



*National Institute for
Health and Clinical Excellence*

Quick reference guide

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Feverish illness in children

Assessment and initial management in children
younger than 5 years

About this booklet

This is a quick reference guide that summarises the recommendations NICE has made to the NHS in 'Feverish illness in children: assessment and initial management in children younger than 5 years' (NICE clinical guideline 47).

Who should read this booklet?

This quick reference guide is for healthcare professionals and other staff who care for children with fever. It contains what you need to know to put the guideline's recommendations into practice.

Who wrote the guideline?

The guideline was developed by the National Collaborating Centre for Women's and Children's Health, which is based at the Royal College of Obstetricians and Gynaecologists. The Collaborating Centre worked with a group of healthcare professionals (including consultants, GPs and nurses), patients and carers, and technical staff, who reviewed the evidence and drafted the recommendations. The recommendations were finalised after public consultation.

For more information on how NICE clinical guidelines are developed, go to www.nice.org.uk

Where can I get more information about the guideline on feverish illness in children?

The NICE website has the recommendations in full, summaries of the evidence they are based on, a summary of the guideline for parents and carers, and tools to support implementation (see back cover for more details).

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This guidance is written in the following context

This guidance represents the view of the Institute, which was arrived at after careful consideration of the evidence available. Healthcare professionals are expected to take it fully into account when exercising their clinical judgement. The guidance does not, however, override the individual responsibility of healthcare professionals to make decisions appropriate to the circumstances of the individual patient, in consultation with the patient and/or guardian or carer.

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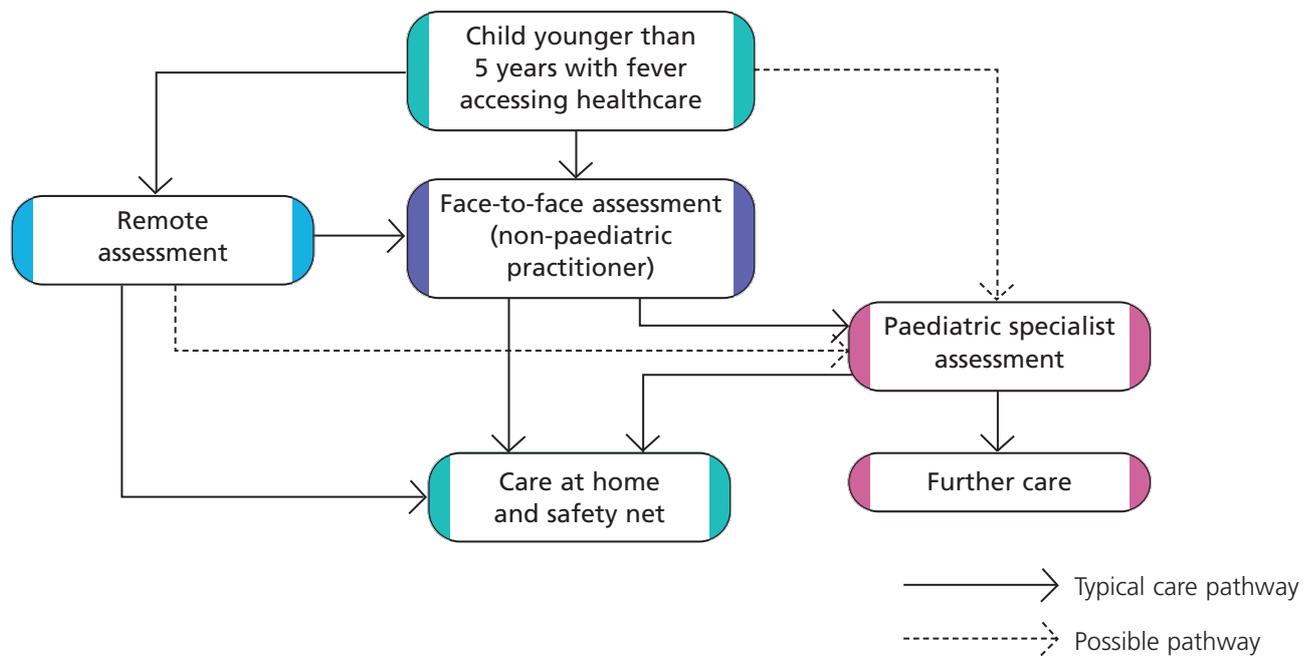
Patient-centred care

Treatment and care should take into account the individual needs and preferences of children with fever, and those of their parents and carers. Good communication is essential, supported by evidence-based information, to allow parents and carers to reach informed decisions about their child's care.

