not stay awake</li> <li>Weak, high-pitched or continuous cry</li> </ul> |
| Respiratory                      |  | <ul style="list-style-type: none"> <li>Nasal flaring</li> <li>Tachypnoea: RR &gt; 50 breaths/minute, age 6–12 months<br/>RR &gt; 40 breaths/minute, age &gt; 12 months</li> <li>Oxygen saturation ≤ 95% in air</li> <li>Crackles in the chest</li> </ul> | <ul style="list-style-type: none"> <li>Grunting</li> <li>Tachypnoea: RR &gt; 60 breaths/minute</li> <li>Moderate or severe chest indrawing</li> </ul>  |

DRAFT FOR CONSULTATION

|  |  |  |   |
|--|--|--|---|
| Circulation and hydration                        | <ul style="list-style-type: none"> <li>• Normal skin and eyes</li> <li>• Moist mucous membranes</li> </ul> | <ul style="list-style-type: none"> <li>• Tachycardia:               <ul style="list-style-type: none"> <li>&gt; 160 beats/minute, age &lt; 1 year</li> <li>&gt; 150 beats/minute, age 1–2 years</li> <li>&gt; 140 beats/minute, age 2–5 years</li> </ul> </li> <li>• CRT ≥ 3 seconds</li> <li>• Dry mucous membranes</li> <li>• Poor feeding in infants</li> <li>• Reduced urine output</li> </ul> | <ul style="list-style-type: none"> <li>• Reduced skin turgor</li> </ul>   |
| Other  | <ul style="list-style-type: none"> <li>• None of the amber or red symptoms or signs</li> </ul>             | <ul style="list-style-type: none"> <li>• Age 3–6 months, temperature ≥ 39°C</li> <li>• Fever for ≥ 5 days</li> <li>• Rigors</li> <li>• Swelling of a limb or joint</li> <li>• Non-weight bearing limb/not using an extremity</li> </ul>  | <ul style="list-style-type: none"> <li>• Age &lt; 3 months, temperature ≥ 38°C</li> <li>• Non-blanching rash</li> <li>• Bulging fontanelle</li> <li>• Neck stiffness</li> <li>• Status epilepticus</li> <li>• Focal neurological signs</li> <li>• Focal seizures</li> </ul> |
| CRT, capillary refill time; RR, respiratory rate |  |  |   |

**Table 2 Summary table for symptoms and signs suggestive of specific diseases (Table 2 in [2007] guideline)**

| Diagnosis to be considered  | Symptoms and signs in conjunction with fever  |
|-----------------------------|---|
| Meningococcal disease       | Non-blanching rash, particularly with 1 or more of the following: <ul style="list-style-type: none"> <li>• an ill-looking child</li> <li>• lesions larger than 2 mm in diameter (purpura)</li> <li>• capillary refill time of <math>\geq 3</math> seconds</li> <li>• neck stiffness</li> </ul>  |
| Meningitis                  | Neck stiffness<br>Bulging fontanelle<br>Decreased level of consciousness<br>Convulsive status epilepticus   |
| Herpes simplex encephalitis | Focal neurological signs<br>Focal seizures<br>Decreased level of consciousness  |
| Pneumonia                   | Tachypnoea (RR > 60 breaths/minute, age 0–5 months; RR > 50 breaths/minute, age 6–12 months; RR > 40 breaths/minute, age > 12 months)<br>Crackles in the chest<br>Nasal flaring<br>Chest indrawing<br>Cyanosis<br>Oxygen saturation $\leq 95\%$   |
| Urinary tract infection     | Vomiting<br>Poor feeding<br>Lethargy<br>Irritability<br>Abdominal pain or tenderness<br>Urinary frequency or dysuria<br>Offensive urine or haematuria   |
| Septic arthritis            | Swelling of a limb or joint<br>Not using an extremity<br>Non-weight bearing   |
| Kawasaki disease            | Fever for more than 5 days and at least four of the following: <ul style="list-style-type: none"> <li>• bilateral conjunctival injection</li> <li>• change in mucous membranes</li> <li>• change in the extremities</li> <li>• polymorphous rash</li> <li>• cervical lymphadenopathy</li> </ul> |

Replaced by:

**Table 2 Summary table for symptoms and signs suggestive of specific diseases [new 2013]**

| <b>Diagnosis to be considered</b> | <b>Symptoms and signs in conjunction with fever</b>  |
|-----------------------------------|--|
| Meningococcal disease             | Non-blanching rash, particularly with 1 or more of the following: <ul style="list-style-type: none"> <li>• an ill-looking child</li> <li>• lesions larger than 2 mm in diameter (purpura)</li> <li>• capillary refill time of <math>\geq 3</math> seconds</li> <li>• neck stiffness</li> </ul> |
| Meningitis                        | Neck stiffness<br>Bulging fontanelle<br>Decreased level of consciousness<br>Convulsive status epilepticus  |
| Herpes simplex encephalitis       | Focal neurological signs<br>Focal seizures<br>Decreased level of consciousness   |
| Pneumonia                         | Tachypnoea (RR > 60 breaths/minute, age 0–5 months; RR > 50 breaths/minute, age 6–12 months; RR > 40 breaths/minute, age > 12 months)<br>Crackles in the chest<br>Nasal flaring<br>Chest indrawing<br>Cyanosis<br>Oxygen saturation $\leq 95\%$  |
| Urinary tract infection           | Vomiting<br>Poor feeding<br>Lethargy<br>Irritability<br>Abdominal pain or tenderness<br>Urinary frequency or dysuria   |
| Septic arthritis                  | Swelling of a limb or joint<br>Not using an extremity<br>Non-weight bearing  |
| Kawasaki disease                  | Fever for more than 5 days and at least 4 of the following: <ul style="list-style-type: none"> <li>• bilateral conjunctival injection</li> <li>• change in mucous membranes</li> <li>• change in the extremities</li> <li>• polymorphous rash</li> <li>• cervical lymphadenopathy</li> </ul>   |
| RR, respiratory rate              |  |