Introduction

The following guidance should be used in the assessment and initial management of children younger than 5 years with feverish illness. The recommendations in this 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.

Care pathway



Definitions used in this guideline

- Face-to-face assessment: occurs when a child undergoes a full clinical assessment, including history and physical examination, in the presence of a healthcare professional. This usually occurs in general practice but it could also occur in a walk-in centre or a hospital emergency department.
- Remote assessment: occurs when a healthcare professional is unable to examine the child because the child is geographically remote. Therefore, assessment is largely interpreting symptoms rather than physical signs. Examples include calls to NHS Direct and other telephone services. For the purposes of this guideline, remote assessment may also apply to healthcare professionals whose scope of practice does not include the physical examination of a young child.
- Non-paediatric practitioner: a healthcare professional who has not had specific training and does not have recognised expertise in the management of children and their illnesses. This mainly applies to healthcare professionals working in primary care, but it may also apply to those in general emergency departments.
- Paediatric specialist: a healthcare professional who has had specific training or has recognised expertise in the management of children and their illnesses. Examples include paediatricians and healthcare professionals working in children's emergency departments.

Key priorities for implementation

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
 - infra-red tympanic thermometer.
- Reported parental perception of a fever should be considered valid and taken seriously by healthcare professionals.

Clinical assessment of the child with fever

- Children with feverish illness should be assessed 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 on page 16).
- 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.

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.

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 one 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
 - 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.
- Oral antibiotics should not be prescribed to children with fever without apparent source.

Key priorities for implementation *continued*

Management by the paediatric specialist

- Infants younger than 3 months with fever should be observed and have the following vital signs measured and recorded:
 - temperature
 - heart rate
 - respiratory rate.
- Children with fever without apparent source presenting to paediatric specialists with one or more 'red' features should have the following investigations performed:
 - full blood count
 - blood culture
 - C-reactive protein
 - urine testing for urinary tract infection¹.
- 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 white blood cell count
 - serum electrolytes and blood gas.

Antipyretic interventions

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

¹ See 'Urinary tract infection in children', NICE clinical guideline (publication expected August 2007).

Assessment of a child with fever

- Check for any immediately life-threatening features (compromise of the **A**irway, **B**reathing or **C**irculation, or **D**ecreased level of consciousness).
- Check for the presence or absence of symptoms and signs that can be used to predict the risk of serious illness by using the traffic light system (see table 1 on page 16).
- Look for a source of fever and check for the presence of symptoms and signs that are associated with specific diseases (see table 2 on page 17).

Detecting fever

- Take all reports of fever seriously.
- Do not routinely measure temperature by the oral or rectal routes.
- Do not use forehead chemical thermometers.

In children younger than 4 weeks

- Use electronic thermometer in the axilla.

In children aged 4 weeks to 5 years

- Use electronic or chemical dot* thermometer in the axilla, or
- Use infra-red tympanic thermometer.

* Consider using an alternative type of thermometer when multiple temperature measurements are required.

Measure and record:

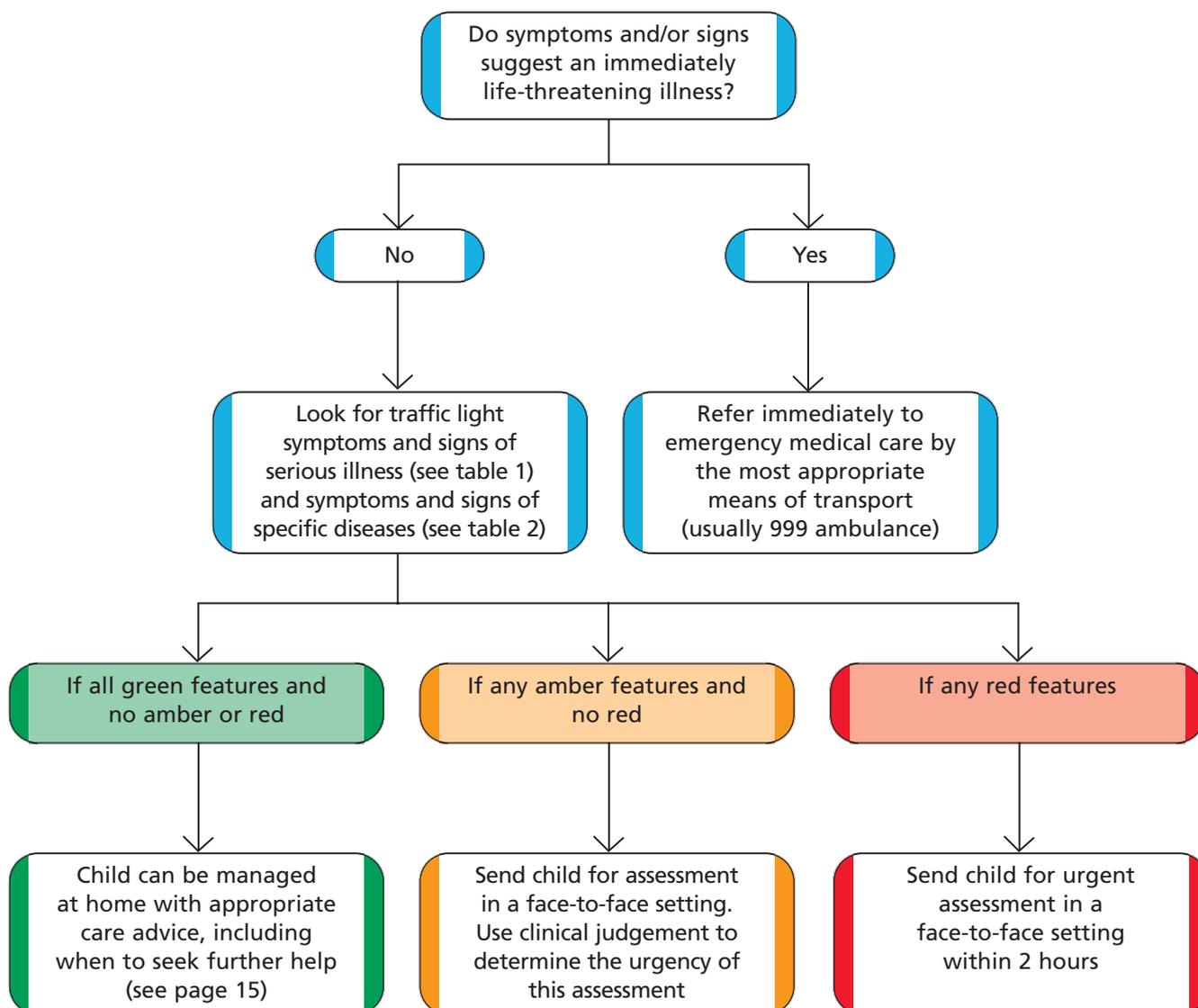
- temperature
- heart rate
- respiratory rate
- capillary refill time.

Assess for signs of dehydration:

- prolonged capillary refill time
 - abnormal skin turgor
 - abnormal respiratory pattern
 - weak pulse
 - cool extremities.
- Do not use duration or height of fever alone to predict the likelihood of serious illness.
 - A raised heart rate can be a sign of serious illness, particularly septic shock.
 - If there is any evidence of circulatory compromise (that is, abnormal heart rate or capillary refill time), and if facilities are available, measure the child's blood pressure.
 - Consider the possibility of an imported infection if the child has recently travelled abroad.

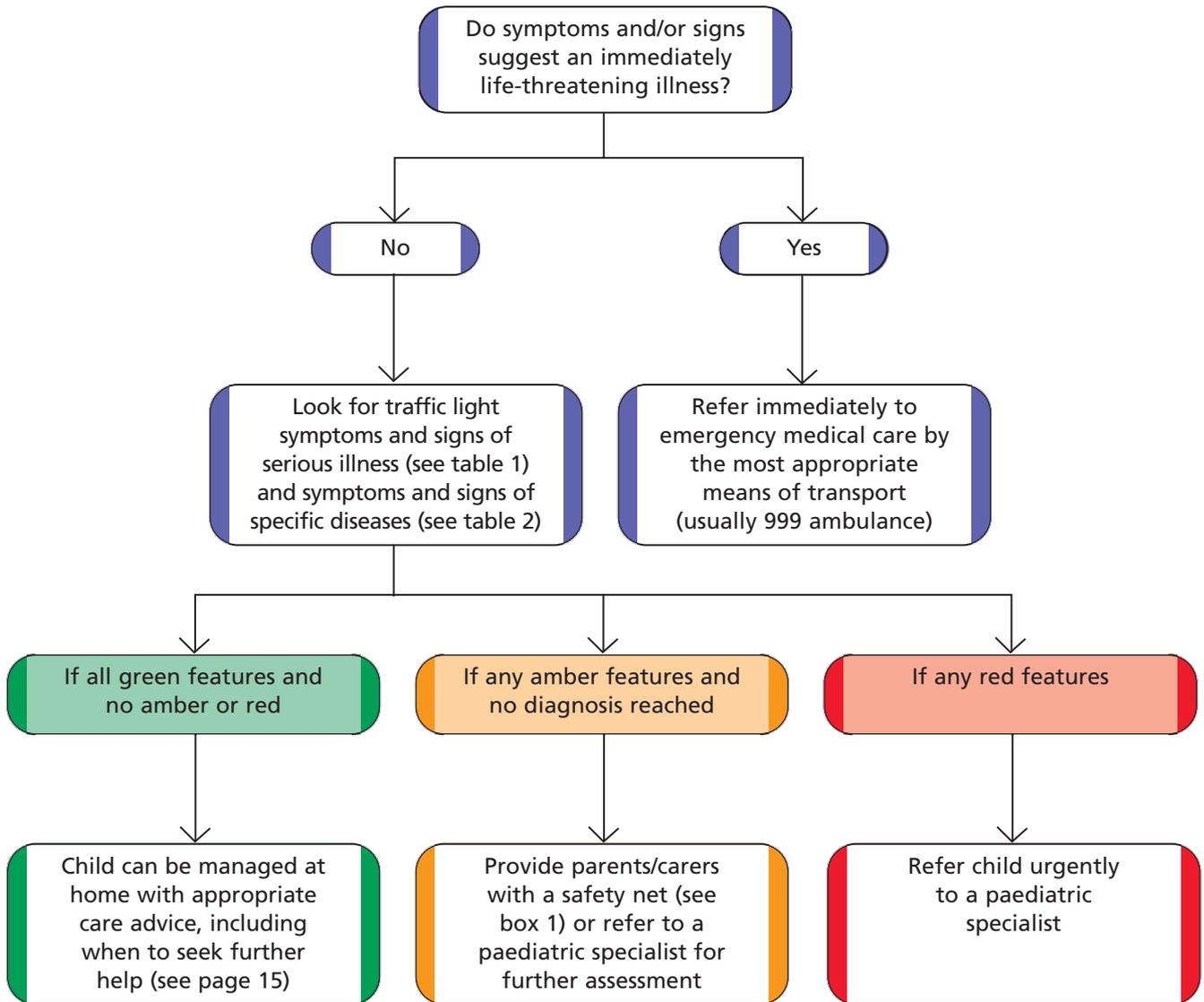
Management by remote assessment

- Carry out as many parts as possible of the assessment described on page 8.



Management by a non-paediatric practitioner

- Carry out an assessment as described on page 8.

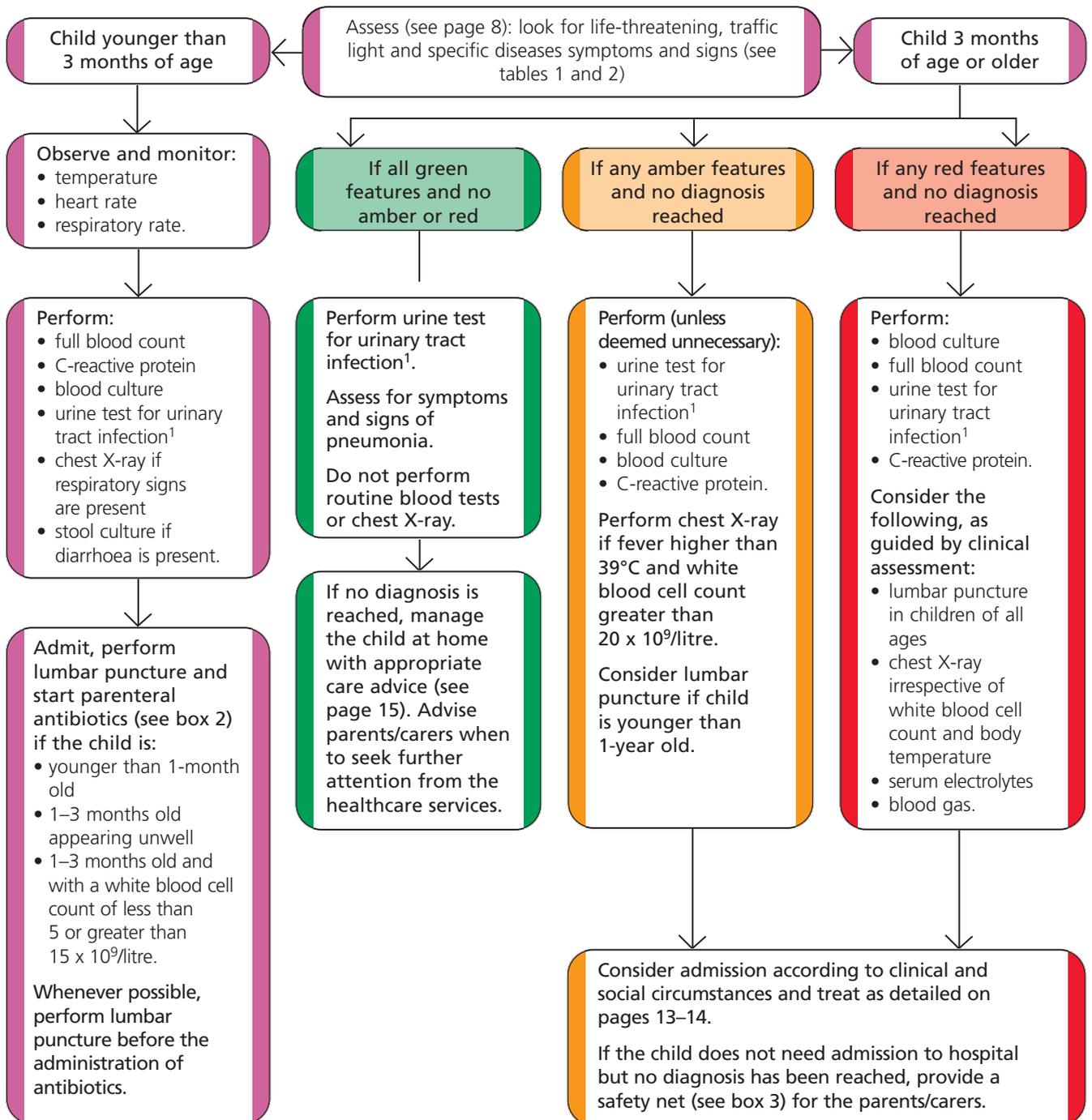


Box 1 The safety net should be one or more of the following

- Provide the parent or carer with verbal and/or written information on warning symptoms and how further healthcare can be accessed.
 - Arrange a follow-up appointment at a certain time and place.
 - Liaise with other healthcare professionals, including out-of-hours providers, to ensure the parent/carer has direct access to a further assessment for their child.
-
- Test urine as recommended in 'Urinary tract infection in children' (NICE clinical guideline, publication expected August 2007).
 - If pneumonia is suspected but the child has not been referred to hospital, do not routinely perform a chest X-ray.
 - Do not prescribe oral antibiotics to a child with fever without apparent source.
 - If meningococcal disease is suspected (see table 2), give parenteral antibiotics at the earliest opportunity (either benzylpenicillin or a third-generation cephalosporin).

Management by a paediatric specialist

- Carry out an assessment as described on page 8.



¹ See 'Urinary tract infection in children', NICE clinical guideline (publication expected August 2007).

Immediate treatment of a child with fever

- Children with shock: give immediate intravenous fluid bolus of 0.9% sodium chloride (20 ml/kg). Give further boluses as necessary.
- Give oxygen if signs of shock, oxygen saturation of less than 92%, or as clinically indicated.
- Give intravenous aciclovir if herpes simplex encephalitis is suspected.
- Assess children with fever and proven respiratory syncytial virus (RSV) or influenza for features of serious illness and consider urine testing for urinary tract infection as recommended in 'Urinary tract infection in children' (NICE clinical guideline, publication expected August 2007).
- Consider a period of observation in hospital (with or without investigations) for children older than 3 months with fever without apparent source to help differentiate non-serious from serious illness.

After administration of antipyretics:

- do not rely on a change in temperature after 1–2 hours to differentiate between serious and non-serious illness
- reassess a child with fever and any 'amber' or 'red' features after 1–2 hours.

Box 2 Antibiotic treatment of suspected bacterial infection

- Give immediate parenteral antibiotics (third-generation cephalosporin, for example, cefotaxime or ceftriaxone) to a child with fever:
 - and signs of shock
 - who is unrousable
 - and signs of meningococcal disease
 - younger than 1 month
 - aged 1–3 months with a white blood cell count less than 5 or greater than 15×10^9 /litre
 - aged 1–3 months who appears unwell.
- If serious bacterial infection is suspected and immediate treatment is required, give antibiotics against *Neisseria meningitidis*, *Streptococcus pneumoniae*, *Escherichia coli*, *Staphylococcus aureus* and *Haemophilus influenzae* type b (for example, a third-generation cephalosporin).
- Add an antibiotic active against Listeria (for example, ampicillin or amoxicillin) if child is younger than 3 months of age.
- Consider parenteral antibiotics in children with a decreased level of consciousness. Look for symptoms and signs of meningitis and herpes simplex encephalitis.
- If rates of antibacterial resistance are significant, refer to local guidelines.

Box 3 The safety net should be one or more of the following

- Provide the parent or carer with verbal and/or written information on warning symptoms and how further healthcare can be accessed.
- Arrange a follow-up appointment at a certain time and place.
- Liaise with other healthcare professionals, including out-of-hours providers, to ensure the parent/carer has direct access to a further assessment for their child.

Admission to hospital

- When deciding whether to admit a child with fever to hospital, consider the child's condition and:
 - the social and family circumstances
 - other illnesses the child or family members have
 - parents' or carers' anxiety and instinct
 - contact with people with serious infectious diseases
 - parents' or carers' concern, causing them to seek help repeatedly
 - recent travel abroad to tropical/subtropical areas, or any high-risk areas for endemic infectious diseases
 - previous family experience of serious illness or death due to feverish illness which has increased their anxiety levels
 - whether the child's fever has no obvious cause but is lasting longer than you would expect for a self-limiting illness.
- If a child with fever is shocked, unrousable or showing signs of meningococcal disease, request an urgent assessment by an experienced paediatrician and consider referral to paediatric intensive care.
- For suspected meningococcal disease, give parenteral antibiotics as soon as possible. The child should be admitted to paediatric care, supervised by a consultant and have their need for inotropes assessed.
- If it is decided that a child does not need to be admitted to hospital, but no diagnosis has been reached, a safety net (see box 1 or 3) should be provided for parents and carers if any 'red' or 'amber' features are present.
- Children with 'green' features can be sent home with advice (see next page).

Antipyretic interventions

- Tepid sponging is not recommended.
- Do not over or under dress a child with fever.
- Consider either paracetamol or ibuprofen as an option if the child appears distressed or is unwell.
- Take the views and wishes of parents and carers into account when considering the use of antipyretic agents.
- Do not routinely give antipyretic drugs to a child with fever with the sole aim of reducing body temperature.
- Do not administer paracetamol and ibuprofen at the same time, but consider using the alternative agent if the child does not respond to the first drug.
- Do not use antipyretic agents with the sole aim of preventing febrile convulsions.

Care at home

- Advise parents and carers:
 - of the antipyretic interventions available (see page 14)
 - to offer their child regular fluids (if breastfeeding then continue as normal)
 - to look for signs of dehydration:
 - ◆ 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 see signs of dehydration
 - how to identify a non-blanching rash
 - to check their child during the night
 - to keep their child away from nursery/school while the fever persists and to notify the nursery/school of the illness.
- Advise parents and carers to seek further advice if:
 - the child has a fit
 - the child develops a non-blanching rash
 - they feel that the child's health is getting worse
 - they are more worried than when they last received advice
 - the fever lasts longer than 5 days
 - they are distressed or concerned that they are unable to look after their child.

Table 1 Traffic light system for identifying likelihood of serious illness

	Green – low risk	Amber – intermediate risk	Red – high risk
Colour	<ul style="list-style-type: none"> Normal colour of skin, lips and tongue 	<ul style="list-style-type: none"> Pallor reported by parent/carer 	<ul style="list-style-type: none"> Pale/mottled/ashen/blue
Activity	<ul style="list-style-type: none"> Responds normally to social cues Content/smiles Stays awake or awakens quickly Strong normal cry/ not crying 	<ul style="list-style-type: none"> Not responding normally to social cues Wakes only with prolonged stimulation Decreased activity No smile 	<ul style="list-style-type: none"> No response to social cues Appears ill to a healthcare professional Unable to rouse or if roused does not stay awake Weak, high-pitched or continuous cry
Respiratory		<ul style="list-style-type: none"> Nasal flaring Tachypnoea: <ul style="list-style-type: none"> RR > 50 breaths/minute age 6–12 months RR > 40 breaths/minute age > 12 months Oxygen saturation \leq 95% in air Crackles 	<ul style="list-style-type: none"> Grunting Tachypnoea: <ul style="list-style-type: none"> RR > 60 breaths/minute Moderate or severe chest indrawing
Hydration	<ul style="list-style-type: none"> Normal skin and eyes Moist mucous membranes 	<ul style="list-style-type: none"> Dry mucous membrane Poor feeding in infants CRT \geq 3 seconds Reduced urine output 	<ul style="list-style-type: none"> Reduced skin turgor
Other	<ul style="list-style-type: none"> None of the amber or red symptoms or signs 	<ul style="list-style-type: none"> Fever for \geq 5 days Swelling of a limb or joint Non-weight bearing/ not using an extremity A new lump > 2 cm 	<ul style="list-style-type: none"> Age 0–3 months, temperature \geq 38°C Age 3–6 months, temperature \geq 39°C Non-blanching rash Bulging fontanelle Neck stiffness Status epilepticus Focal neurological signs Focal seizures Bile-stained vomiting

CRT: capillary refill time
RR: respiratory rate

Table 2 Symptoms and signs of specific diseases

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

CRT: capillary refill time
RR: respiratory rate

¹ Classical signs (neck stiffness, bulging fontanelle, high-pitched cry) are often absent in infants with bacterial meningitis.

² Urinary tract infection should be considered in any child aged younger than 3 months with fever. See 'Urinary tract infection in children' (NICE clinical guideline, publication expected August 2007).

³ Note: in rare cases, incomplete/atypical Kawasaki disease may be diagnosed with fewer features.

Implementation

NICE has developed tools to help organisations implement this guideline (listed below). These are available on our website (www.nice.org.uk/CG047).

- Slides highlighting key messages for local discussion.
- Implementation advice on how to put the guidance into practice and national initiatives which support this locally.
- Costing tools.
- Audit criteria to monitor local practice.

NICE has also developed a discharge advice sheet to support the implementation of this guidance (available from www.nice.org.uk).

Further information

Ordering information

You can download the following documents from www.nice.org.uk/CG047

- A quick reference guide (this document) – a summary of the recommendations for healthcare professionals.
- The NICE guideline – all the recommendations.
- ‘Understanding NICE guidance’ – information for patients and carers.
- The full guideline – all the recommendations, details of how they were developed, and summaries of the evidence they were based on.

For printed copies of the quick reference guide or ‘Understanding NICE guidance’, phone the NHS Response Line on 0870 1555 455 and quote:

- N1247 (quick reference guide)
- N1248 (‘Understanding NICE guidance’).

Related guidance

For information about NICE guidance that has been issued or is in development, see the website (www.nice.org.uk).

- Urinary tract infection in children. NICE clinical guideline (publication expected August 2007).

Updating the guideline

This guideline will be updated as needed, and information about the progress of any update will be posted on the NICE website (www.nice.org.uk/CG047).

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